

*Commenced Publication in 1973*

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

## Editorial Board

David Hutchison

*Lancaster University, UK*

Takeo Kanade

*Carnegie Mellon University, Pittsburgh, PA, USA*

Josef Kittler

*University of Surrey, Guildford, UK*

Jon M. Kleinberg

*Cornell University, Ithaca, NY, USA*

Alfred Kobsa

*University of California, Irvine, CA, USA*

Friedemann Mattern

*ETH Zurich, Switzerland*

John C. Mitchell

*Stanford University, CA, USA*

Moni Naor

*Weizmann Institute of Science, Rehovot, Israel*

Oscar Nierstrasz

*University of Bern, Switzerland*

C. Pandu Rangan

*Indian Institute of Technology, Madras, India*

Bernhard Steffen

*University of Dortmund, Germany*

Madhu Sudan

*Massachusetts Institute of Technology, MA, USA*

Demetri Terzopoulos

*University of California, Los Angeles, CA, USA*

Doug Tygar

*University of California, Berkeley, CA, USA*

Gerhard Weikum

*Max-Planck Institute of Computer Science, Saarbruecken, Germany*

Dimitris Metaxas Leon Axel  
Gabor Fichtinger Gábor Székely (Eds.)

# Medical Image Computing and Computer-Assisted Intervention – MICCAI 2008

11th International Conference  
New York, NY, USA, September 6-10, 2008  
Proceedings, Part II

## Volume Editors

Dimitris Metaxas

Rutgers University, Division of Computer and Information Sciences  
110 Frelinghuysen Road, Piscataway, NJ 08854-8019, USA  
E-mail: dnm@cs.rutgers.edu

Leon Axel

New York University, Department of Radiology  
650 First Avenue, New York, NY 10016, USA  
E-mail: leon.axel@med.nyu.edu

Gabor Fichtinger

Queen's University, School of Computing  
Kingston, Ontario K7L 3N6, Canada  
E-mail: gabor@cs.queensu.ca

Gábor Székely

ETH Zürich, Institut für Bildverarbeitung  
ETF C 117, Sternwartstr. 7, 8092 Zürich, Switzerland  
E-mail: gabor.szekely@vision.ee.ethz.ch

Library of Congress Control Number: 2008934321

CR Subject Classification (1998): I.5, I.4, I.3.5-8, I.2.9-10, J.3, J.6

LNCS Sublibrary: SL 6 – Image Processing, Computer Vision, Pattern Recognition,  
and Graphics

ISSN 0302-9743

ISBN-10 3-540-85989-6 Springer Berlin Heidelberg New York

ISBN-13 978-3-540-85989-5 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springer.com

© Springer-Verlag Berlin Heidelberg 2008

Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India  
Printed on acid-free paper SPIN: 12521722 06/3180 5 4 3 2 1 0

# Preface

The 11th International Conference on Medical Imaging and Computer Assisted Intervention, MICCAI 2008, was held at the Helen and Martin Kimmel Center of New York University, New York City, USA on September 6–10, 2008.

MICCAI is the premier international conference in this domain, with in-depth papers on the multidisciplinary fields of biomedical image computing and analysis, computer assisted intervention and medical robotics. The conference brings together biological scientists, clinicians, computer scientists, engineers, mathematicians, physicists and other interested researchers and offers them a forum to exchange ideas in these exciting and rapidly growing fields.

The conference is both very selective and very attractive: this year we received a record number of 700 submissions from 34 countries and 6 continents, from which 258 papers were selected for publication, which corresponds to a success rate of approximately 36%. Some interesting facts about the distribution of submitted and accepted papers are shown graphically at the end of this preface.

The paper selection process this year was based on the following procedure, which included the introduction of several novelties over previous years.

1. A Program Committee (PC) of 49 members was recruited by the Program Chairs, to get the necessary body of expertise and geographical coverage. All PC members agreed in advance to participate in the final paper selection process.

2. Key words grouped in 7 categories were used to describe the content of the submissions and the expertise of the reviewers.

3. Each submitted paper was assigned to 2 Program Committee members (a primary and a secondary) whose responsibility was to assign each paper to 3 external experts (outside of the Program Committee membership), who provided scores and detailed reports in a double blind procedure.

4. Each primary PC member together with their secondary PC member had to ensure there were no missing reviews. Once they received all three reviews, a novel author *rebuttal* phase was introduced in which the authors could respond to the anonymous reviews, if they did not agree with the reviewer's/reviewers' comments.

5. The Program Committee members provided a set of scores and summary reports for the whole set of papers for which they were responsible (typically 16 papers per PC member). They did this by using the external reviews, the author rebuttal and their own reading of the papers. A summary report by the Primary and Secondary Program Committee members was then written for each paper. Based on the summary report, approximately 36% of the papers were recommended for acceptance.

6. During a two-day meeting at Rutgers University, New Jersey, USA, with all the Program Committee members present, all papers were examined carefully, and special emphasis was placed on borderline papers and oral papers. A

top list of about 120 papers was scrutinized to provide the Program Chairs with a recommended list of 37 podium presentations (approximately 5% of the submitted papers). This recommendation had a reasonable number of oral sessions and spread of content and was adopted by the Program Chairs. The final set of accepted papers has been published in these LNCS proceedings.

7. To increase the time allocated to the 221 excellent accepted poster papers, it was decided in consultation with the MICCAI Society Board to replace the oral poster teasers by continuous video teasers run on large screens during the lunch breaks.

Due to the many submitted papers and the single paper program track, the selection procedure was very selective, and many good papers remained among the 442 rejected. We received 5 factual complaints from the authors of rejected papers. The Program Chairs, in consultation with the relevant Program Committee members who handled the papers and the reviewers, checked carefully that no mistake had been made during the selection procedure. In a few cases, an additional review was requested from an independent Program Committee member. In the end, all the original decisions were maintained and in all cases additional information was provided to the authors to better explain the final decision.

Six MICCAI Young Scientist Awards were presented by the MICCAI Society on the last day of the conference. During the two-day meeting at Rutgers the Program Committee members nominated 18 eligible papers with the highest normalized scores and potential high impact and grouped them into the 6 main categories of the conference. A subgroup of the Program Committee had to vote to elect one paper out of 3 in each category taking into account the paper's presentation at the conference.

The 2008 MedIA-MICCAI Prize was offered by Elsevier to the first author of an outstanding article in the special issue of the Medical Image Analysis Journal dedicated to the previous conference MICCAI 2007. The selection was organized by the guest-editors of this special issue.

Two new awards were also introduced at this year's MICCAI. The first is a new MICCAI Society "*Enduring Impact Award*" sponsored by Philips. This award was given to a paper that was previously published at MICCAI and has proven to have an enduring impact on the field of medical image analysis and computer assisted interventions.

The second was the MICCAI 2008 "*Significant Researcher Award*" sponsored by the organizers of MICCAI 2008 and based on the recommendation of a committee. This award was given to a researcher whose research theme has had a very significant following and impact on one or more of the MICCAI research areas, as well as on other related fields.

We would like to thank the MICCAI Society for providing valuable input and support for the conference and especially Janet Wallace (Robarts Research Institute) for all her efforts and work on making the MICCAI organization a success. We also wish to acknowledge the work of a number of people for their help in putting this conference together. We would like to thank wholeheartedly the

General Chairs, the Program Committee members and the numerous external expert reviewers (who are listed on the next page) for their exceptional work. We would like to thank James Stewart for his support and help related to the MICCAI paper submission and decision making software.

We would also especially like to thank the following people from Rutgers University: Charles McGrew and Rob Toth for providing the necessary software support; Naomi Weinberger, Regina Ribaudo, Maryann Holtsclaw, and Skip Carter for making the final PC meeting possible; the team at the Computational Biomedicine, Biomedicine, Imaging and Modeling Center (CBIM) and especially Zhen Qian for the web support and for liaising with the rest of the organizing committee.

We thank our two invited keynote speakers, Prof. Elliot R. McVeigh, Chairman of the Department of Biomedical Engineering at Johns Hopkins University School of Medicine, and Prof. John Condeelis from the Department of Anatomy and Structural Biology at the Albert Einstein College of Medicine, whose excellent presentations were a highlight of the conference.

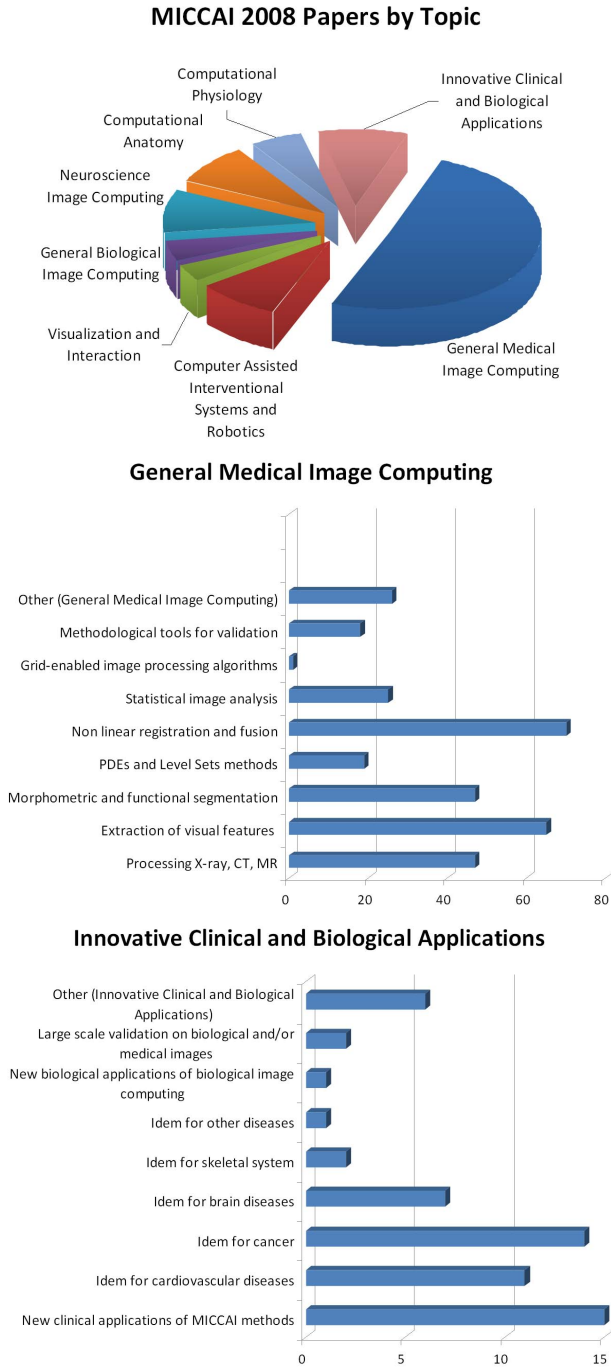
We also note our thanks on page XV to our sponsors, without whose financial assistance the event would have been a far lesser one.

It was our pleasure to welcome the MICCAI 2008 attendees to the NYU Kimmel Center in New York City. The world's most dynamic and cosmopolitan city was a popular choice that also attracted an increased number of physicians and a record number of associated workshops and tutorials.

We look forward to welcoming you to MICCAI 2009, to be held 20-24 September in London, UK, and MICCAI 2010, scheduled to be held in Beijing, China.

September 2008

Dimitris Metaxas  
Leon Axel  
Gabor Fichtinger  
Gabor Szekely



**Fig. 1.** View at a glance of MICCAI 2008 accepted submissions based on the declared primary keyword. A total of 258 full papers were presented.

## MedIA-MICCAI Prizes

### MedIA-MICCAI Prizes 2007

Two prizes were awarded by Elsevier during MICCAI 2007 to the first authors of two outstanding articles of the special issue of the Medical Image Analysis journal (volume 11, issue 5, October 2007) dedicated to the previous MICCAI 2006 conference:

- The first prize was awarded to Kilian M. Pohl (USD 700) for the article entitled: Using the Logarithm of Odds to Define a Vector Space on Probabilistic Atlases, co-authored by: Kilian M. Pohl, John Fisher, Sylvain Bouix, Martha Shenton, Robert W. McCarley, W. Eric L. Grimson, Ron Kikinis and William M. Wells. *Medical Image Analysis 11 (2007) 465–477*.
- The second prize was awarded to Masahiko Nakamoto (USD 300) for the article entitled: Recovery of Respiratory Motion and Deformation of the Liver Using Laparoscopic Freehand 3D Ultrasound System, co-authored by: Masahiko Nakamoto, Hiroaki Hirayama, Yoshinobu Sato, Kozo Konishi, Yoshihiro Kakeji, Makoto Hashizume and Shinichi Tamura. *Medical Image Analysis 11 (2007) 429–442*.



# MICCAI Young Scientist Awards 2007

MICCAI Young Scientist Awards 2007 selection process:

We selected the 21 highest score papers of which the first author was a graduate student. The papers were categorized into one of 7 prize categories (3 papers/category). A sub-set from the program committee voted on the ranking of the 3 papers. The oral or poster presentations were attended before the final decision was made.

