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Neurodegeneration in Multiple Sclerosis Springer Nature

This book offers a comprehensive overview of current knowledge on the health problems and injuries associated with football and their clinical management. After an opening section on technical aspects and fundamental principles, all areas of football traumatology are addressed. The coverage includes muscle, tendon, and stress injuries of the lower limbs and injuries to the ankle and foot, knee, hip and groin, spine and head, and upper limbs. An individual section is also devoted to the most significant heart and other health conditions that may be encountered in players of all ages and standards. Follow-up, rehabilitation, and return to activity are discussed, and the role of performance enhancement strategies is carefully examined, with description of nutritional guidelines and the evidence on use of dietary supplements. A concluding section highlights the potential of the next generation of biologics to improve the regeneration and biofunctionality of damaged tissues. This book is written by world-renowned experts and has been produced in cooperation with ISAKOS. It will serve as a reference in the field of orthopaedics.

John Wiley & Sons

Magnetic Resonance Imaging (MRI) is among the most important medical imaging techniques available today. There is an installed base of approximately 15,000 MRI scanners worldwide. Each of these scanners is capable of running many different "pulse sequences", which are governed by physics and engineering principles, and implemented by software programs that control the MRI hardware. To utilize an MRI scanner to the fullest extent, a conceptual understanding of its pulse sequences is crucial. Handbook of MRI Pulse Sequences offers a complete guide that can help the scientists, engineers, clinicians, and technologists in the field of MRI understand and better employ their scanner. Explains pulse sequences, their components, and the associated image reconstruction methods commonly used in MRI Provides self-contained sections for individual techniques Can be used as a quick reference guide or as a resource for deeper study Includes both non-mathematical and mathematical descriptions Contains numerous figures, tables, references, and worked example problems

Internet Addiction Springer

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, 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, endoscopies, and orthopedic procedures. - 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.

MR-guided Interventions Springer Science & Business Media

The 41st Annual International Conference of the IEEE EMBS, took place between July 23 and 27, 2019, in Berlin, Germany. The focus was on "Biomedical engineering ranging from wellness to intensive care." This conference provided an opportunity for researchers from academia and industry to discuss a variety of topics relevant to EMBS and hosted the 4th Annual Invited Session on Computational Human Models. At this session, a bevy of research related to the development of human phantoms was presented, together with a substantial variety of practical applications explored through simulation.

Intraoperative Imaging and Image-Guided Therapy Springer Science & Business Media

Single photon emission computerized tomography (SPECT) is a relatively cheap and widely available instrument for the examination of brain perfusion, cerebral blood flow and activity of neurotransmitter systems. The European project 'SPECT in dementia' sets out to overcome some of the factors holding back the development of clinical neuroimaging. It has developed a methodology for combining results from different imaging centres, at the same time making scan assessment more objective and powerful. Moreover, using objective voxel-based methods of image analysis improves the diagnostic performance of less-experienced clinicians and contributes to their training. This publication gives an excellent general overview of the new methods of image analysis and sharing. It is complemented by a systematic review of the diagnostic utility of SPECT in dementia and a cost-effectiveness model of diagnostic improvements in Alzheimers disease. This book is essential reading for all scientists, economists and clinicians in geriatric medicine, neurology and psychiatry, neuro-radiology and nuclear medicine working with patients suffering from dementia and Alzheimer's disease, who want to stay ahead in this rapid developing field.

Advances in Image-Guided Urologic Surgery Springer Science & Business Media

This book, edited by leading experts in radiology, nuclear medicine, and radiation oncology, offers a wide-ranging, state of the art overview of the specifics and the benefits of a multidisciplinary approach to the use of imaging in image-guided radiation treatments for different tumor types. The entire spectrum of the most important cancers treated by radiation are covered, including CNS, head and neck, lung, breast, gastrointestinal, genitourinary, and gynecological tumors. The opening sections of the book address background issues and a range of important technical aspects. Detailed information is then provided on the use of different imaging techniques for T staging and target volume delineation, response assessment, and follow-up in various parts of the body. The focus of the book ensures that it will be of interest for a multidisciplinary forum of readers comprising radiation oncologists, nuclear medicine physicians, radiologists and other medical professionals.

