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Nota di contenuto	CAI: Imaging, Modeling and Visualization -- Visualization and Planning of Neurosurgical Interventions with Straight Access -- Active Multispectral Illumination and Image Fusion for Retinal Microsurgery -- An Iterative Framework for Improving the Accuracy of Intraoperative

Intensity-Based 2D/3D Registration for Image-Guided Orthopedic Surgery -- Automatic Phases Recognition in Pituitary Surgeries by Microscope Images Classification -- Clinical Applications and Validation -- C-arm Tracking by Intensity-Based Registration of a Fiducial in Prostate Brachytherapy -- First Animal Cadaver Study for Interlocking of Intramedullary Nails under Camera Augmented Mobile C-arm -- Medical Robotics, Instrumentation, and Modeling -- Robot-Assisted Laparoscopic Ultrasound -- New Kinematic Metric for Quantifying Surgical Skill for Flexible Instrument Manipulation -- GPU-Accelerated Robotic Intra-operative Laparoscopic 3D Reconstruction -- A Minimally Invasive Multimodality Image-Guided (MIMIG) Molecular Imaging System for Peripheral Lung Cancer Intervention and Diagnosis -- Simulating Dynamic Ultrasound Using MR-derived Motion Models to Assess Respiratory Synchronisation for Image-Guided Liver Interventions -- Cardiovascular Modeling and Navigation -- Rapid Image Registration of Three-Dimensional Transesophageal Echocardiography and X-ray Fluoroscopy for the Guidance of Cardiac Interventions -- Patient-Specific Modeling and Analysis of the Mitral Valve Using 3D-TEE -- Evaluation of a 4D Cone-Beam CT Reconstruction Approach Using an Anthropomorphic Phantom -- Planning, Simulation, and Guidance -- Determination of Pelvic Orientation from Ultrasound Images Using Patch-SSMs and a Hierarchical Speed of Sound Compensation Strategy -- Ultrasound Servoing of Catheters for Beating Heart Valve Repair -- Towards a Verified Simulation Model for Radiofrequency Ablations -- Early Clinical Evaluation of a Computer Assisted Planning System for Deep Brain Surgeries: 1 Year of Clinical Assistance.

Sommario/riassunto

Thanks to scientific and technological advances in many parallel fields, medical procedures are rapidly evolving towards solutions which are less invasive and more effective. In the previous decades, information processing in diagnostic imaging provided many solutions to physicians in particular within radiology, neurology, cardiology, nuclear medicine and radiation therapy departments. In the last decade, progress in computer technology, imaging and mechatronics has allowed computer-assisted intervention (CAI) systems and solutions to penetrate the intervention and operating rooms. CAI’s major challenge in the beginning of the twenty-first century is real-time processing, analysis and visualization of large amount of heterogeneous, static and dynamic patient data, and understanding of surgery for designing intelligent operating rooms and developing advanced training tools. Excellent scientists, engineers and physicians have created many advanced research groups around the world and are starting to provide innovative, breakthrough solutions. Information Processing in Computer-Assisted Interventions (IPCAI) aims at gathering the best work in this field and allowing authors to present and discuss it in detail. IPCAI wishes to select and present the highlights of research in CAI and aims at distinguishing itself for the quality of the presented papers and the excitement and depth of the discussions they generate.