– Prize 1: Computational Anatomy

• Winner:

- \* Effects of Registration Regularization and Atlas Sharpness on Segmentation Accuracy, **Boon Thye Thomas Yeo**, *Mert T. Sabuncu, Rahul Desikan, Bruce Fischl, Polina Golland, CSAIL MIT, Boston School of Medicine, Athinoula A. Martinos Center for Biomedical Imaging, USA.*

• Runners-up:

- \* Localized Shape Variations for Classifying Wall Motion in Echocardiograms, **KY Esther Leung**, *Johan G. Bosch, Erasmus MC, NL.*
- \* Automated Segmentation of the Liver from 3D CT Images Using Probabilistic Atlas and Multi-level Statistical Shape Models, **Toshiyuki Okada**, *Ryuji Shimada, Yoshinobu Sato, Masatoshi Hort, Keita Yokota, Masahiko Nakamoto, Yen-Wei Chen, Hironobu Nakamura, Shinichi Tamura. Division of Image Analysis, Department of Radiology, Osaka University and College of Information Science and Engineering, Ritsumeikan University, Japan.*

– Prize 2: Computational Physiology

• Winner:

- \* Modelling Intravasation of Liquid Distension Media in Surgical Simulators, **Stephan Tuchschnid**, *M. Bajka, D. Szezerba, B. Lloyd, G. Szekely, M. Harders, Computer Vision Laboratory, ETH Zurich and Clinic of Gynecology, University Hospital Zurich, Switzerland.*

• Runners-up:

- \* Towards Tracking Breast Cancer Across Medical Images Using Subject-Specific Biomechanical Models, **Vijay Rajagopal**, *Angela Lee, Jae-Hoon Chung, Ruth Warren, Ralph P. Highnam, Poul M.F. Nielsen, Martyn P. Nash, Bioengineering Institute, U. Auckland NZ and Dept. of Radiology, Addenbrooke's Hospital, Cambridge, UK and Highnam Associates Ltd., NZ.*
- \* Real-Time Nonlinear Finite Element Analysis for Surgical Simulation Using Graphics Processing Units, **Zeike A. Taylor**, *Mario Cheng, Sebastien Ourselin, BioMedIA Lab, CSIRO ICT Centre, Brisbane, Australia and CMIC UCL, London, UK.*

- Prize 3: Innovative Clinical and Biological Applications
  - Winner:
    - \* Quantification of Blood Flow from Rotational Angiography, **Irina Waechter**, *J. Bredno, D.C. Barratt, J. Weese, D.J. Hawkes, University College London, UK and Philips Research Aachen, Germany.*
  - Runners-up:
    - \* Needle Insertion Force Modeling Using Ultrasound Displacement Measurement, **Ehsan Dehghan**, *Xu Wen, Reza Zahiri-Azar, Maud Marchal, Septimiu E. Salucusean, Dept ECE, U. British Columbia, Canada, TINC-GMCAO Laboratory, Grenoble, France.*
    - \* Functional Near Infrared Spectroscopy in Novice and Expert Surgeons - a Manifold Embedding Approach, **Daniel R Leff**, *Felipe Orihuela-Espina, Louis Atallah, Ara Darzi, Guang-Zhong Yang, Imperial College London, UK.*
- Prize 4: Visualization and Interaction
  - Winner:
    - \* Simulation and Fully Automatic Multimodal Registration of Medical Ultrasound, **Wolfgang Wein**, *Ali Kharmene, Dirk-Andre Clevert, Oliver Kutter, Nassir Navab, Siemens Corporate Research Princeton USA and CAMP, Technische Universität München, Germany and University Hospital Munich-Grosshadern, Germany.*
  - Runners-up:
    - \* Three-Dimensional Ultrasound Mosaicing, **Christian Wachinger**, *Wolfgang Wein, Nassir Navab, CAMP, Technische Universität München, Germany and Siemens Corporate Research, Princetown, USA.*
    - \* pq-space Based Non-photorealistic Rendering for Augmented Reality, **Mirna Lerotic**, *Adrian J. Chung, George Mylona, Guang-Zhong Yang, Imperial College London, UK.*
- Prize 5: Biological and Neuroscience Image Computing
  - Winner:
    - \* Cell Population Tracking and Lineage Construction with Spatiotemporal Context, **Kang Li**, *Mei Chen, Takeo Kanade, Carnegie Mellon University, Intel Research, Pittsburgh, USA.*
  - Runners-up:
    - \* In-utero Three Dimension High Resolution Fetal Brain Diffusion Tensor Imaging, **Shuzhou Jiang**, *H. Xue, S. Counsell, M. Anjari, J. Allsop, M. Rutherford, D. Rueckert, J.V. Hajnal, Imperial College London, UK.*
    - \* Contributions to 3D Diffeomorphic Atlas Estimation: Application to Brain Images, **Matias Bossa**, *Monica Hernandez, Salvador Olmos, University of Zaragoza, Spain.*
- Prize 6: Computer Assisted Intervention Systems and Robotics
  - Winner:
    - \* Cardiolock: An Active Cardiac Stabilizer - First In Vivo Experiments Using a New Robotized Device, **Wael Bachta**, *Pierre Renaud, Edouard Laroche, Jacques Gangloff, Antonello Forgione, LSIIT Strasbourg and LGeCo INSA Strasbourg and University Hospital of Strasbourg, France.*

- Runners-up:
  - \* Automatic Target and Trajectory Identification for Deep Brain Stimulation (DBS) Procedures, **Ting Guo**, Andrew G. Parrent, Terry M. Peters, Robarts Research Institute, U. Western Ontario, The London Health Sciences Centre, Dept. Neurosurgery, London, Ontario, Canada.
  - \* Closed-Loop Control in Fused MR-TRUS Image-Guided Prostate Biopsy, **Sheng Xu**, Jochen Kruecker, Peter Guion, Neil Glossop, Ziv Neeman, Peter Choyke, Anurag K. Singh, Bradford J. Wood, Philips Research North America Briarcliff, NIH Bethesda USA and Traxtal Inc. Toronto, Canada.
- Prize 7: Medical Image Computing
  - Winner:
    - \* Multivariate Normalization with Symmetric Diffeomorphisms for Multivariate Studies, **Brian B. Avants**, J.T. Duda, H. Zhang, J.C. Gee, University of Pennsylvania, USA.
  - Runners-up:
    - \* A Hierarchical Unsupervised Clustering Scheme for Detection of Prostate Cancer from Magnetic Resonance Spectroscopy (MRS), **Pallavi Tiwari**, Anant Madabhushi, Mark Rosen, Rutgers University and University of Pennsylvania, USA.
    - \* Non-parametric Diffeomorphic Image Registration with the Demons Algorithm, **Tom Vercauteren**, Xavier Pennec, Aymeric Perchant, Nicholas Ayache, INRIA Sophia-Antipolis and Mauna Kea Technologies, Paris, France.

Previous Years' Winners of MedIA-MICCAI Prize Awards

- In 2006, the prize was offered to T. Vercauteren, first author of the article:
 

*T. Vercauteren, A. Perchant, X. Pennec, G. Malandain and N. Ayache, "Mosaicing of Confocal Microscopic In Vivo Soft Tissue Video Sequences".*
- In 2005, the prize was offered to D. Burschka and M. Jackowski who are the first authors of the articles:
 

*D. Burschka, M. Li, M. Ishii, R.H. Taylor, G.D. Hager, "Scale Invariant Registration of Monocular Endoscopic Images to CT-Scans for Sinus Surgery".*

*M. Jackowski, C.Y. Kao, M. Qiu, R.T. Constable, L.H. Staib, "White Matter Tractography by Anisotropic Wavefront Evolution and Diffusion Tensor Imaging".*

# Organization

## Executive Committee

General Chair	Dimitris Metaxas (Rutgers University, USA)
General Co-chair	Leon Axel (NYUMC, USA)
General Co-chair	Brian Davies (Imperial College, UK)
Program Chair	Dimitris Metaxas (Rutgers University, USA)
Program Chair	Leon Axel (NYUMC, USA)
Program Chair	Gabor Fichtinger (Queens, Canada)
Program Chair	Gabor Szekely (ETH, Switzerland)

## Program Committee

Amir A. Amini (University of Louisville, USA)  
Elsa Angelini (ENST, France)  
Christian Barrillot (IRISA, France)  
Margit Betke (Boston University, USA)  
Wolfgang Birkfellner (University of Vienna, Austria)  
Ela Claridge (University of Birmingham, UK)  
Stephane Cotin (INRIA, France)  
James Duncan (Yale, USA)  
Randy Ellis (Queen's University, Canada)  
Jim Gee (University of Pennsylvania, USA)  
Guido Gerig (University of North Carolina, USA)  
Polina Golland (MIT, USA)  
Matthias Harders (ETH, Switzerland)  
Nobuhiko Hata (Harvard / BWH, USA)  
David Hawkes (University College London, UK)  
Tianzi Jiang (The Chinese Academy of Sciences, China)  
Ioannis Kakadiaris (University of Houston, USA)  
Peter Kazanzides (Johns Hopkins, USA)  
Erwin Keeve (CAESAR, Germany)  
Joachim Kettenbach (University of Vienna, Austria)  
Chandra Khambhamettu (University of Delaware, USA)  
Ali Khamene (Siemens Corporate Research, USA)  
Vartan Kurtcuoglu (ETH, Switzerland)  
Andrew Laine (Columbia University, USA)  
Alan Liu (National Capital Area Medical Simulation Center, USA)  
Yanxi Liu (Pennsylvania State University, USA)  
Gregoire Malandain (INRIA, France)  
Edoardo Mazza (ETH, Switzerland)

Michael Miga (Vanderbilt University, USA)  
Kensaku Mori (Nagoya University, Japan)  
Nassir Navab (University of Munich, Germany)  
Poul Nielsen (University of Auckland, New Zealand)  
Sebastien Ourselin (University College London, UK)  
Nikos Paragios (Ecole Centrale Paris, France)  
Terry Peters (Robarts Research Inst., Canada)  
Jens Rittscher (GE Global Research, USA)  
Rich Robb (Mayo Clinic, USA)  
Ichiro Sakuma (University of Tokyo, Japan)  
Tim Salcudean (University of British Columbia, Canada)  
Yoshinobu Sato (University of Osaka, Japan)  
Dingang Shen (University of Pennsylvania, USA)  
Marc Thiriet (INRIA, France)  
Jocelyne Troccaz (TIMC-IMAG, Grenoble, France)  
Baba Vemuri (University of Florida, USA)  
Simon Warfield (Harvard University, USA)  
Sandy Wells (Harvard / BWH, USA)  
Carl-Fredrik Westin (Harvard / BWH, USA)  
Guang Zhong Yang (Imperial College, UK)  
Alistair Young (University of Auckland, New Zealand)

## MICCAI Board

Nicholas Ayache, INRIA, Sophia Antipolis, France  
Kevin Cleary, Georgetown University, Washington DC, USA  
James Duncan, Yale University, New Haven, Connecticut, USA  
Gabor Fichtinger, Queen's University, Kingston, Ontario, Canada  
Guido Gerig, University of Utah, Salt Lake City, Utah, USA  
Anthony Maeder, University of Western Sydney, Australia  
Dimitris Metaxas, Rutgers University, Piscataway Campus, New Jersey, USA  
Nassir Navab, Technische Universität, München, Germany  
Alison Noble, University of Oxford, Oxford, UK  
Sebastien Ourselin, University College London, UK  
Terry Peters, Robarts Research Institute, London, Ontario, Canada  
Richard Robb, Mayo Clinic College of Medicine, Rochester, Minnesota, USA  
Ichiro Sakuma, University of Tokyo, Japan  
Guang-Zhong Yang, Imperial College, London, UK

## MICCAI Society

### Executive Officers

President	James Duncan
Executive Director	Richard Robb

Executive Secretary	Nicholas Ayache
Treasurer	Terry Peters
Elections Officer (Honorary Board member)	Karl Heinz Hoehne
Awards Coordinator	Alison Noble

### **Society Staff**

Membership Coordinator	Gabor Szekely
Publication Coordinator	Nobuhiko Hata
Communications Coordinator	Kirby Vosburgh
Industry Relations Coordinator	Tina Kapur
Society Secretariat	Janette Wallace

### **Local Planning Committee**

Sponsors and Exhibitors	Jens Rittscher Kevin Zhou Ioannis Pavlidis Janette Wallace
Tutorials and Workshops	Andrew Laine Elsa Angelini Elisa Konofagou Anant Madabhushi Janette Wallace
Conference Manager	Johanne Guillemette
Conference Coordinator	Jackie Williams
Web/Technical Proceedings Support	Zhen Qian

### **MICCAI 2008 Sponsors**

Northern Digital, Inc.  
Medtronic, Inc.  
Siemens Corporate Research  
Philips  
GE

