

Table of Contents

CAI: Imaging, Modeling and Visualization

Visualization and Planning of Neurosurgical Interventions with Straight Access	1
<i>Nikhil V. Navkar, Nikolaos V. Tsekos, Jason R. Stafford, Jeffrey S. Weinberg, and Zhigang Deng</i>	
Active Multispectral Illumination and Image Fusion for Retinal Microsurgery	12
<i>Raphael Sznitman, Seth Billings, Diego Rother, Daniel Mirotu, Yi Yang, Jim Handa, Peter Gehlbach, Jin U. Kang, Gregory D. Hager, and Russell H. Taylor</i>	
An Iterative Framework for Improving the Accuracy of Intraoperative Intensity-Based 2D/3D Registration for Image-Guided Orthopedic Surgery	23
<i>Yoshito Otake, Mehran Armand, Ofri Sadowsky, Robert S. Armiger, Peter Kazanzides, and Russell H. Taylor</i>	
Automatic Phases Recognition in Pituitary Surgeries by Microscope Images Classification	34
<i>Florent Lalys, Laurent Riffaud, Xavier Morandi, and Pierre Jannin</i>	

Clinical Applications and Validation

C-arm Tracking by Intensity-Based Registration of a Fiducial in Prostate Brachytherapy	45
<i>Pascal Fallavollita, Clif Burdette, Danny Y. Song, Purang Abolmaesumi, and Gabor Fichtinger</i>	
First Animal Cadaver Study for Interlocking of Intramedullary Nails under Camera Augmented Mobile C-arm	56
<i>Lejing Wang, Juergen Landes, Simon Weidert, Tobias Blum, Anna von der Heide, Ekkehard Euler, and Nassir Navab</i>	

Medical Robotics, Instrumentation, and Modeling

Robot-Assisted Laparoscopic Ultrasound	67
<i>Caitlin M. Schneider, Gregory W. Dachs II, Christopher J. Hasser, Michael A. Choti, Simon P. DiMaio, and Russell H. Taylor</i>	

New Kinematic Metric for Quantifying Surgical Skill for Flexible Instrument Manipulation	81
<i>Jagadeesan Jayender, Raúl San José Estépar, and Kirby G. Vosburgh</i>	
GPU-Accelerated Robotic Intra-operative Laparoscopic 3D Reconstruction	91
<i>Markus Moll, Hsiao-Wei Tang, and Luc Van Gool</i>	
A Minimally Invasive Multimodality Image-Guided (MIMIG) Molecular Imaging System for Peripheral Lung Cancer Intervention and Diagnosis	102
<i>Tiancheng He, Zhong Xue, Kelvin K. Wong, Miguel Valdivia y Alvarado, Yong Zhang, Weixin Xie, and Stephen T.C. Wong</i>	
Simulating Dynamic Ultrasound Using MR-derived Motion Models to Assess Respiratory Synchronisation for Image-Guided Liver Interventions	113
<i>Erik-Jan Rijkhorst, Daniel Heanes, Freddy Odille, David Hawkes, and Dean Barratt</i>	

Cardiovascular Modeling and Navigation

Rapid Image Registration of Three-Dimensional Transesophageal Echocardiography and X-ray Fluoroscopy for the Guidance of Cardiac Interventions	124
<i>Gang Gao, Graeme Penney, Nicolas Gogin, Pascal Cathier, Aruna Arujuna, Matt Wright, Dennis Caulfield, Aldo Rinaldi, Reza Razavi, and Kawal Rhode</i>	
Patient-Specific Modeling and Analysis of the Mitral Valve Using 3D-TEE	135
<i>Philippe Burlina, Chad Sprouse, Daniel DeMenthon, Anne Jorstad, Radford Juang, Francisco Contijoch, Theodore Abraham, David Yuh, and Elliot McVeigh</i>	
Evaluation of a 4D Cone-Beam CT Reconstruction Approach Using an Anthropomorphic Phantom	147
<i>Ziv Yaniv, Jan Boese, Marilyn Sarmiento, and Kevin Cleary</i>	

Planning, Simulation, and Guidance

Determination of Pelvic Orientation from Ultrasound Images Using Patch-SSMs and a Hierarchical Speed of Sound Compensation Strategy	157
<i>Steffen Schumann, Marc Puls, Timo Ecker, Tobias Schwaegli, Jan Stifter, Klaus-A. Siebenrock, and Guoyan Zheng</i>	

Ultrasound Servoing of Catheters for Beating Heart Valve Repair	168
<i>Samuel B. Kesner, Shelten G. Yuen, and Robert D. Howe</i>	
Towards a Verified Simulation Model for Radiofrequency Ablations	179
<i>Andreas Weihusen, Lisa Hinrichsen, Thomas Carus, Rainer Dammer, Richard Rascher-Friesenhausen, Tim Kröger, Heinz-Otto Peitgen, and Tobias Preusser</i>	
Early Clinical Evaluation of a Computer Assisted Planning System for Deep Brain Surgeries: 1 Year of Clinical Assistance	190
<i>Pierre-François D’Haese, Rui Li, Srivatsan Pallavaram, Todd Shanks, Peter Zahos, Joseph Neimat, Peter Konrad, and Benoit M. Dawant</i>	
Author Index	201