

1. Record Nr.	UNINA9910300082403321
Titolo	Intraoperative Imaging and Image-Guided Therapy [[electronic resource] /] / edited by Ferenc A. Jolesz
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2014
ISBN	9781461476573 1-4614-7657-7
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (870 p.)
Disciplina	610 610.28 616.07 616.07/57
Soggetti	Interventional radiology Minimally invasive surgery Radiology Biomedical engineering Interventional Radiology Minimally Invasive Surgery Imaging / Radiology Biomedical Engineering and Bioengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction.- History of Image-Guided Therapy at Brigham and Women's Hospital -- Modeling and Simulation -- Computational Support for Intraoperative Imaging and IGT -- Registration and Segmentation for Image Guided Therapy -- Navigation -- Visualization and Display for Image-Guided Therapy -- Validation of New Procedures and Training Processes Through Physical Task Analysis -- X-Ray Fluoroscopy -- Technology of Ultrasound Guided Therapy -- Innovations in Ultrasound Instrumentation for Image Guidance -- CT-guided Interventions: Current Practice and Future Directions -- Real-time and Interactive MRI -- Deformable registration for IGT -- PET/CT

for Interventional Use -- Intraoperative Optical Imaging -- Surgical Navigation Technology -- Navigation with the Integration of Device Tracking and Medical Imaging -- 3D Slicer: a Platform for Subject-Specific Image Analysis, Visualization, and Clinical Support -- Design and Construction of An Image-Guide Procedure Room -- The Hybrid Neurovascular Operating Room -- A Multimodal Diagnostic, Interventional, and Surgical Procedure Suite: The MRI/X-ray/Operation Suite (MRXO) -- Workflow Analysis, Design Modeling and Simulation for the Multimodality Imaging Operating System (MITOS) -- The Advanced Multi-Modality Image-Guided Operating (AMIGO) Suite -- Image-guided Radiation Therapy: Quality and Performance in Cancer Intervention -- Image-Guided Brachytherapy -- MRI Monitoring and Control of Cryoablation -- MRI-Guided Focused Ultrasound -- Image Guided Endoscopy -- Intra-Operative Guidance Using 3D Scene Reconstruction from Endoscopic Images -- Image-Guided Robotics in Minimally Invasive Therapies -- Magnetic Resonance Image-Guided Neurosurgery -- High Field Intraoperative MR-Guided Neurosurgery -- A Rationale for the Use and Development of Methods for Image-Guided Brain Tumor Surgery -- Brain Shift and Updated Intraoperative Navigation with Intraoperative MRI -- Multimodality Navigation in Neurosurgery -- Image-Guided Neurosurgical Planning -- Intraoperative MRI in Pediatric Neurosurgery -- Intraoperative CT in Neurosurgery -- Intraoperative Angiography in Neurosurgery -- Intraoperative Ultrasound in Neurosurgery -- MRI-Guided and Controlled Laser-Induced Interstitial Thermal Therapy of Brain Tumors Using Integrated Navigation and Thermal Mapping -- MRI-Guided Interstitial Laser Therapy of Brain Tumors -- Optical Navigation -- Functional Neurosurgery with MRI-Guided HIFU -- Progress in Neurosurgical Robotics -- Image Guidance in Spine Surgery -- Image-Guided Bone Interventions -- Image-Guided Orthopedic Surgery -- Computer-assisted Orthopaedic Surgery -- Robotic Arm Assisted Unicompartamental Knee Arthroplasty: Preoperative Planning And Surgical Technique -- Intraoperative Imaging in Cardiac Surgery -- MRI-Compatible C-arm Imaging for Cardiac Intervention -- Image-Guided Cardiac Electro-Physiology Procedures Focusing on MRI-Guidance -- MR Enhancing Implants -- MR Imaging and the Biopsy of Prostate Cancer -- Image-Guided Prostate Brachytherapy -- Multimodality Guidance in Endoscopic and Laparoscopic Abdominal Procedures -- Image-Guided Liver Surgery -- Soft Tissue Navigation and Liver Surgery Support -- MR-Guided Radiofrequency Ablation of Liver Tumours -- Magnetic Resonance Imaging Guided Breast Intervention and Surgery -- Image-Guided Otorhinolaryngology -- Image-Guided Sinus Endoscopy.

Sommario/riassunto

Image-guided therapy (IGT) uses imaging to improve the localization and targeting of diseased tissue and to monitor and control treatments. During the past decade, image-guided surgeries and image-guided minimally invasive interventions have emerged as advances that can be used in place of traditional invasive approaches. Advanced imaging technologies such as magnetic resonance imaging (MRI), computed tomography (CT), and positron emission tomography (PET) entered into operating rooms and interventional suites to complement already-available routine imaging devices like X-ray and ultrasound. At the same time, navigational tools, computer-assisted surgery devices, and image-guided robots also became part of the revolution in interventional radiology suites and the operating room. Intraoperative Imaging and Image-Guided Therapy explores the fundamental, technical, and clinical aspects of state-of-the-art image-guided therapies. It presents the basic concepts of image guidance, the

technologies involved in therapy delivery, and the special requirements for the design and construction of image-guided operating rooms and interventional suites. It also covers future developments such as molecular imaging-guided surgeries and novel innovative therapies like MRI-guided focused ultrasound surgery. IGT is a multidisciplinary and multimodality field in which teams of physicians, nurses, and other professionals, such as physicists, engineers, and computer scientists, collaborate in performing these interventions, an approach that is reflected in the organization of the book. Contributing authors include members of the National Center of Image-Guided Therapy program at Brigham and Women's Hospital and international leaders in the field of IGT. The book includes coverage of these topics: - Imaging methods, guidance technologies, and the therapy delivery systems currently used or in development. - Clinical applications for IGT in various specialties such as neurosurgery, ear-nose-and-throat surgery, cardiovascular surgery, endoscopic surgery, and orthopedic surgery. - Review and comparison of the clinical uses for IGT with conventional methods in terms of invasiveness, effectiveness, and outcome. - Requirements for the design and construction of image-guided operating rooms and interventional suites.