### **Sponsoring Institutions**

Rutgers University  
New York University  
Robarts Research Institute

## Reviewers

Abdelmunim, Hossam  
 Abolmaesumi, Purang  
 Aboofazeli, Mohammad  
 Abugharbieh, Rafeef  
 Acar, Burak  
 Acosta, Eric  
 Acosta Tamayo, Oscar  
 Adam, Clayton  
 Ahn, Bummo  
 Aja-Fernandez, Santiago  
 Akselrod-Ballin, Ayelet  
 Al-Diri, Bashir  
 Alexander, Andrew  
 Alexander, Daniel  
 Ali, Asem  
 Aljabar, Paul  
 Allassonnire, Stphanie  
 Alterovitz, Ron  
 Amini, Amir  
 An, Jungha  
 Angelini, Elsa  
 Angelopoulou, Elli  
 Aouadi, Souha  
 Archip, Neculai  
 Arganda-Carreras, Ignacio  
 Arridge, Simon R.  
 Atkinson, David  
 Aubert-Broche, Berengere  
 August, Jonas  
 Avants, Brian  
 Awate, Suyash  
 Azar, Fred S.  
 Bach Cuadra, Meritxell  
 Baillet, Sylvain  
 Banks, Scott  
 Barbu, Adrian  
 Bardinet, Eric  
 Barillot, Christian  
 Barmpoutis, Angelos  
 Barra, Vincent  
 Bartz, Dirk  
 Basdogan, Cagatay  
 Batchelor, Philip  
 Bathula, Deepti R.  
 Bazin, Pierre-Louis  
 Beek, Maarten  
 Beichel, Reinhard  
 Bello, Musodiq  
 Bello, Fernando  
 Bengtsson, Ewert  
 Berlinger, Kajetan  
 Betke, Margrit  
 Bhattacharya, Mousumi  
 Bhotika, Rahul  
 Bhuiyan, Alauddin  
 Bichlmeier, Christoph  
 Birkfellner, Wolfgang  
 Bischof, Horst  
 Blanc-Fraud, Laure  
 Blezek, Daniel  
 Bloch, Isabelle  
 Blum, Tobias  
 Blume, Moritz  
 Boctor, Emad  
 Boettger, Thomas  
 Bond, Sarah  
 Bosch, Johan  
 Bouix, Sylvain  
 Bouman, Charles  
 Bourgeat, Pierrick  
 Bove, Michael  
 Boykov, Yuri  
 Bresson, Xavier  
 Brown, Matthew  
 Brun, Caroline  
 Brunner, Gerd  
 Buckley, David  
 Buehler, Katja  
 Bullitt, Elizabeth  
 Burschka, Darius  
 Butson, Christopher  
 Cahill, Nathan  
 Camp, Jon  
 Capel, David  
 Cardenas, Valerie  
 Carmichael, Owen  
 Castano Moraga, Carlos Alberto  
 Cates, Joshua

Cattin, Philippe C.  
 Cebral, Juan  
 Chakravarty, M. Mallar  
 Chaney, Edward  
 Chang, Ruey-feng  
 Charpiat, Guillaume  
 Chefd'hotel, Christophe  
 Chen, Jian  
 Chendeb, Safwan  
 Chinzei, Kiyoyuki  
 Christensen, Gary  
 Chua, Joselito  
 Chung, Albert C.S.  
 Ciofolo, Cybele  
 Ciuciu, Philippe  
 Claridge, Ela  
 Clarysse, Patrick  
 Cleary, Kevin  
 Clerc, Maureen  
 Clouchoux, Cdric  
 Cody Hazlett, Heather  
 Cohen, Laurent  
 Collins, D. Louis  
 Colliot, Olivier  
 Comaniciu, Dorin  
 Comas, Olivier  
 Commowick, Olivier  
 Cong, Wenxiang  
 Cook, Philip  
 Cootes, Tim  
 Corso, Jason  
 Cotin, Stephane  
 Coulon, Olivier  
 Cowan, Brett  
 Crum, William  
 Curtis, Maurice  
 Dam, Erik  
 Davatzikos, Christos  
 David, Olivier  
 Davis, Brad  
 Dawant, Benoit  
 de Bruijne, Marleen  
 De Buck, Stijn  
 De Craene, Mathieu  
 de Luis Garcia, Rodrigo  
 Debayle, Johan  
 Deguchi, Daisuke  
 Dehghan, Ehsan  
 Delingette, Herv  
 Demirci, Stefanie  
 Deng, Xiang  
 Denney, Tom  
 Deriche, Rachid  
 Desbarats, Pascal  
 Descoteaux, Maxime  
 Desvignes, Michel  
 Devarajan, Venkat  
 Dey, Joyoni  
 Dhawan, Atam  
 DiBella, Edward  
 Dijkstra, Jouke  
 DiMaio, Simon  
 Doignon, Christophe  
 Doorly, Denis  
 Dorval, Thierry  
 Douiri, Abdel  
 Dowsey, Andrew  
 Duan, Ye  
 Duan, Qi  
 Dubois, Patrick  
 Duchesne, Simon  
 Duncan, James S  
 Dupont, Pierre  
 Durrleman, Stanley  
 Edmunds, Timothy  
 Edwards, Philip  
 Eggers, Georg  
 Ehtiati, Tina  
 El-Baz, Ayman  
 Elgort, Daniel  
 Elhawary, Haytham  
 Ellis, Randy  
 Elter, Matthias  
 El-Zehiry, Noha  
 Engel, Karin  
 Ennis, Daniel  
 Ertel, Dirk  
 Essa, Irfan  
 Ewers, Michael  
 Fahey, Frederic



XVIII Organization

Fahmi, Rachid  
Fan, Yong  
Farag, Aly  
Fei, Jin  
Fenster, Aaron  
Fetita, Catalin  
Feuerstein, Marco  
Figl, Michael  
Fillard, Pierre  
Finlay, Patrick  
Fischer, Gregory  
Fischer, Bernd  
Fleig, Oliver  
Fletcher, P. Thomas  
Florin, Charles  
Folkesson, Jenny  
Forest, Clement  
Formaggia, Luca  
Freysinger, Wolfgang  
Fripp, Jurgen  
Fritscher, Karl  
Funka-Lea, Gareth  
Gangloff, Jacques  
Gao, Gang  
Ge, Weina  
Gee, Andrew  
Gee, James  
Geng, Xiujuan  
Gerig, Guido  
Gibaud, Bernard  
Gilland, David  
Gillies, Duncan  
Gilson, Wesley  
Glocker, Ben  
Gobbi, David  
Goh, Alvina  
Goksel, Orcun  
Golland, Polina  
Gong, Qiyong  
Goodlett, Casey  
Goris, Michael  
Grady, Leo  
Grange, Sebastien  
Grau, Vicente  
Gribbestad, Ingrid  
Groher, Martin  
Grova, Christophe  
Gu, Lixu  
Guehring, Jens  
Guerrero, Julian  
Guetter, Christoph  
Guo, Hongyu  
Hadjidemetriou, Stathis  
Haker, Steven  
Hall, Matt  
Hamarneh, Ghassan  
Hanson, Dennis  
Harders, Matthias  
Hartley, Richard  
Hastenteufel, Mark  
Hastreiter, Peter  
Hata, Nobuhiko  
Hawkes, David  
Haynor, David  
He, Renjie  
He, Huiguang  
Hedjazi Moghari, Mehdi  
Heibel, Tim Hauke  
Heiberg, Einar  
Heimann, Tobias  
Hellier, Pierre  
Hermosillo, Gerardo  
Higgins, William  
Hipwell, John  
Hirsch, Sven  
Hirschmiller, Heiko  
Histace, Aymeric  
Hladuvka, Jiri  
Ho, Jeff  
Hodgson, Antony  
Hoffmann, Kenneth  
Hofhauser, Andreas  
Hofmann, Ulrich  
Holmes, Jeff  
Holmes, David  
Hong, Jaesung  
Hong, Wei  
Hontani, Hidekata  
Hornegger, Joachim  
Hotz, Ingrid

Howe, Robert  
Hu, Mingxing  
Huang, Heng  
Huang, Xiaolei  
Hughes, Mike  
Hummel, Johann  
Hunter, Peter  
Izard, Camille  
Jain, Ameet  
Janke, Andrew  
Jannin, Pierre  
Jaramaz, Branislav  
Jerebko, Anna  
Jerosch-Herold, Michael  
Ji, Songbai  
Jian, Bing  
Jiang, Yifeng  
Jiang, Tianzi  
Jin, Ge  
John, Nigel  
Johnston, Leigh  
Jolly, Marie-Pierre  
Jomier, Julien  
Jones, Arthur  
Jordan, Petr  
Joshi, Anand  
Joshi, Sarang  
Kaban, Ata  
Kakadiaris, Ioannis  
Kambhamettu, Chandra  
Kambhametu, Chandra  
Karjalainen, Pasi  
Karron, D.B.  
Karssemeijer, Nico  
Kaus, Michael  
Kazanides, Peter  
Keeve, Erwin  
Keil, Andreas  
Kennedy, David  
Kerckhoffs, Roy  
Kerr, Andrew  
Kerrien, Erwan  
Khamene, Ali  
Khayrul, Md. Khayrul  
Khodarahmi, Iman  
Kikinis, Ron  
Kim, Boklye  
Kindlmann, Gordon  
King, Andrew  
Kitasaka, Takayuki  
Klinder, Tobias  
Kobashi, Syoji  
Konofagou, Elisa  
Kontos, Despina  
Krissian, Karl  
Krueger, Timo  
Kukuk, Markus  
Kurazume, Ryo  
Kurkure, Uday  
Kurtcuoglu, Vartan  
Kutter, Oliver  
Kybic, Jan  
Kyung, Ki-Uk  
Lai, Shang-Hong  
Laine, Andrew  
Lambrou, Tryphon  
Landman, Bennett  
Langs, Georg  
Lapeer, Rudy  
Larsen, Rasmus  
Lasowski, Ruxandra  
Leahy, Richard  
Lee, Jack  
Lee, Jeongjin  
Lee, Su-Lin  
Lee, Noah  
Leemans, Alexander  
Lekadir, Karim  
Lelieveldt, Boudewijn  
Lenglet, Christophe  
Lepore, Natasha  
Lerotic, Mirna  
Lesage, David  
Li, Kang  
Li, Rui Rachel  
Li, Shuo  
Li, Ming  
Liang, Jianming  
Liao, Hongen  
Lienard, Jean

Lin, Xiang  
Lingurar, Marius George  
Linte, Cristian  
Liu, Huafeng  
Liu, Tianming  
Liu, Alan  
Liu, Yanxi  
Lloyd, Bryn  
Loeckx, Dirk  
Loew, Murray  
Lohmann, Gabriele  
Lorenz, Cristian  
Lucas, Yves  
Ma, Burton  
Madabhushi, Anant  
Maddah, Mahnaz  
Madore, Bruno  
Maeder, Anthony  
Maes, Frederik  
Magee, John  
Maier-Hein, Lena  
Makram-Ebeid, Sherif  
Malandain, Gregoire  
Mangin, Jean-Francois  
Marchal, Maud  
Martel, Anne  
Marti, Gaetan  
Martin-Fernandez, Marcos  
Masamune, Ken  
Mattes, Julian  
Maurer, Jr., Calvin R.  
Mazza, Edoardo  
McClelland, Jamie  
McDannold, Nathan  
McGraw, Tim  
McInerney, Tim  
Meas-Yedid, Vannary  
Megalooikonomou, Vasileios  
Meijering, Erik  
Melbourne, Andrew  
Melonakos, John  
Menard, Cynthia  
Mendonca, Paulo  
Menegaz, Gloria  
Merhof, Dorit  
Meyer, Francois  
Meyer, Chuck  
Mignotte, Max  
Modat, Marc  
Modersitzki, Jan  
Mohamed, Ashraf  
Mollemans, Wouter  
Moradi, Mehdi  
Moratal, David  
Morel, Guillaume  
Mori, Kensaku  
Morris, Dan  
Mou, Xuanqin  
Mousavi, Parvin  
Mukherjee, Lopamudra  
Murgasova, Maria  
Murray, Lawrence  
Myronenko, Andriy  
Nakajima, Yoshikazu  
Nakamoto, Masahiko  
Nash, Martyn  
Navab, Nassir  
Neghadar, Mohammadreza  
Nicolau, Stephane  
Nielsen, Poul  
Niessen, Wiro  
Niethammer, Marc  
Nikou, Christophoros  
Noble, Alison  
Noel, Peter  
Nolte, Lutz  
Novotny, Paul  
Nowinski, Wieslaw L.  
Oddou, Christian  
O'Donnell, Lauren  
O'Donnell, Thomas  
Ogier, Arnaud  
Okada, Kazunori  
Okamura, Allison M.  
Olabarriaga, Silvia  
Olgac, Ufuk  
Oliver, Arnau  
Olivo-Marin, Jean-Christophe  
Olmos, Salvador  
Olszewski, Mark

Orkisz, Maciej  
 Ortmaier, Tobias  
 Osman, Nael  
 Otake, Yoshito  
 Ou, Wanmei  
 Ourselin, Sebastien  
 Padfield, Dirk  
 Padoy, Nicolas  
 Pai, Vinay  
 Palaniappan, Kannappan  
 Pan, Xiao-Bo  
 Pang, Wai-Man  
 Papademetris, Xenios  
 Papadopoulo, Tho  
 Paragios, Nikos  
 Park, Hae-Jeong  
 Park, Hyunjin  
 Passat, Nicolas  
 Patel, Rajni  
 Patriciu, Alexandru  
 Paulsen, Keith  
 Paulsen, Rasmus  
 Payandeh, Shahram  
 Pedersen, Michael  
 Pekar, Vladimir  
 Pennec, Xavier  
 Penney, Graeme  
 Periaswamy, Senthil  
 Pernus, Franjo  
 Perperidis, Dimitrios  
 Peter, Adrian  
 Peters, Terry M.  
 Petroudi, Styliani  
 Pezzementi, Zachary  
 Pham, Dzung  
 Pichon, Eric  
 Pieper, Steve  
 Pitiot, Alain  
 Pizer, Stephen  
 Platel, Bram  
 Pluim, Josien  
 Pock, Thomas  
 Podder, Tarun  
 Pohl, Kilian Maria  
 Poignet, Philippe  
 Pott, Peter  
 Poupon, Cyril  
 Prasad, Mithun  
 Prastawa, Marcel  
 Prima, Sylvain  
 Prince, Jerry L.  
 Promayon, Emmanuel  
 Pruemmer, Marcus  
 Qazi, Arish Asif  
 Qian, Zhen  
 Qian, Xiaoning  
 Radeva, Petia  
 Rajagopal, Vijayaraghavan  
 Rajagopalan, Srinivasan  
 Rajpoot, Nasir  
 Rajwade, Ajit  
 Rangarajan, Anand  
 Rasche, Volker  
 Rath, Yogesh  
 Reinertsen, Ingerid  
 Reinhardt, Joseph  
 Remme, Espen  
 Restif, Christophe  
 Rettmann, Maryam  
 Rexilius, Jan  
 Rezk Salama, Christof  
 Ridgway, Gerard  
 Rietzel, Eike  
 Rittscher, Jens  
 Rivaz, Hassan  
 Rivera, Mariano  
 Robb, Richard A.  
 Roche, Alexis  
 Rodriguez y Baena, Ferdinando  
 Rodriguez-Florido, Miguel Angel  
 Rohde, Gustavo  
 Rohlfig, Torsten  
 Rohling, Robert  
 Rohr, Karl  
 Ross, James  
 Rougon, Nicolas  
 Rousseau, Francois  
 Roy, Arunabha  
 Rueckert, Daniel  
 Rueda, Sylvia