Handbook of MRI Pulse Sequences Springer Handbook of Medical Technology Present Your Research to the World! The World Congress 2009 on Medical Physics and Biomedical Engineering – the triennial scientific meeting of the IUPESM – is the world’s leading forum for presenting the results of current scientific work in health-related physics and technologies to an international audience. With more than 2,800 presentations it will be the biggest conference in the fields of Medical Physics and Biomedical Engineering in 2009! Medical physics, biomedical engineering and bioengineering have been driving forces of innovation and progress in

medicine and healthcare over the past two decades. As new key technologies arise with significant potential to open new options in diagnostics and therapeutics, it is a multidisciplinary task to evaluate their benefit for medicine and healthcare with respect to the quality of performance and therapeutic output. Covering key aspects such as information and communication technologies, micro- and nanosystems, optics and biotechnology, the congress will serve as an inter- and multidisciplinary platform that brings together people from basic research, R&D, industry and medical application to discuss these issues. As a major event for science, medicine and technology the congress provides a comprehensive overview and in-depth, first-hand information on new developments, advanced technologies and current and future applications. With this Final Program we would like to give you an overview of the dimension of the congress and invite you to join us in Munich! Olaf Dössel Congress President Wolfgang C.

Official Gazette of the United States Patent and Trademark Office Springer Science & Business Media

This book is a comprehensive guide to skull base imaging. Skull base is often a “no man’s land” that requires treatment using a team approach between neurosurgeons, head and neck surgeons, vascular interventionalists, radiotherapists, chemotherapists, and other professionals. Imaging of the skull base can be challenging because of its intricate anatomy and the broad breadth of presenting pathology. Although considerably complex, the anatomy is comparatively constant, while presenting pathologic entities may be encountered at myriad stages. Many of the pathologic processes that involve the skull base are rare, causing the average clinician to require help with their diagnosis and treatment. But, before any treatment can begin, these patients must come to imaging and receive the best test to establish the correct diagnosis and make important decisions regarding management and treatment. This book provides a guide to neuroradiologists performing that imaging and as a reference for related physicians and surgeons. The book is divided into nine sections: Pituitary Region, Cerebellopontine Angle, Anterior Cranial Fossa, Middle Cranial Fossa, Craniovertebral Junction, Posterior Cranial Fossa, Inflammatory, Sarcomas, and Anatomy. Within each section, either common findings in those skull areas or different types of sarcomas or inflammatory conditions and their imaging are detailed. The anatomy section gives examples of normal anatomy from which to compare findings against. All current imaging techniques are covered, including: CT, MRI, US, angiography, CT cisternography, nuclear medicine and plain film radiography. Each chapter additionally includes key points, classic clues, incidence, differential diagnosis, recommended treatment, and prognosis. Skull Base Imaging provides a clear and concise reference for all physicians who encounter patients with these complex and relatively rare maladies.

Intraoperative Imaging Springer Science & Business Media The idea of using the enormous potential of magnetic resonance imaging (MRI) not only for diagnostic but also for interventional purposes may seem obvious, but it took major efforts by engineers, physicists, and clinicians to come up with dedicated interventional techniques and scanners, and improvements are still ongoing. Since the inception of interventional MRI in the mid-1990s, the numbers of settings, techniques, and clinical applications have increased dramatically. This state of the art book covers all aspects of interventional MRI. The more technical contributions offer an overview of the fundamental ideas and concepts and present the available instrumentation. The richly illustrated clinical contributions, ranging from MRI-guided biopsies to completely MRI-controlled therapies in various body regions, provide detailed information on established and emerging applications and identify future

trends and challenges.