Ruiter, Nicole  
Sabuncu, Mert  
Sabuncu, Mert Rory  
Sachse, Frank  
Sakuma, Ichiro  
Salcudean, Tim  
Salvado, Olivier  
Samset, Eigil  
Santamaria-Pang, Alberto  
Sarrut, David  
Sato, Yoshinobu  
Sbalzarini, Ivo  
Scherrer, Benoit  
Schmid, Volker  
Schnabel, Julia A.  
Schultz, Thomas  
Schwartz, Jean-Marc  
Schwarz, Tobias  
Schweikard, Achim  
Seger, Michael  
Sermesant, Maxime  
Shah, Shishir  
Shakeri, Mostafa  
Shams, Ramtin  
Sharma, Aayush  
Sharma, Cartik  
Sharp, Greg  
Shen, Li  
Shen, Hong  
Shen, Dinggang  
Shi, Yonggang  
Shimizu, Akinobu  
Siddiqi, Kaleem  
Sielhorst, Tobias  
Siewerdsen, Jeffrey  
Sikdar, Siddhartha  
Simaan, Nabil  
Singh, Vikas  
Sinha, Tuhin  
Skrinjar, Oskar  
Smal, Ihor  
Smedby, Orjan  
Sofka, Michal  
Song, Xubo  
Song, Ting  
Sorensen, Thomas Sangild  
Souchon, Remi  
Sparr, Gunnar  
Sporryng, Jon  
Srivastava, Anuj  
Staib, Lawrence  
Stegmann, Mikkel B.  
Stetten, George  
Stewart, James  
Stoeckel, Jonathan  
Stolka, Philipp  
Stoll, Jeff  
Stough, Joshua  
Stoyanov, Danaïl  
Strother, Stephen  
Studholme, Colin  
Styles, Iain  
Styner, Martin  
Suarez, Eduardo  
Subakan, Ozlem  
Subramanian, Navneeth  
Suinesiaputra, Avan  
Summers, Ronald  
Sun, Hui  
Sundar, Hari  
Szczërba, Dominik  
Szewczyk, Jerome  
Szilagyi, Laszlo  
Tagare, Hemant  
Talbot, Hugues  
Tan, Shan  
Tanner, Christine  
Tanter, Mickael  
Taron, Maxime  
Tasdizen, Tolga  
Tawhai, Merryn  
Taylor, Zeike  
Tedgui, Alain  
Tek, Huseyin  
Tendick, Frank  
ter Haar Romeny, Bart M.  
Teschner, Matthias  
Tetzlaff, Ralf  
Teverovskiy, Leonid  
Thalmann, Daniel

Thiran, Jean-Philippe  
Thiriet, Marc  
Thirion, Bertrand  
Thomas, Mani  
Thomaz, Carlos  
Tian, Tai-Peng  
Tieu, Kinh  
Tita, Ralf  
Todd Pokropek, Andrew  
Toews, Matthew  
Tokuda, Junichi  
Torabi, Meysam  
Toro, Javier  
Tosun, Duygu  
Traub, Joerg  
Troccaz, Jocelyne  
Tsechenakis, Gavriil  
Tu, Zhuowen  
Tustison, Nicholas  
Twellmann, Thorsten  
Tzafestas, Costas  
Unal, Gozde  
Urschler, Martin  
Vaillant, Regis  
van der Kouwe, Andre  
van Ginneken, Bram  
Van Leemput, Koen  
van Walsum, Theo  
Vannier, Michael  
Vemuri, Baba  
Ventikos, Yiannis  
Vercauteren, Tom  
Verma, Ragini  
Vicini, Paolo  
Vidal, Rene  
Vilanova, Anna  
Villard, Caroline  
von Berg, Jens  
Vosburgh, Kirby  
Vrtovec, Tomaz  
Wachinger, Christian  
Wai, Lionel C.C.  
Wang, Hui  
Wang, Linwei  
Wang, Zhizhou  
Wang, Song  
Wang, Defeng  
Wang, Fei  
Wang, Yongmei Michelle  
Warfield, Simon  
Washio, Toshikatsu  
Wassermann, Demian  
Weese, Jrgen  
Wein, Wolfgang  
Weiskopf, Daniel  
Wells, William  
West, Jay  
Westin, Carl-Fredrik  
Whitaker, Ross  
Whitcher, Brandon  
White, Mark  
Wiemker, Rafael  
Wiles, Andrew  
Wolf, Ivo  
Worz, Stefan  
Wright, Graham  
Wu, Guorong  
Wu, Xiaodong  
Wu, Zheng  
Wuensche, Burkhard  
Wyatt, Chris  
Xia, Junyi  
Xing, Ye  
Xu, Dongrong  
Xu, Sheng  
Xue, Hui  
Xue, Zhong  
Yan, Kaiguo  
Yan, Pingkun  
Yang, Fuxing  
Yang, Guang Zhong  
Yaniv, Ziv  
Yao, Jianhua  
Yendiki, Anastasia  
Yeo, Boon Thye  
Yoo, Seung-Schik  
Yoo, Terry  
Yoshida, Hiro  
Young, Alistair  
Yuan, Quan

XXIV Organization

Yue, Ning  
Yushkevich, Paul  
Zacharaki, Evangelia  
Zachow, Stefan  
Zhan, Yiqiang  
Zhan, Wang  
Zhang, Qi  
Zhang, Hui  
Zhang, Heye  
Zhang, Xiangwei  
Zhang, Yong  
Zhao, Fei

Zheng, Yuanjie  
Zheng, Guoyan  
Zheng, Yefeng  
Zhong, Hualiang  
Zhou, Jinghao  
Zhou, S. Kevin  
Zhu, Hongtu  
Zhu, Yun  
Zikic, Darko  
Ziyan, Ulas  
Zollei, Lilla  
Zwiggelaar, Reyer

## Table of Contents – Part II

### Miscellaneous II

Computational Pathology Analysis of Tissue Microarrays Predicts Survival of Renal Clear Cell Carcinoma Patients . . . . .	1
<i>Thomas J. Fuchs, Peter J. Wild, Holger Moch, and Joachim M. Buhmann</i>	
Optimal Acquisition Schemes in High Angular Resolution Diffusion Weighted Imaging . . . . .	9
<i>Vesna Prčkowska, Alard F. Roebroek, W.L.P.M. Pullens, Anna Villanova, and Bart M. ter Haar Romeny</i>	
3D Dendrite Reconstruction and Spine Identification . . . . .	18
<i>Wengang Zhou, Houqiang Li, and Xiaobo Zhou</i>	
Joint LMMSE Estimation of DWI Data for DTI Processing . . . . .	27
<i>Antonio Tristán-Vega and Santiago Aja-Fernández</i>	
Evaluation of Rigid and Non-rigid Motion Compensation of Cardiac Perfusion MRI . . . . .	35
<i>Hui Xue, Jens Guehring, Latha Srinivasan, Sven Zuehlsdorff, Kinda Saddi, Christophe Chefdhotel, Joseph V. Hajnal, and Daniel Rueckert</i>	
3D Surface Matching and Registration through Shape Images . . . . .	44
<i>Zhaoqiang Lai and Jing Hua</i>	
Volumetric Ultrasound Panorama Based on 3D SIFT . . . . .	52
<i>Dong Ni, Yingge Qu, Xuan Yang, Yim Pan Chui, Tien-Tsin Wong, Simon S.M. Ho, and Pheng Ann Heng</i>	
Automatic Intra-operative Generation of Geometric Left Atrium/Pulmonary Vein Models from Rotational X-Ray Angiography . . . . .	61
<i>Carsten Meyer, Robert Manzke, Jochen Peters, Olivier Ecabert, Reinhard Kneser, Vivek Y. Reddy, Raymond C. Chan, and Jürgen Weese</i>	
Efficient Computation of PDF-Based Characteristics from Diffusion MR Signal . . . . .	70
<i>Haz-Edine Assemblal, David Tschumperlé, and Luc Brun</i>	



Bayesian Motion Recovery Framework for Myocardial Phase-Contrast Velocity MRI . . . . .	79
<i>Andrew Huntbatch, Su-Lin Lee, David Firmin, and Guang-Zhong Yang</i>	
The Effect of Automated Marker Detection on in Vivo Volumetric Stent Reconstruction . . . . .	87
<i>Gert Schoonenberg, Pierre Lelong, Raoul Florent, Onno Wink, and Bart ter Haar Romeny</i>	
Patch-Based Markov Models for Event Detection in Fluorescence Bioimaging . . . . .	95
<i>Thierry Pécot, Charles Kervrann, Sabine Bardin, Bruno Goud, and Jean Salamero</i>	
Belief Propagation for Depth Cue Fusion in Minimally Invasive Surgery . . . . .	104
<i>Benny Lo, Marco Visentini Scarzanella, Danail Stoyanov, and Guang-Zhong Yang</i>	
Deformable Mosaicing for Whole-Body MRI . . . . .	113
<i>Christian Wachinger, Ben Glocker, Jochen Zeltner, Nikos Paragios, Nikos Komodakis, Michael Sass Hansen, and Nassir Navab</i>	
Impact of Rician Adapted Non-Local Means Filtering on HARDI . . . . .	122
<i>Maxime Descoteaux, Nicolas Wiest-Daesslé, Sylvain Prima, Christian Barillot, and Rachid Deriche</i>	
Towards Regional Elastography of Intracranial Aneurysms . . . . .	131
<i>Simone Balocco, Oscar Camara, and Alejandro F. Frangi</i>	
Wall Motion Classification of Stress Echocardiography Based on Combined Rest-and-Stress Data . . . . .	139
<i>Sarina Mansor, Nicholas P. Hughes, and J. Alison Noble</i>	
Harmonic Surface Mapping with Laplace-Beltrami Eigenmaps . . . . .	147
<i>Yonggang Shi, Rongjie Lai, Kyle Kern, Nancy Sicotte, Ivo Dinov, and Arthur W. Toga</i>	
Motion Correction in Respiratory Gated Cardiac PET/CT Using Multi-scale Optical Flow . . . . .	155
<i>Mohammad Dawood, Thomas Kösters, Michael Fieseler, Florian Büther, Xiaoyi Jiang, Frank Wübbeling, and Klaus P. Schäfers</i>	
Parallelized Hybrid TGRAPPA Reconstruction for Real-Time Interactive MRI . . . . .	163
<i>Haris Saybasili, Peter Kellman, J. Andrew Derbyshire, Elliot R. McVeigh, and Michael A. Guttman</i>	

Rician Noise Removal by Non-Local Means Filtering for Low Signal-to-Noise Ratio MRI: Applications to DT-MRI .....	171
<i>Nicolas Wiest-Daesslé, Sylvain Prima, Pierrick Coupé, Sean Patrick Morrissey, and Christian Barillot</i>	
Human Brain Myelination from Birth to 4.5 Years .....	180
<i>Berengere Aubert-Broche, Vladimir Fonov, Ilana Leppert, G. Bruce Pike, and D. Louis Collins</i>	
Toward a Flexible and Portable CT Scanner .....	188
<i>Jeff Orchard and John T.W. Yeow</i>	
Adaptive Discriminant Wavelet Packet Transform and Local Binary Patterns for Meningioma Subtype Classification .....	196
<i>Hammad Qureshi, Olcay Sertel, Nasir Rajpoot, Roland Wilson, and Metin Gurcan</i>	
Colon Unfolding Via Skeletal Subspace Deformation .....	205
<i>Sandra Sudarsky, Bernhard Geiger, Christophe Chef d'hotel, and Lutz Guendel</i>	
Entropy-Optimized Texture Models .....	213
<i>Sebastian Zambal, Katja Bühler, and Jiří Hladůvka</i>	
Optimal Feature Selection Applied to Multispectral Fluorescence Imaging .....	222
<i>Tobias C. Wood, Surapa Thiemjarus, Kevin R. Koh, Daniel S. Elson, and Guang-Zhong Yang</i>	
AutoGate: Fast and Automatic Doppler Gate Localization in B-Mode Echocardiogram .....	230
<i>JinHyeong Park, S. Kevin Zhou, Costas Simopoulos, and Dorin Comaniciu</i>	
Estimation of Ground-Glass Opacity Measurement in CT Lung Images .....	238
<i>Yuanjie Zheng, Chandra Kambhamettu, Thomas Bauer, and Karl Steiner</i>	
Bayesian Analysis of fMRI Data with ICA Based Spatial Prior .....	246
<i>Deepti R. Bathula, Hemant D. Tagare, Lawrence H. Staib, Xenophon Papademetris, Robert T. Schultz, and James S. Duncan</i>	
Spatiotemporal Decomposition in Object-Space along Reconstruction in Emission Tomography .....	255
<i>Xavier Hubert, Dominique Chambellan, Samuel Legoupil, Régine Trébossen, Jean-Robert Deverre, and Nikos Paragios</i>	

Assessment of Reliability of Multi-site Neuroimaging Via Traveling Phantom Study . . . . .	263
<i>Sylvain Gouttard, Martin Styner, Marcel Prastawa, Joseph Piven, and Guido Gerig</i>	
Fieldmap-Free Retrospective Registration and Distortion Correction for EPI-Based Functional Imaging . . . . .	271
<i>Clare Poynton, Mark Jenkinson, Stephen Whalen, Alexandra J. Golby, and William Wells III</i>	
Physical-Space Refraction-Corrected Transmission Ultrasound Computed Tomography Made Computationally Practical . . . . .	280
<i>Shengying Li, Klaus Mueller, Marcel Jackowski, Donald Dione, and Lawrence Staib</i>	
Tag Separation in Cardiac Tagged MRI . . . . .	289
<i>Junzhou Huang, Zhen Qian, Xiaolei Huang, Dimitris Metaxas, and Leon Axel</i>	
Visualization Tools for High Angular Resolution Diffusion Imaging . . . . .	298
<i>David W. Shattuck, Ming-Chang Chiang, Marina Barysheva, Katie L. McMahon, Greig I. de Zubicaray, Matthew Meredith, Margaret J. Wright, Arthur W. Toga, and Paul M. Thompson</i>	
Human Vocal Tract Analysis by in Vivo 3D MRI during Phonation: A Complete System for Imaging, Quantitative Modeling, and Speech Synthesis . . . . .	306
<i>Axel Wismueller, Johannes Behrends, Phil Hoole, Gerda L. Leinsinger, Maximilian F. Reiser, and Per-Lennart Westesson</i>	
Fast Motion Tracking of Tagged MRI Using Angle-Preserving Meshless Registration . . . . .	313
<i>Ting Chen, Xiaoxu Wang, Dimitris Metaxas, and Leon Axel</i>	
Comparison of EPI Distortion Correction Methods in Diffusion Tensor MRI Using a Novel Framework . . . . .	321
<i>Minjie Wu, Lin-Ching Chang, Lindsay Walker, Herve Lemaitre, Alan S. Barnett, Stefano Marengo, and Carlo Pierpaoli</i>	
Consensus-Locally Linear Embedding (C-LLE): Application to Prostate Cancer Detection on Magnetic Resonance Spectroscopy . . . . .	330
<i>Pallavi Tiwari, Mark Rosen, and Anant Madabhushi</i>	
<b>Robotics and Interventions</b>	
Automatic Guidance of an Ultrasound Probe by Visual Servoing Based on B-Mode Image Moments . . . . .	339
<i>Rafik Mebarki, Alexandre Krupa, and Christophe Collewet</i>	

Gaze-Contingent 3D Control for Focused Energy Ablation in Robotic Assisted Surgery . . . . .	347
<i>Danaïl Stoyanov, George P. Mylonas, and Guang-Zhong Yang</i>	
MR Navigated Breast Surgery: Method and Initial Clinical Experience . . . . .	356
<i>Timothy Carter, Christine Tanner, Nicolas Beechey-Newman, Dean Barratt, and David Hawkes</i>	
Soft Tissue Tracking for Minimally Invasive Surgery: Learning Local Deformation Online . . . . .	364
<i>Peter Mountney and Guang-Zhong Yang</i>	
Combination of Intraoperative 5-Aminolevulinic Acid-Induced Fluorescence and 3-D MR Imaging for Guidance of Robotic Laser Ablation for Precision Neurosurgery . . . . .	373
<i>Hongen Liao, Koji Shimaya, Kaimeng Wang, Takashi Maruyama, Masafumi Noguchi, Yoshihiro Muragaki, Etsuko Kobayashi, Hiroshi Iseki, and Ichiro Sakuma</i>	
<b>Statistical Analysis</b>	
Discovering Modes of an Image Population through Mixture Modeling . . . . .	381
<i>Mert R. Sabuncu, Serdar K. Balci, and Polina Golland</i>	
Sparse Approximation of Currents for Statistics on Curves and Surfaces . . . . .	390
<i>Stanley Durrleman, Xavier Pennec, Alain Trounev, and Nicholas Ayache</i>	
Probabilistic Anatomic-Functional Parcellation of the Cortex: How Many Regions? . . . . .	399
<i>Alan Tucholka, Bertrand Thirion, Matthieu Perrot, Philippe Pinel, Jean-François Mangin, and Jean-Baptiste Poline</i>	
Models of Normal Variation and Local Contrasts in Hippocampal Anatomy . . . . .	407
<i>Xinyang Liu, Washington Mio, Yonggang Shi, Ivo Dinov, Xiuwen Liu, Natasha Leporé, Franco Leporé, Madeleine Fortin, Patrice Voss, Maryse Lassonde, and Paul M. Thompson</i>	
Label Space: A Coupled Multi-shape Representation . . . . .	416
<i>James Malcolm, Yogesh Rath, Martha E. Shenton, and Allen Tannenbaum</i>	

## Segmentation II

An Atlas-Based Segmentation Propagation Framework Using Locally Affine Registration – Application to Automatic Whole Heart Segmentation . . . . .	425
<i>Xiahai Zhuang, Kawal Rhode, Simon Arridge, Reza Razavi, Derek Hill, David Hawkes, and Sebastien Ourselin</i>	
Atlas-Based Auto-segmentation of Head and Neck CT Images . . . . .	434
<i>Xiao Han, Mischa S. Hoogeman, Peter C. Levendag, Lyndon S. Hibbard, David N. Teguh, Peter Voet, Andrew C. Cowen, and Theresa K. Wolf</i>	
Spectral Clustering as a Diagnostic Tool in Cross-Sectional MR Studies: An Application to Mild Dementia . . . . .	442
<i>Paul Aljabar, Daniel Rueckert, and William R. Crum</i>	
Bidirectional Segmentation of Three-Dimensional Cardiac MR Images Using a Subject-Specific Dynamical Model . . . . .	450
<i>Yun Zhu, Xenophon Papademetris, Albert J. Sinusas, and James S. Duncan</i>	

## Intervention

Ablation Monitoring with Elastography: 2D <i>In-vivo</i> and 3D <i>Ex-vivo</i> Studies . . . . .	458
<i>Hassan Rivaz, Ioana Fleming, Lia Assumpcao, Gabor Fichtinger, Ulrike Hamper, Michael Choti, Gregory Hager, and Emad Boctor</i>	
Dynamic View Expansion for Enhanced Navigation in Natural Orifice Transluminal Endoscopic Surgery . . . . .	467
<i>Mirna Lerotic, Adrian J. Chung, James Clark, Salman Valibeik, and Guang-Zhong Yang</i>	
Robotic System for Transapical Aortic Valve Replacement with MRI Guidance . . . . .	476
<i>Ming Li, Dumitru Mazilu, and Keith A. Horvath</i>	
Image Thickness Correction for Navigation with 3D Intra-cardiac Ultrasound Catheter . . . . .	485
<i>Hua Zhong, Takeo Kanade, and David Schwartzman</i>	
Quantification of Edematic Effects in Prostate Brachytherapy Interventions . . . . .	493
<i>Mohamed Hefny, Purang Abolmaesumi, Zahra Karimaghaloo, David G. Gobbi, Randy Ellis, and Gabor Fichtinger</i>	

A Robot Assisted Hip Fracture Reduction with a Navigation System . . .	501
<i>Sanghyun Joung, Hirokazu Kamon, Hongen Liao, Junichiro Iwaki, Touji Nakazawa, Mamoru Mitsuishi, Yoshikazu Nakajima, Tsuyoshi Koyama, Nobuhiko Sugano, Yuki Maeda, Masahiko Bessho, Satoru Ohashi, Takuya Matsumoto, Isao Ohnishi, and Ichiro Sakuma</i>	
MRI Compatibility of Robot Actuation Techniques – A Comparative Study . . . . .	509
<i>Gregory S. Fischer, Axel Krieger, Iulian Iordachita, Csaba Csoma, Louis L. Whitcomb, and Gabor Fichtinger</i>	
Robust Image-Based IVUS Pullbacks Gating . . . . .	518
<i>Carlo Gatta, Oriol Pujol, Oriol Rodriguez Leor, Josepa Mauri Ferre, and Petia Radeva</i>	
Real-Time 3D Reconstruction for Collision Avoidance in Interventional Environments . . . . .	526
<i>Alexander Ladikos, Selim Benhimane, and Nassir Navab</i>	
Improvement of Accuracy of Marker-Free Bronchoscope Tracking Using Electromagnetic Tracker Based on Bronchial Branch Information. . . . .	535
<i>Kensaku Mori, Daisuke Deguchi, Takayuki Kitasaka, Yasuhito Suenaga, Yosihori Hasegawa, Kazuyoshi Imaizumi, and Hirotsugu Takabatake</i>	
Cooperative Robot Assistant for Retinal Microsurgery . . . . .	543
<i>Ioana Fleming, Marcin Balicki, John Koo, Iulian Iordachita, Ben Mitchell, James Handa, Gregory Hager, and Russell Taylor</i>	
An Ultrasound-Guided Organ Biopsy Simulation with 6DOF Haptic Feedback . . . . .	551
<i>Dong Ni, Wing-Yin Chan, Jing Qin, Yingge Qu, Yim-Pan Chui, Simon S.M. Ho, and Pheng-Ann Heng</i>	
Simulations of Needle Insertion by Using a Eulerian Hydrocode FEM and the Experimental Validations . . . . .	560
<i>Hiroyuki Kataoka, Shigeo Noda, Hideo Yokota, Shu Takagi, Ryutaro Himeno, and Shigenobu Okazawa</i>	
Preoperative Surgery Planning for Percutaneous Hepatic Microwave Ablation . . . . .	569
<i>Weiming Zhai, Jing Xu, Yannan Zhao, Yixu Song, Lin Sheng, and Peifa Jia</i>	
Long Bone X-Ray Image Stitching Using Camera Augmented Mobile C-Arm . . . . .	578
<i>Lejing Wang, Joerg Traub, Sandro Michael Heining, Selim Benhimane, Ekkehard Euler, Rainer Graumann, and Nassir Navab</i>	

Intraoperative Navigation of an Optically Tracked Surgical Robot . . . . .	587
<i>Jordi Cornellà, Ole Jakob Elle, Wajid Ali, and Eigil Samset</i>	
Modelling Dynamic Fronto-Parietal Behaviour During Minimally Invasive Surgery – A Markovian Trip Distribution Approach . . . . .	595
<i>Daniel Richard Leff, Felipe Orihuela-Espina, Julian Leong, Ara Darzi, and Guang-Zhong Yang</i>	
Detecting Informative Frames from Wireless Capsule Endoscopic Video Using Color and Texture Features . . . . .	603
<i>Md. Khayrul Bashar, Kensaku Mori, Yasuhito Suenaga, Takayuki Kitasaka, and Yoshito Mekada</i>	
How Does the Camera Assistant Decide the Zooming Ratio of Laparoscopic Images? – Analysis and Implementation . . . . .	611
<i>Atsushi Nishikawa, Hiroaki Nakagoe, Kazuhiro Taniguchi, Yasuo Yamada, Mitsugu Sekimoto, Shuji Takiguchi, Morito Monden, and Fumio Miyazaki</i>	
Precision Radiotherapy for Small Animal Research . . . . .	619
<i>Mohammad Matinfar, Iulian Iordachita, Eric Ford, John Wong, and Peter Kazanzides</i>	
Modeling and Online Recognition of Surgical Phases Using Hidden Markov Models . . . . .	627
<i>Tobias Blum, Nicolas Padoy, Hubertus Feußner, and Nassir Navab</i>	
Prostate Brachytherapy Seed Localization with Gaussian Blurring and Camera Self-calibration . . . . .	636
<i>Junghoon Lee, Xiaofeng Liu, Jerry L. Prince, and Gabor Fichtinger</i>	
Virtual Reality-Enhanced Ultrasound Guidance for Atrial Ablation: <i>In vitro</i> Epicardial Study . . . . .	644
<i>Cristian A. Linte, Andrew Wiles, John Moore, Chris Wedlake, and Terry M. Peters</i>	
Fast Marker Based C-Arm Pose Estimation . . . . .	652
<i>Bernhard Kainz, Markus Grabner, and Matthias Rüther</i>	
Needle Insertion Study Using Ultrasound-Based 2D Motion Tracking . . . . .	660
<i>Ehsan Dehghan and Septimiu E. Salcudean</i>	
3D Dynamic Roadmapping for Abdominal Catheterizations . . . . .	668
<i>Frederik Bender, Martin Groher, Ali Khamene, Wolfgang Wein, Tim Hauke Heibel, and Nassir Navab</i>	
Gaze-Contingent Motor Channelling and Haptic Constraints for Minimally Invasive Robotic Surgery . . . . .	676
<i>George P. Mylonas, Ka-Wai Kwok, Ara Darzi, and Guang-Zhong Yang</i>	