Imaging and Interventional Radiology for Radiation Oncology John Wiley & Sons

Presents basic concepts, experimental methodology and data acquisition, and processing standards of in vivo NMR spectroscopy

This book covers, in detail, the technical and biophysical aspects of in vivo NMR techniques and includes novel developments in the field such as hyperpolarized NMR, dynamic 13C NMR, automated shimming, and parallel acquisitions. Most of the techniques are described from an educational point of view, yet it still retains the practical aspects appreciated by experimental NMR spectroscopists. In addition, each chapter concludes with a number of exercises designed to review, and often extend, the presented NMR principles and techniques. The third edition of In Vivo NMR Spectroscopy: Principles and Techniques has been updated to include experimental detail on the developing area of hyperpolarization; a description of the semi-LASER sequence, which is now a method of choice; updated chemical shift data, including the addition of 31P data; a troubleshooting section on common problems related to shimming, water suppression, and quantification; recent developments in data acquisition and processing standards; and MatLab scripts on the accompanying website for helping readers calculate radiofrequency pulses. Provide an educational explanation and overview of in vivo NMR, while maintaining the practical aspects appreciated by experimental NMR spectroscopists

Features more experimental methodology than the previous edition

End-of-chapter exercises that help drive home the principles and techniques and offer a more in-depth exploration of quantitative MR equations

Designed to be used in conjunction with a teaching course on the subject

In Vivo NMR Spectroscopy: Principles and Techniques, 3rd Edition is aimed at all those involved in fundamental and/or diagnostic in vivo NMR, ranging from people working in dedicated in vivo NMR institutes, to radiologists in hospitals, researchers in high-resolution NMR and MRI, and in areas such as neurology, physiology, chemistry, and medical biology.

MRI from Picture to Proton Springer Science & Business Media

Written by world-renowned scientists, the volume provides a state-of-the-art on the most recent MRI techniques related to MS, and it is an indispensable tool for all those working in this field. The context in which this book exists is that there is an increasing perception that modern MR methodologies should be more extensively employed in clinical trials to derive innovative information.

CT- and MR-Guided Interventions in Radiology Springer Nature

?This book serves as a foundation for MRI guided laser interstitial thermal therapy (LITT) across neurosurgical diseases. It provides state-of-the-art information on the latest indications and results for LITT in CNS applications, as well as prerequisite historical perspective and technical fundamentals. Written by experts in the field, the text reviews the historical development of LITT, the technical and technological components required to perform LITT, its indications and contraindications, areas that still require investigation, LITT complications, and challenges to starting up LITT within one’s practice. As early adopters of the technology, the authors provide sage advice that reflects the initial learning curves of many of the users. The book then concludes with a practical guide to starting up a LITT practice in the current medical socioeconomic environment. Laser Interstitial Thermal Therapy in Neurosurgery is a guide that will allow all neurosurgeons interested in LITT to successfully adopt the technology and incorporate its use seamlessly, safely and appropriately into their individual practices.

Coronary Magnetic Resonance Angiography Springer Science & Business Media

The second, revised edition of this successful textbook provides an up-to-date description of the use of preoperative fMRI in patients with brain tumors and epilepsies. State of

the art fMRI procedures are presented, with detailed consideration of practical aspects, imaging and data processing, normal and pathological findings, and diagnostic possibilities and limitations. Relevant information on brain physiology, functional neuroanatomy, imaging technique, and methodology is provided by recognized experts in these fields. Compared with the first edition, chapters have been updated to reflect the latest developments and in particular the current use of diffusion tensor imaging (DTI) and resting-state fMRI. Entirely new chapters are included on resting-state presurgical fMRI and the role of DTI and tractography in brain tumor surgery. Further chapters address multimodality functional neuroimaging, brain plasticity, and pitfalls, tips, and tricks.

Neuromodulation in Psychiatry Springer Nature

This book addresses all aspects of digital techniques in orthopedics, from development of the core principles to imaging techniques, computer-aided design, reverse engineering and their applications. It illustrates the successful applications in accurate operation using 3-D reconstruction and applied digital techniques. All illustrations and tables were meticulously selected and are easy to understand. The book was written for all doctors and researchers who work in the fields of orthopedics, CAD/CAM and anatomy. Above all, surgeons, physiatrists, radiologists, and engineers in image processing and orthopedics will find it a valuable resource.

World Congress on Medical Physics and Biomedical Engineering September 7 - 12, 2009 Munich, Germany Elsevier

In recent years, there has been increasing interest in the clinical applications of coronary angiography techniques. Coronary MRA can be instrumental in the evaluation of congenital coronary artery anomalies, however, the complexity of advanced MR pulse sequences and strategies may be overwhelming to many. Coronary MR Angiography demystifies the art of coronary MRA by providing a text in plain language with clearly illustrated imaging steps and protocols. Designed to bridge the gap between radiology and cardiology, it is written for physicians and scientists planning to incorporate this technique into their research or practice.