Efficient 3D Tracking for Motion Compensation in Beating Heart Surgery . . . . .	684
<i>Rogério Richa, Philippe Poinet, and Chao Liu</i>	
Path Planning and Workspace Determination for Robot-Assisted Insertion of Steerable Electrode Arrays for Cochlear Implant Surgery . . .	692
<i>Jian Zhang, Wei Wei, Spiros Manolidis, J. Thomas Roland Jr., and Nabil Simaan</i>	
Software Strategy for Robotic Transperineal Prostate Therapy in Closed-Bore MRI . . . . .	701
<i>Junichi Tokuda, Gregory S. Fischer, Csaba Csoma, Simon P. DiMaio, David G. Gobbi, Gabor Fichtinger, Clare M. Tempany, and Nobuhiko Hata</i>	
Real-Time Simulation of 4D Lung Tumor Radiotherapy Using a Breathing Model . . . . .	710
<i>Anand P. Santhanam, Twyla Willoughby, Amish Shah, Sanford Meeks, Jannick P. Rolland, and Patrick Kupelian</i>	
Construction of a Statistical Surgical Plan Atlas for Automated 3D Planning of Femoral Component in Total Hip Arthroplasty . . . . .	718
<i>Masahiko Nakamoto, Itaru Otomaru, Masaki Takao, Nobuhiko Sugano, Yoshiyuki Kagiya, Hideki Yoshikawa, Yukio Tada, and Yoshinobu Sato</i>	
<b>Modeling II</b>	
Constitutive Modeling of Human Liver Based on in Vivo Measurements . . . . .	726
<i>Edoardo Mazza, Patrick Grau, Marc Hollenstein, and Michael Bajka</i>	
Real-Time Simulation of Medical Ultrasound from CT Images . . . . .	734
<i>Ramtin Shams, Richard Hartley, and Nassir Navab</i>	
Real-Time Nonlinear FEM with Neural Network for Simulating Soft Organ Model Deformation . . . . .	742
<i>Ken'ichi Morooka, Xian Chen, Ryo Kurazume, Seiichi Uchida, Kenji Hara, Yumi Iwashita, and Makoto Hashizume</i>	
Modelling Childbirth: Comparing Athlete and Non-athlete Pelvic Floor Mechanics . . . . .	750
<i>Xinshan Li, Jennifer A. Kruger, Jae-Hoon Chung, Martyn P. Nash, and Poul M.F. Nielsen</i>	
Modelling Mammographic Compression of the Breast . . . . .	758
<i>Jae-Hoon Chung, Vijay Rajagopal, Poul M.F. Nielsen, and Martyn P. Nash</i>	



Cardiac Medial Modeling and Time-Course Heart Wall Thickness Analysis . . . . .	766
<i>Hui Sun, Brian B. Avants, Alejandro F. Frangi, Federico Sukno, James C. Gee, and Paul A. Yushkevich</i>	
Identification of Atherosclerotic Lesion-Prone Sites through Patient-Specific Simulation of Low-Density Lipoprotein Accumulation . . . . .	774
<i>Ufuk Olgac, Vartan Kurtcuoglu, Stefan C. Saur, and Dimos Poulidakos</i>	
Exploring the Use of Proper Orthogonal Decomposition for Enhancing Blood Flow Images Via Computational Fluid Dynamics . . . . .	782
<i>Robert McGregor, Dominik Szczerba, Martin von Siebenthal, Krishnamurthy Muralidhar, and Gábor Székely</i>	
Fast Virtual Stenting with Deformable Meshes: Application to Intracranial Aneurysms . . . . .	790
<i>Ignacio Larrabide, Alessandro Radaelli, and Alejandro Frangi</i>	
Dynamic Thermal Modeling of the Normal and Tumorous Breast under Elastic Deformation . . . . .	798
<i>Li Jiang, Wang Zhan, and Murray H. Loew</i>	
Real-Time Liver Motion Compensation for MRgFUS . . . . .	806
<i>James C. Ross, Rekha Tranquebar, and Dattesh Shanbhag</i>	
Passive Ventricular Mechanics Modelling Using MRI of Structure and Function . . . . .	814
<i>Vicky Y. Wang, Hoi Ieng Lam, Daniel B. Ennis, Alistair A. Young, and Martyn P. Nash</i>	

**Registration II**

Fast Musculoskeletal Registration Based on Shape Matching . . . . .	822
<i>Benjamin Gilles and Dinesh K. Pai</i>	
Physically-Based Validation of Deformable Medical Image Registration . . . . .	830
<i>Huai-Ping Lee, Ming C. Lin, and Mark Foskey</i>	
Adaptive Boundary Conditions for Physically Based Follow-Up Breast MR Image Registration . . . . .	839
<i>Liesbet Roose, Dirk Loeckx, Wouter Mollemans, Frederik Maes, and Paul Suetens</i>	

An Incremental Method for Registering Electroanatomic Mapping Data to Surface Mesh Models of the Left Atrium . . . . .	847
<i>Aditya B. Koolwal, Federico Barbagli, Christopher R. Carlson, and David H. Liang</i>	
Fast, Adaptive Expectation-Maximization Alignment for Cryo-EM . . . . .	855
<i>Hemant D. Tagare, Frederick Sigworth, and Andrew Barthel</i>	
Weight Preserving Image Registration for Monitoring Disease Progression in Lung CT . . . . .	863
<i>Vladlena Gorbunova, Pechin Lo, Haseem Ashraf, Asger Dirksen, Mads Nielsen, and Marleen de Bruijne</i>	
Localization of Pelvic Anatomical Coordinate System Using US/Atlas Registration for Total Hip Replacement . . . . .	871
<i>Pezhman Foroughi, Danny Song, Gouthami Chintalapani, Russell H. Taylor, and Gabor Fichtinger</i>	
GPU Accelerated Non-rigid Registration for the Evaluation of Cardiac Function . . . . .	880
<i>Bo Li, Alistair A. Young, and Brett R. Cowan</i>	
Non-rigid Image Registration with $S\alpha S$ Filters . . . . .	888
<i>Shu Liao and Albert C.S. Chung</i>	
Symmetric Nonrigid Image Registration: Application to Average Brain Templates Construction . . . . .	897
<i>Vincent Noblet, Christian Heinrich, Fabrice Heitz, and Jean-Paul Armspach</i>	
Diffusion Tensor Image Registration Using Tensor Geometry and Orientation Features . . . . .	905
<i>Jinzhong Yang, Dinggang Shen, Christos Davatzikos, and Ragini Verma</i>	
A Tensor-Based Morphometry Study of Genetic Influences on Brain Structure Using a New Fluid Registration Method . . . . .	914
<i>Caroline Brun, Natasha Leporé, Xavier Pennec, Yi-Yu Chou, Agatha D. Lee, Marina Barysheva, Grieg de Zubicaray, Matthew Meredith, Katie McMahon, Margaret J. Wright, Arthur W. Toga, and Paul M. Thompson</i>	
Effective Incorporation of Spatial Information in a Mutual Information Based 3D-2D Registration of a CT Volume to X-Ray Images . . . . .	922
<i>Guoyan Zheng</i>	
A Nonrigid Image Registration Framework for Identification of Tissue Mechanical Parameters . . . . .	930
<i>Petr Jordan, Simona Socrate, Todd E. Zickler, and Robert D. Howe</i>	

A Local Mutual Information Guided Denoising Technique and Its Application to Self-calibrated Partially Parallel Imaging . . . . .	939
<i>Weihong Guo and Feng Huang</i>	
Influence of Organ Motion and Contrast Enhancement on Image Registration . . . . .	948
<i>Andrew Melbourne, David Atkinson, and David Hawkes</i>	
Anatomy-Preserving Nonlinear Registration of Deep Brain ROIs Using Confidence-Based Block-Matching . . . . .	956
<i>Manik Bhattacharjee, Alain Pitiot, Alexis Roche, Didier Dormont, and Eric Bardinet</i>	
The Zernike Expansion – An Example of a Merit Function for 2D/3D Registration Based on Orthogonal Functions . . . . .	964
<i>Shuo Dong, Joachim Kettenbach, Isabella Hinterleitner, Helmar Bergmann, and Wolfgang Birkfellner</i>	
Registration of 4D Time-Series of Cardiac Images with Multichannel Diffeomorphic Demons . . . . .	972
<i>Jean-Marc Peyrat, Hervé Delingette, Maxime Sermesant, Xavier Pennec, Chenyang Xu, and Nicholas Ayache</i>	
An Active Contour-Based Atlas Registration Model Applied to Automatic Subthalamic Nucleus Targeting on MRI: Method and Validation . . . . .	980
<i>Valérie Duay, Xavier Bresson, Javier Sanchez Castro, Claudio Pollo, Meritzell Bach Cuadra, and Jean-Philippe Thiran</i>	
Location Registration and Recognition (LRR) for Longitudinal Evaluation of Corresponding Regions in CT Volumes . . . . .	989
<i>Michal Sofka and Charles V. Stewart</i>	
Reducing Motion Artifacts in 3d Breast Ultrasound Using Non-linear Registration . . . . .	998
<i>Tobias Boehler and Heinz-Otto Peitgen</i>	
Semi-automatic Reference Standard Construction for Quantitative Evaluation of Lung CT Registration . . . . .	1006
<i>Keelin Murphy, Bram van Ginneken, Josien P.W. Pluim, Stefan Klein, and Marius Staring</i>	
Automatic Deformable Diffusion Tensor Registration for Fiber Population Analysis . . . . .	1014
<i>Mustafa Okan Irfanoglu, Raghunath Machiraju, Steffen Sammet, Carlo Pierpaoli, and Michael Knopp</i>	
Deformable Ultrasound Registration without Reconstruction . . . . .	1023
<i>Rupert Brooks, D. Louis Collins, Xavier Morandi, and Tal Arbel</i>	

A Theoretical Comparison of Different Target Registration Error Estimators . . . . .	1032
<i>Mehdi Hedjazi Moghari, Burton Ma, and Purang Abolmaesumi</i>	
Robust Brain Registration Using Adaptive Probabilistic Atlas . . . . .	1041
<i>Jaime Ide, Rong Chen, Dinggang Shen, and Edward H. Herskovits</i>	
Using Curve-Fitting of Curvilinear Features for Assessing Registration of Clinical Neuropathology with in Vivo MRI . . . . .	1050
<i>Philippe Laissue, Chris Kenwright, Ali Hojjat, and Alan Colchester</i>	
A Maximal Mass Confinement Principle for Rigid and Locally Rigid Image Registration . . . . .	1058
<i>Julian Mattes, Johannes Gall, and Alfredo Lopez</i>	

### Segmentation III

Fully Bayesian Joint Model for MR Brain Scan Tissue and Structure Segmentation . . . . .	1066
<i>Benoit Scherrer, Florence Forbes, Catherine Garbay, and Michel Dojat</i>	
Detection of Deformable Objects in 3D Images Using Markov-Chain Monte Carlo and Spherical Harmonics . . . . .	1075
<i>Khaled Khairy, Emmanuel Reynaud, and Ernst Stelzer</i>	
A Variational Level Set Approach to Segmentation and Bias Correction of Images with Intensity Inhomogeneity . . . . .	1083
<i>Chunming Li, Rui Huang, Zhaohua Ding, Chris Gatenby, Dimitris Metaxas, and John Gore</i>	
Markov Dependence Tree-Based Segmentation of Deep Brain Structures . . . . .	1092
<i>Jue Wu and Albert C.S. Chung</i>	
<b>Author Index</b> . . . . .	1101

# Table of Contents – Part I

## Medical Image Computing

On Computing the Underlying Fiber Directions from the Diffusion Orientation Distribution Function . . . . .	1
<i>Luke Bloy and Ragini Verma</i>	
Extracting Tractosemas from a Displacement Probability Field for Tractography in DW-MRI . . . . .	9
<i>Angelos Barmountis, Baba C. Vemuri, Dena Howland, and John R. Forder</i>	
New Algorithms to Map Asymmetries of 3D Surfaces . . . . .	17
<i>Benoît Combès and Sylvain Prima</i>	
A Distributed Spatio-temporal EEG/MEG Inverse Solver . . . . .	26
<i>Wanmei Ou, Polina Golland, and Matti Hämäläinen</i>	
Tracking the Swimming Motions of <i>C. elegans</i> Worms with Applications in Aging Studies . . . . .	35
<i>Christophe Restif and Dimitris Metaxas</i>	

## Segmentation I

MR Brain Tissue Classification Using an Edge-Preserving Spatially Variant Bayesian Mixture Model . . . . .	43
<i>Giorgos Sfikas, Christophoros Nikou, Nikolaos Galatsanos, and Christian Heinrich</i>	
Semi-Supervised Nasopharyngeal Carcinoma Lesion Extraction from Magnetic Resonance Images Using Online Spectral Clustering with a Learned Metric . . . . .	51
<i>Wei Huang, Kap Luk Chan, Yan Gao, Jiayin Zhou, and Vincent Chong</i>	
Multi-level Classification of Emphysema in HRCT Lung Images Using Delegated Classifiers . . . . .	59
<i>Mithun Prasad and Arcot Sowmya</i>	
A Discriminative Model-Constrained Graph Cuts Approach to Fully Automated Pediatric Brain Tumor Segmentation in 3-D MRI . . . . .	67
<i>Michael Wels, Gustavo Carneiro, Alexander Aplas, Martin Huber, Joachim Hornegger, and Dorin Comaniciu</i>	

Prostate Cancer Probability Maps Based on Ultrasound RF Time Series and SVM Classifiers .....	76
<i>Mehdi Moradi, Parvin Mousavi, Robert Siemens, Eric Sauerbrei, Alexander Boag, and Purang Abolmaesumi</i>	
A Bayesian Approach for Liver Analysis: Algorithm and Validation Study .....	85
<i>Moti Freiman, Ofer Eliassaf, Yoav Taieb, Leo Joskowicz, and Jacob Sosna</i>	
Classification of Suspected Liver Metastases Using fMRI Images: A Machine Learning Approach .....	93
<i>Moti Freiman, Yifat Edrei, Yehonatan Sela, Yitzchak Shmidmayer, Eitan Gross, Leo Joskowicz, and Rinat Abramovitch</i>	
Evaluation of a Cardiac Ultrasound Segmentation Algorithm Using a Phantom .....	101
<i>Yong Yue, Hemant D. Tagare, Ernest L. Madsen, Gary R. Frank, and Maritza A. Hobson</i>	
Automatic Recovery of the Left Ventricular Blood Pool in Cardiac Cine MR Images .....	110
<i>Marie-Pierre Jolly</i>	
MRI Bone Segmentation Using Deformable Models and Shape Priors ...	119
<i>J�r�me Schmid and Nadia Magnenat-Thalmann</i>	
Segmentation of Vessels Cluttered with Cells Using a Physics Based Model .....	127
<i>Stephen J. Schmu�ge, Steve Keller, Nhat Nguyen, Richard Souvenir, Toan Huynh, Mark Clemens, and Min C. Shin</i>	
Streamline Flows for White Matter Fibre Pathway Segmentation in Diffusion MRI .....	135
<i>Peter Savadjiev, Jennifer S.W. Campbell, G. Bruce Pike, and Kaleem Siddiqi</i>	
Toward Unsupervised Classification of Calcified Arterial Lesions .....	144
<i>Gerd Brunner, Uday Kurkure, Deepak R. Chittajallu, Raja P. Yalamanchili, and Ioannis A. Kakadiaris</i>	
Weights and Topology: A Study of the Effects of Graph Construction on 3D Image Segmentation .....	153
<i>Leo Grady and Marie-Pierre Jolly</i>	
Level Set Based Surface Capturing in 3D Medical Images .....	162
<i>Bin Dong, Aichi Chien, Yu Mao, Jian Ye, and Stanley Osher</i>	

Automatic Detection of Calcified Coronary Plaques in Computed Tomography Data Sets . . . . .	170
<i>Stefan C. Saur, Hatem Alkadhi, Lotus Desbiolles, Gábor Székely, and Philippe C. Cattin</i>	
Comprehensive Segmentation of Cine Cardiac MR Images . . . . .	178
<i>Maxim Fradkin, Cybèle Ciofalo, Benoit Mory, Gilion Hautvast, and Marcel Breeuwer</i>	
Segmentation of Pathologic Hearts in Long-Axis Late-Enhancement MRI . . . . .	186
<i>Cybèle Ciofalo and Maxim Fradkin</i>	
Automatic Subcortical Segmentation Using a Contextual Model . . . . .	194
<i>Jonathan H. Morra, Zhuowen Tu, Liana G. Apostolova, Amity E. Green, Arthur W. Toga, and Paul M. Thompson</i>	
Lumbar Disc Localization and Labeling with a Probabilistic Model on Both Pixel and Object Features . . . . .	202
<i>Jason J. Corso, Raja' S. Alomari, and Vipin Chaudhary</i>	
Topology Preserving Warping of Binary Images: Application to Atlas-Based Skull Segmentation . . . . .	211
<i>Sylvain Faisan, Nicolas Passat, Vincent Noblet, Renée Chabrier, and Christophe Meyer</i>	
Robust Segmentation and Anatomical Labeling of the Airway Tree from Thoracic CT Scans . . . . .	219
<i>Bram van Ginneken, Wouter Baggeman, and Eva M. van Rikxoort</i>	
Spine Segmentation Using Articulated Shape Models . . . . .	227
<i>Tobias Klinder, Robin Wolz, Cristian Lorenz, Astrid Franz, and Jörn Ostermann</i>	
Model-Based Segmentation of Hippocampal Subfields in Ultra-High Resolution In Vivo MRI . . . . .	235
<i>Koen Van Leemput, Akram Bakkour, Thomas Benner, Graham Wiggins, Lawrence L. Wald, Jean Augustinack, Bradford C. Dickerson, Polina Golland, and Bruce Fischl</i>	
Kinetic Modeling Based Probabilistic Segmentation for Molecular Images . . . . .	244
<i>Ahmed Saad, Ghassan Hamarneh, Torsten Möller, and Ben Smith</i>	
Automatic Delineation of Sulci and Improved Partial Volume Classification for Accurate 3D Voxel-Based Cortical Thickness Estimation from MR . . . . .	253
<i>Oscar Acosta, Pierrick Bourgeat, Jurgen Fripp, Erik Bonner, Sébastien Ourselin, and Olivier Salvado</i>	

R-PLUS: A Riemannian Anisotropic Edge Detection Scheme for Vascular Segmentation . . . . .	262
<i>Ali Gooya, Takeyoshi Dohi, Ichiro Sakuma, and Hongen Liao</i>	
A Novel Method for Cortical Sulcal Fundi Extraction . . . . .	270
<i>Gang Li, Tianming Liu, Jingxin Nie, Lei Guo, and Stephen T.C. Wong</i>	
Joint Segmentation of Thalamic Nuclei from a Population of Diffusion Tensor MR Images . . . . .	279
<i>Ulas Ziyin and Carl-Fredrik Westin</i>	
Bone Segmentation and Fracture Detection in Ultrasound Using 3D Local Phase Features . . . . .	287
<i>Ilker Hacihaliloglu, Rafeef Abugharbieh, Antony Hodgson, and Robert Rohling</i>	
Interactive Separation of Segmented Bones in CT Volumes Using Graph Cut . . . . .	296
<i>Lu Liu, David Raber, David Nopachai, Paul Commean, David Sinacore, Fred Prior, Robert Pless, and Tao Ju</i>	
A Comparison of Methods for Recovering Intra-voxel White Matter Fiber Architecture from Clinical Diffusion Imaging Scans . . . . .	305
<i>Alonso Ramirez-Manzanares, Philip A. Cook, and James C. Gee</i>	
Active Scheduling of Organ Detection and Segmentation in Whole-Body Medical Images . . . . .	313
<i>Yiqiang Zhan, Xiang Sean Zhou, Zhigang Peng, and Arun Krishnan</i>	
A New Stochastic Framework for Accurate Lung Segmentation . . . . .	322
<i>Ayman El-Ba, Georgy Gimel'farb, Robert Falk, Trevor Holland, and Teresa Shaffer</i>	
Active Volume Models with Probabilistic Object Boundary Prediction Module . . . . .	331
<i>Tian Shen, Yaoyao Zhu, Xiaolei Huang, Junzhou Huang, Dimitris Metaxas, and Leon Axel</i>	
Improving Parenchyma Segmentation by Simultaneous Estimation of Tissue Property $T_1$ Map and Group-Wise Registration of Inversion Recovery MR Breast Images . . . . .	342
<i>Ye Xing, Zhong Xue, Sarah Englander, Mitchell Schnall, and Dinggang Shen</i>	
Atlas-Based Segmentation of the Germinal Matrix from in Utero Clinical MRI of the Fetal Brain . . . . .	351
<i>Piotr A. Habas, Kio Kim, Francois Rousseau, Orit A. Glenn, A. James Barkovich, and Colin Studholme</i>	



Segmenting Brain Tumors Using Pseudo-Conditional Random Fields . . .	359
<i>Chi-Hoon Lee, Shaojun Wang, Albert Murtha, Matthew R.G. Brown, and Russell Greiner</i>	
Localized Priors for the Precise Segmentation of Individual Vertebrae from CT Volume Data . . . . .	367
<i>Hong Shen, Andrew Litvin, and Christopher Alvino</i>	
Cell Spreading Analysis with Directed Edge Profile-Guided Level Set Active Contours . . . . .	376
<i>Ilker Ersoy, Filiz Bunyak, Kannappan Palaniappan, Mingzhai Sun, and Gabor Forgacs</i>	
Brain MR Image Segmentation Using Local and Global Intensity Fitting Active Contours/Surfaces . . . . .	384
<i>Li Wang, Chunming Li, Quansen Sun, Deshen Xia, and Chiu-Yen Kao</i>	
Model-Based Segmentation Using Graph Representations . . . . .	393
<i>Dieter Seghers, Jeroen Hermans, Dirk Loeckx, Frederik Maes, Dirk Vandermeulen, and Paul Suetens</i>	
3D Brain Segmentation Using Active Appearance Models and Local Regressors . . . . .	401
<i>Kolawole O. Babalola, Tim F. Cootes, Carole J. Twinning, Vlad Petrovic, and Chris Taylor</i>	
Comparison and Evaluation of Segmentation Techniques for Subcortical Structures in Brain MRI . . . . .	409
<i>Kolawole O. Babalola, Brian Patenaude, Paul Aljabar, Julia Schnabel, David Kennedy, William Crum, Stephen Smith, Tim F. Cootes, Mark Jenkinson, and Daniel Rueckert</i>	
<b>Shape and Statistics Analysis</b>	
Hierarchical Shape Statistical Model for Segmentation of Lung Fields in Chest Radiographs . . . . .	417
<i>Yonghong Shi and Dinggang Shen</i>	
Sample Sufficiency and Number of Modes to Retain in Statistical Shape Modelling . . . . .	425
<i>Lin Mei, Michael Figl, Daniel Rueckert, Ara Darzi, and Philip Edwards</i>	
Optimal Feature Point Selection and Automatic Initialization in Active Shape Model Search . . . . .	434
<i>Karim Lekadir and Guang-Zhong Yang</i>	

MR-Less High Dimensional Spatial Normalization of <sup>11</sup> C PiB PET Images on a Population of Elderly, Mild Cognitive Impaired and Alzheimer Disease Patients . . . . .	442
<i>Jurgen Fripp, Pierrick Bourgeat, Parnesh Raniga, Oscar Acosta, Victor Villemagne, Gareth Jones, Graeme O’keefe, Christopher Rowe, Sébastien Ourselin, and Olivier Salvado</i>	
Computational Atlases of Severity of White Matter Lesions in Elderly Subjects with MRI . . . . .	450
<i>Stathis Hadjidemetriou, Peter Lorenzen, Norbert Schuff, Susanne Mueller, and Michael Weiner</i>	
Simulation of Ground-Truth Validation Data Via Physically- and Statistically-Based Warps . . . . .	459
<i>Ghassan Hamarneh, Preet Jassi, and Lisa Tang</i>	
Shape Analysis with Overcomplete Spherical Wavelets . . . . .	468
<i>B.T. Thomas Yeo, Peng Yu, P. Ellen Grant, Bruce Fischl, and Polina Golland</i>	
Particle-Based Shape Analysis of Multi-object Complexes . . . . .	477
<i>Joshua Cates, P. Thomas Fletcher, Martin Styner, Heather Cody Hazlett, and Ross Whitaker</i>	
Multivariate Statistical Analysis of Whole Brain Structural Networks Obtained Using Probabilistic Tractography . . . . .	486
<i>Emma C. Robinson, Michel Valstar, Alexander Hammers, Anders Ericsson, A. David Edwards, and Daniel Rueckert</i>	
Optimized Conformal Parameterization of Cortical Surfaces Using Shape Based Matching of Landmark Curves . . . . .	494
<i>Lok Ming Lui, Sheshadri Thiruwenkadam, Yalin Wang, Tony Chan, and Paul Thompson</i>	
Construction of Hierarchical Multi-Organ Statistical Atlases and Their Application to Multi-Organ Segmentation from CT Images . . . . .	502
<i>Toshiyuki Okada, Keita Yokota, Masatoshi Hori, Masahiko Nakamoto, Hironobu Nakamura, and Yoshinobu Sato</i>	
Shape-Based Alignment of Hippocampal Subfields: Evaluation in Postmortem MRI . . . . .	510
<i>Paul A. Yushkevich, Brian B. Avants, John Pluta, David Minkoff, John A. Detre, Murray Grossman, and James C. Gee</i>	
Customized Design of Hearing Aids Using Statistical Shape Learning . . . . .	518
<i>Gozde Unal, Delphine Nain, Greg Slabaugh, and Tong Fang</i>	
A Novel Explicit 2D+t Cyclic Shape Model Applied to Echocardiography . . . . .	527
<i>Ramón Casero and J. Alison Noble</i>	

Spatial Consistency in 3D Tract-Based Clustering Statistics . . . . .	535
<i>Matthan Caan, Lucas van Vliet, Charles Majoie, Eline Aukema, Kees Grimbergen, and Frans Vos</i>	
Dynamic Probabilistic Atlas of Functional Brain Regions for Transcranial Magnetic Stimulation . . . . .	543
<i>Juha Koikkalainen, Mervi Könönen, Jari Karhu, Jarmo Ruohonen, Eini Niskanen, and Jyrki Lötjönen</i>	
Unbiased Stratification of Left Ventricles . . . . .	551
<i>Rajagopalan Srinivasan, K.S. Shriram, and Srikanth Suryanarayanan</i>	
3D Cerebral Cortical Morphometry in Autism: Increased Folding in Children and Adolescents in Frontal, Parietal, and Temporal Lobes . . . . .	559
<i>Suyash P. Awate, Lawrence Win, Paul Yushkevich, Robert T. Schultz, and James C. Gee</i>	
Prediction of Biomechanical Parameters of the Proximal Femur Using Statistical Appearance Models and Support Vector Regression . . . . .	568
<i>Karl Fritscher, Benedikt Schuler, Thomas Link, Felix Eckstein, Norbert Suhm, Markus Hänni, Clemens Hengg, and Rainer Schubert</i>	
Automatic Labeling of Anatomical Structures in MR FastView Images Using a Statistical Atlas . . . . .	576
<i>Matthias Fenchel, Stefan Thesen, and Andreas Schilling</i>	
Conformal Slit Mapping and Its Applications to Brain Surface Parameterization . . . . .	585
<i>Yalin Wang, Xianfeng Gu, Tony F. Chan, Paul M. Thompson, and Shing-Tung Yau</i>	
Automatic Determination of Arterial Input Function for Dynamic Contrast Enhanced MRI in Tumor Assessment . . . . .	594
<i>Jeremy Chen, Jianhua Yao, and David Thomasson</i>	
Robust Vessel Tree Modeling . . . . .	602
<i>M. Akif Gülsün and Hüseyin Tek</i>	
Exploratory Identification of Image-Based Biomarkers for Solid Mass Pulmonary Tumors . . . . .	612
<i>Ifeoma Nwogu and Jason J. Corso</i>	
Measuring Brain Lesion Progression with a Supervised Tissue Classification System . . . . .	620
<i>Evangelia I. Zacharaki, Stathis Kanterakis, R. Nick Bryan, and Christos Davatzikos</i>	