Information Processing in Computer-Assisted Interventions Springer Nature

This book provides an overview of the current state-of-art in combining advances in biomedical imaging with intraoperative navigation and preoperative planning for urologic surgery. These advances hold great promise in improving diagnostic and therapeutic urologic interventions to improve patient outcomes. Leading experts in this exciting emerging field covers early clinical and pre-clinical applications of optical, ultrasound, cross-sectional and computer-assisted imaging in urologic surgery. Advances in Image-Guided Urologic Surgery provides a unique and valuable resource for audience with clinical and research interest in minimally invasive surgery, endourology, urologic oncology, imaging and biomedical engineering.

In Vivo NMR Spectroscopy Springer

The four-volume set LNCS 11070, 11071, 11072, and 11073 constitutes the refereed proceedings of the 21st International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2018, held in Granada, Spain, in September 2018. The 373 revised full papers presented were carefully reviewed and selected from 1068 submissions in a double-blind review process. The papers have been organized in the following topical sections: Part I: Image Quality and Artefacts; Image Reconstruction Methods; Machine Learning in Medical Imaging; Statistical Analysis for Medical Imaging; Image Registration Methods. Part II: Optical and Histology Applications: Optical Imaging Applications; Histology Applications; Microscopy Applications; Optical Coherence Tomography and Other

Optical Imaging Applications. Cardiac, Chest and Abdominal Applications: Cardiac Imaging Applications: Colorectal, Kidney and Liver Imaging Applications; Lung Imaging Applications; Breast Imaging Applications; Other Abdominal Applications. Part III: Diffusion Tensor Imaging and Functional MRI: Diffusion Tensor Imaging; Diffusion Weighted Imaging; Functional MRI; Human Connectome. Neuroimaging and Brain Segmentation Methods: Neuroimaging; Brain Segmentation Methods. Part IV: Computer Assisted Intervention: Image Guided Interventions and Surgery; Surgical Planning, Simulation and Work Flow Analysis; Visualization and Augmented Reality. Image Segmentation Methods: General Image Segmentation Methods, Measures and Applications; Multi-Organ Segmentation; Abdominal Segmentation Methods; Cardiac Segmentation Methods; Chest, Lung and Spine Segmentation; Other Segmentation Applications.

Digital Orthopedics SPIE Press

Interventional radiology is an indispensable and still expanding area of modern medicine that encompasses numerous diagnostic and therapeutic procedures. The revised and extended second edition of this volume covers a broad range of non-vascular interventions guided by CT or MR imaging. Indications, materials, techniques, and results are all carefully discussed. A particularly comprehensive section is devoted to interventional oncology as the most rapidly growing branch of interventional radiology. In addition, detailed information is provided that will assist in establishing and developing an interventional service. This richly illustrated book will be a most valuable source of information and guidance for all radiologists who deal with non-vascular procedures.

Equine MRI John Wiley & Sons

Edited by an expert multidisciplinary team, Neuromodulation in Psychiatry is the first reference guide to address both invasive and non-invasive neuromodulation strategies used in psychiatry. Covers basic principles, technical aspects, clinical applications and ethical considerations

Presents up-to-date evidence in comprehensive summaries suitable for all levels of experience

Each technique is clearly explained along with its implications for real-world clinical practice

Allows psychiatrists to make informed decisions regarding neuromodulation for their patients

Medical Image Computing and Computer Assisted Intervention -- MICCAI 2018 Elsevier

Computer-Assisted Diagnosis: Diabetes and Cardiovascular Disease brings together multifaceted information on research and clinical applications from an academic, clinical, bioengineering and bioinformatics perspective. The editors provide a stellar, diverse list of authors to explore this interesting field. Academic researchers, bioengineers, new investigators and students interested in diabetes and heart disease need an authoritative reference to reduce the amount of time spent on source-searching so they can spend more time on actual research and clinical application. This reference accomplishes this with contributions by authors from around the world. Provides valuable information for academic clinicians, researchers, bioengineers and industry on diabetes and cardiovascular disease

Discusses the impact of diabetes on cardiovascular disease

Covers statistical classification techniques and risk stratification