Regularized Discriminative Direction for Shape Difference Analysis . . . . .	628
<i>Luping Zhou, Richard Hartley, Lei Wang, Paulette Lieby, and Nick Barnes</i>	
LV Motion and Strain Computation from tMRI Based on Meshless Deformable Models . . . . .	636
<i>Xiaoxu Wang, Ting Chen, Shaoting Zhang, Dimitris Metaxas, and Leon Axel</i>	
Surface-Based Texture and Morphological Analysis Detects Subtle Cortical Dysplasia . . . . .	645
<i>Pierre Besson, Neda Bernasconi, Olivier Colliot, Alan Evans, and Andrea Bernasconi</i>	
Multi-Attribute Non-initializing Texture Reconstruction Based Active Shape Model (MANTRA) . . . . .	653
<i>Robert Toth, Jonathan Chappelow, Mark Rosen, Sona Pungavkar, Arjun Kalyanpur, and Anant Madabhushi</i>	
A Comprehensive Segmentation, Registration, and Cancer Detection Scheme on 3 Tesla <i>In Vivo</i> Prostate DCE-MRI . . . . .	662
<i>Satish Viswanath, B. Nicolas Bloch, Elisabeth Genega, Neil Rofsky, Robert Lenkinski, Jonathan Chappelow, Robert Toth, and Anant Madabhushi</i>	

## Modeling I

A New Method for Creating Electrophysiological Maps for DBS Surgery and Their Application to Surgical Guidance . . . . .	670
<i>Srivatsan Pallavaram, Pierre-Francois D’Haese, Chris Kao, Hong Yu, Michael Remple, Joseph Neimat, Peter Konrad, and Benoit Dawant</i>	
Cardiac Electrophysiology Model Adjustment Using the Fusion of MR and Optical Imaging . . . . .	678
<i>Damien Lepiller, Maxime Sermesant, Mihaela Pop, Hervé Delingette, Graham A. Wright, and Nicholas Ayache</i>	
Dynamic Model-Driven Quantitative and Visual Evaluation of the Aortic Valve from 4D CT . . . . .	686
<i>Razvan Ioan Ionasec, Bogdan Georgescu, Eva Gassner, Sebastian Vogt, Oliver Kutter, Michael Scheuering, Nassir Navab, and Dorin Comaniciu</i>	
Interactive Simulation of Embolization Coils: Modeling and Experimental Validation . . . . .	695
<i>Jérémie Dequidt, Maud Marchal, Christian Duriez, Erwan Kerien, and Stéphane Cotin</i>	

Modelling Anisotropic Viscoelasticity for Real-Time Soft Tissue Simulation .....	703
<i>Zeike A. Taylor, Olivier Comas, Mario Cheng, Josh Passenger, David J. Hawkes, David Atkinson, and Sébastien Ourselin</i>	

## Motion Tracking and Compensation

3D Ultrasound-Guided Motion Compensation System for Beating Heart Mitral Valve Repair .....	711
<i>Shelten G. Yuen, Samuel B. Kesner, Nikolay V. Vasilyev, Pedro J. Del Nido, and Robert D. Howe</i>	
A Novel Algorithm for Heart Motion Analysis Based on Geometric Constraints .....	720
<i>Mingxing Hu, Graeme Penney, Daniel Rueckert, Philip Edwards, Michael Figl, Philip Pratt, and David Hawkes</i>	
On-the-Fly Motion-Compensated Cone-Beam CT Using an a Priori Motion Model .....	729
<i>Simon Rit, Jochem Wolthaus, Marcel van Herk, and Jan-Jakob Sonke</i>	
A Statistical Motion Model Based on Biomechanical Simulations for Data Fusion during Image-Guided Prostate Interventions .....	737
<i>Yipeng Hu, Dominic Morgan, Hashim Uddin Ahmed, Doug Pendsé, Mahua Sahu, Clare Allen, Mark Emberton, David Hawkes, and Dean Barratt</i>	

## Registration I

Spherical Demons: Fast Surface Registration .....	745
<i>B.T. Thomas Yeo, Mert Sabuncu, Tom Vercauteren, Nicholas Ayache, Bruce Fischl, and Polina Golland</i>	
Symmetric Log-Domain Diffeomorphic Registration: A Demons-based Approach .....	754
<i>Tom Vercauteren, Xavier Pennec, Aymeric Perchant, and Nicholas Ayache</i>	
EEG to MRI Registration Based on Global and Local Similarities of MRI Intensity Distributions .....	762
<i>Žiga Špiclin, Arne Hans, Frank H. Duffy, Simon K. Warfield, Boštjan Likar, and Franjo Pernuš</i>	
Nonrigid Registration of Dynamic Renal MR Images Using a Saliency Based MRF Model .....	771
<i>Dwarikanath Mahapatra and Ying Sun</i>	

A Constrained Non-rigid Registration Algorithm for Use in Prostate Image-Guided Radiotherapy . . . . . 780  
*William H. Greene, Sudhakar Chelikani, Kailas Purushothaman, Zhe Chen, Jonathan P.S. Knisely, Lawrence H. Staib, Xenophon Papademetris, and Jim Duncan*

**Miscellaneous I**

Identifying Regional Cardiac Abnormalities from Myocardial Strains Using Spatio-temporal Tensor Analysis . . . . . 789  
*Zhen Qian, Qingshan Liu, Dimitris N. Metaxas, and Leon Axel*

Volume Reconstruction by Inverse Interpolation: Application to Interleaved MR Motion Correction . . . . . 798  
*Torsten Rohlfing, Martin H. Rademacher, and Adolf Pfefferbaum*

A Hybrid System for the Semantic Annotation of Sulco-Gyral Anatomy in MRI Images . . . . . 807  
*Ammar Mehouche, Xavier Morandi, Christine Golbreich, and Bernard Gibaud*

Towards Multi-Directional OCT for Speckle Noise Reduction . . . . . 815  
*Lukas Ramrath, Guillermo Moreno, Heike Mueller, Tim Bonin, Gereon Huettmann, and Achim Schweikard*

Automatic Tracking of Escherichia Coli Bacteria . . . . . 824  
*Jun Xie, Shahid Khan, and Mubarak Shah*

Automatic Image Analysis of Histopathology Specimens Using Concave Vertex Graph. . . . . 833  
*Lin Yang, Oncel Tuzel, Peter Meer, and David J. Foran*

Analysis of Surfaces Using Constrained Regression Models . . . . . 842  
*Sune Darkner, Mert R. Sabuncu, Polina Golland, Rasmus R. Paulsen, and Rasmus Larsen*

A Global Approach for Automatic Fibroscopic Video Mosaicing in Minimally Invasive Diagnosis . . . . . 850  
*Selen Atasoy, David P. Noonan, Selim Benhimane, Nassir Navab, and Guang-Zhong Yang*

Riemannian Framework for Estimating Symmetric Positive Definite 4th Order Diffusion Tensors . . . . . 858  
*Aurobrata Ghosh, Maxime Descoteaux, and Rachid Deriche*

Non-uniform Gradient Prescription for Precise Angular Measurements Using DTI . . . . . 866  
*Nathan Yanasak, Jerry D. Allison, Qun Zhao, Tom C.-C. Hu, and Krishnan Dhandapani*

Spatial Weighed Element Based FEM Incorporating a Priori Information on Bioluminescence Tomography . . . . .	874
<i>Jin Shi, Jie Tian, Min Xu, and Wei Yang</i>	
Geometric Deformable Model Driven by CoCRFs: Application to Optical Coherence Tomography . . . . .	883
<i>Gabriel Tsechpenakis, Brandon Lujan, Oscar Martinez, Giovanni Gregori, and Philip J. Rosenfeld</i>	
Contractile Analysis with Kriging Based on MR Myocardial Velocity Imaging . . . . .	892
<i>Su-Lin Lee, Andrew Huntbatch, and Guang-Zhong Yang</i>	
Averaging Centerlines: Mean Shift on Paths . . . . .	900
<i>Theo van Walsum, Michiel Schaap, Coert T. Metz, Alina G. van der Giessen, and Wiro J. Niessen</i>	
On Classifying Disease-Induced Patterns in the Brain Using Diffusion Tensor Images . . . . .	908
<i>Peng Wang and Ragini Verma</i>	
Findings in Schizophrenia by Tract-Oriented DT-MRI Analysis . . . . .	917
<i>Mahnaz Maddah, Marek Kubicki, William M. Wells, Carl-Fredrik Westin, Martha E. Shenton, and W. Eric L. Grimson</i>	
Task-Specific Functional Brain Geometry from Model Maps . . . . .	925
<i>Georg Langs, Dimitris Samaras, Nikos Paragios, Jean Honorio, Nelly Alia-Klein, Dardo Tomasi, Nora D. Volkow, and Rita Z. Goldstein</i>	
Texture Classification in Lung CT Using Local Binary Patterns . . . . .	934
<i>Lauge Sørensen, Saher B. Shaker, and Marleen de Bruijne</i>	
A Symmetry-Based Method for the Determination of Vertebral Rotation in 3D . . . . .	942
<i>Tomaž Vrtovec, Franjo Pernuš, and Boštjan Likar</i>	
Spatio-temporal Speckle Reduction in Ultrasound Sequences . . . . .	951
<i>Noura Azzabou and Nikos Paragios</i>	
Surface-Based Structural Group Analysis of fMRI Data . . . . .	959
<i>Grégory Operto, Cédric Clouchoux, Rémy Bulot, Jean-Luc Anton, and Olivier Coulon</i>	
Dynamic Cardiac Mapping on Patient-Specific Cardiac Models . . . . .	967
<i>Kevin Wilson, Gerard Guiraudon, Doug Jones, Cristian A. Linte, Chris Wedlake, John Moore, and Terry M. Peters</i>	

Detection of DTI White Matter Abnormalities in Multiple Sclerosis Patients . . . . .	975
<i>Olivier Commowick, Pierre Fillard, Olivier Clatz, and Simon K. Warfield</i>	
Automatic Mitral Valve Inflow Measurements from Doppler Echocardiography . . . . .	983
<i>JinHyeong Park, S. Kevin Zhou, John Jackson, and Dorin Comaniciu</i>	
Motion Robust Magnetic Susceptibility and Field Inhomogeneity Estimation Using Regularized Image Restoration Techniques for fMRI . . . . .	991
<i>Desmond Teck Beng Yeo, Jeffrey A. Fessler, and Boklye Kim</i>	
Cortical Surface Thickness as a Classifier: Boosting for Autism Classification . . . . .	999
<i>Vikas Singh, Lopamudra Mukherjee, and Moo K. Chung</i>	
Surface-Based Vector Analysis Using Heat Equation Interpolation: A New Approach to Quantify Local Hippocampal Volume Changes . . . . .	1008
<i>Hosung Kim, Pierre Besson, Olivier Colliot, Andrea Bernasconi, and Neda Bernasconi</i>	
Discovering Structure in the Space of Activation Profiles in fMRI . . . . .	1016
<i>Danial Lashkari, Ed Vul, Nancy Kanwisher, and Polina Golland</i>	
Left Ventricle Tracking Using Overlap Priors . . . . .	1025
<i>Ismail Ben Ayed, Yingli Lu, Shuo Li, and Ian Ross</i>	
Mean q-Ball Strings Obtained by Constrained Procrustes Analysis with Point Sliding . . . . .	1034
<i>Irina Kezele, Cyril Poupon, Muriel Perrin, Yann Cointepas, Vincent El Kouby, Fabrice Poupon, and Jean-François Mangin</i>	
Noninvasive Functional Imaging of Volumetric Cardiac Electrical Activity: A Human Study on Myocardial Infarction . . . . .	1042
<i>Linwei Wang, Ken C.L. Wong, Heye Zhang, and Pengcheng Shi</i>	
A Slicing-Based Coherence Measure for Clusters of DTI Integral Curves . . . . .	1051
<i>Çağatay Demiralp, Gregory Shakhnarovich, Song Zhang, and David H. Laidlaw</i>	
Brain Fiber Architecture, Genetics, and Intelligence: A High Angular Resolution Diffusion Imaging (HARDI) Study . . . . .	1060
<i>Ming-Chang Chiang, Marina Barysheva, Agatha D. Lee, Sarah Madsen, Andrea D. Klunder, Arthur W. Toga, Katie L. McMahon, Greig I. de Zubicaray, Matthew Meredith, Margaret J. Wright, Anuj Srivastava, Nikolay Balov, and Paul M. Thompson</i>	



Group Statistics of DTI Fiber Bundles Using Spatial Functions of  
Tensor Measures ..... 1068  
*Casey B. Goodlett, P. Thomas Fletcher, John H. Gilmore, and  
Guido Gerig*

**Author Index** ..... 1077