

Spiral And Multislice Computed Tomography Of The Body Thieme

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[Computed Tomography of the Coronary Arteries, Second Edition](#) - Pim J. de Feyter 2008-09-04

Updated to reflect the notable advances in cardiac computed tomography (CT) imaging, the Second Edition of the best-selling *Computed Tomography of the Coronary Arteries* provides cardiologists and radiologists with a practical text that explains the basic principles and applications of CT. Written by renowned international experts in the field, this accessible resource clearly presents the fundamentals of the new technology of 64-slice imaging through the use of high quality illustrations, references, and tables. Contents include: image post-processing coronary imaging for normal coronary arteries coronary pathology and coronary imaging coronary stenosis coronary plaque imaging and calcification chronic total

occlusion an assessment of coronary stents coronary artery anomalies in adults coronary collaterals and bypass grafts cardiac masses, intracardiac thrombi, and pericardial abnormalities great thoracic vessels noncardiac findings on CT calcium screening left ventricular function artefacts the future of cardiac CT imaging contrast-enhancement for coronary angiography

Protocols for Multislice Helical Computed Tomography - Peter H. Dawson 2006

Computed Tomography of the Coronary Arteries - de Feyter Pim 2004-12-22

Most cardiologists and radiologists are not acquainted with CT coronary imaging. This has inspired the compilation of this book, which is the culmination of the collaborated effort of

cardiologists and radiologists to draw up a practical CT book explaining the basic principles and applications of CT by use of many illustrations and tables and avoid

Multidetector-Row Computed Tomography - G.

Marchal 2005-12-06

Multidetector-row computed tomography (MDCT)

has advanced the approach to diagnostic assessment of many pathologies and now plays an integral role in imaging of both abdominal and cardiovascular diseases. The possibility to acquire diagnostic images with shorter scan duration, longer scan ranges, and/or thinner sections, MDCT has facilitated the opening of new horizons, such as interventional MDCT and functional imaging in stroke and oncology. In addition, advanced postprocessing techniques now permit high quality volumetric imaging in combination with maximum intensity projections, volume rendering, curved planar reformations and multiplanar reconstructions. This volume gathers contributions by internationally renowned specialists in the field who, through presenting their clinical experience, provide a thorough overview not only of MDCT and its practical applications, but also of workflow management in everyday clinical practice. Focussing on scanning and contrast protocols, the current advantages and disadvantages of non-enhanced vs. enhanced MDCT are discussed, along with insights into likely future developments. The

volume represents an up-to-date source of technical and practically-oriented clinical information which should prove of great benefit to all who wish to improve or consolidate their knowledge and expertise in MDCT.

Multislice CT: A Practical Guide - B. Marincek

2012-12-06

Until recently, CT scanner performance was limited by a series of compromises. With single-detector scanners, one cannot select thin collimation and still maintain the required extent of volumetric coverage. Slow scans cause motion artifacts that impair image quality. The introduction of multidetector CT technology, however, has revolutionized the field. Currently multidetector, multislice CT scanners acquire up to four channels of data from interweaving spirals. The minimum gantry rotation period is as low as half of a second. This increased scan speed allows for thinner collimation and thus higher longitudinal or z-axis resolution in comparison with single-detector CT. The improved image quality with multidetector technology leads to new applications of CT, particularly in cardiac, vascular, and abdominal imaging. On-going clinical studies are evaluating the suitability of this new imaging tool for non-invasive screening and diagnosis of coronary artery disease. A particular advantage to the increased scan speed in vascular imaging is the ability to cut intra venous contrast dosage and still maintain peak

enhancement CT throughout the entire acquisition. Thin-section, multiphase acquisition during optimal arterial-phase and venous-phase enhancement significantly improves the accuracy for small lesion and vessel detection, and enhances overall classification of abdominal neoplasms. On the other hand, the increasingly large volume data sets force to new ways of looking at, presenting, storing, and transferring images. Networking and two- and three-dimensional data processing are the key words.

Computed Tomography - E-Book - Euclid Seeram
2013-08-13

Radiologic technologists play an important role in the care and management of patients undergoing advanced imaging procedures. This new edition provides the up-to-date information and thorough coverage you need to understand the physical principles of computed tomography (CT) and safely produce high-quality images. You'll gain valuable knowledge about the practice of CT scanning, effective communication with other medical personnel, and sectional anatomic images as they relate to CT. Comprehensively covers CT at just the right depth for technologists – going beyond superficial treatment to accommodate all the major advances in CT. One complete CT resource covers what you need to know! Brings you up to date with the latest in multi-slice spiral CT and its applications – the only text to include full coverage of this important

topic. Features a chapter devoted to quality control testing of CT scanners (both spiral CT and conventional scan-and-stop), helping you achieve and maintain high quality control standards.

Provides the latest information on: advances in volume CT scanning; CT fluoroscopy; multi-slice spiral/helical CT; and multi-slice applications such as 3-D imaging, CT angiography, and virtual reality imaging (endoscopy) – all with excellent coverage of state-of-the-art principles, instrumentation, clinical applications and quality control. Two new chapters cover recent developments and important principles of multislice CT and PET/CT, giving you in-depth coverage of these quickly emerging aspects of CT. Nearly 100 new line drawings and images illustrate difficult concepts, helping you learn and retain information. All-new material updates you on today's CT scanners, CT and PACS, image quality and quality control for multislice CT scanners, and clinical applications.

Cardiac CT Imaging - Matthew J. Budoff
2006-09-03

CT is an accurate technique for assessing cardiac structure and function, but advances in computing power and scanning technology have resulted in increased popularity. It is useful in evaluating the myocardium, coronary arteries, pulmonary veins, thoracic aorta, pericardium, and cardiac masses; because of this and the speed at which scans can be performed, CT is even more attractive as

a cost-effective and integral part of patient evaluation. This book collates all the current knowledge of cardiac CT and presents it in a clinically relevant and practical format appropriate for both cardiologists and radiologists. The images have been supplied by an experienced set of contributing authors and represent the full spectrum of cardiac CT. As increasing numbers have access to cardiac CT scanners, this book provides all the relevant information on this modality.

Kalender – Computed Tomography – Fundamentals, System Technology, Image Quality, Applications 4e - W. A. Kalender 2021-08-25

Multislice CT - Maximilian Reiser 2003-01-01

This second revised edition of *Multislice CT* provides a comprehensive overview of the clinical application of this exciting technique, following the introduction of the newest generation of multidetector row CT scanners. An initial section considers technical aspects and issues, including those relating to radiation dose and use of contrast material. Thereafter the focus is on the diagnostic applications of multislice CT in each of the most important anatomical regions.

Examinations of the abdomen, head and neck, brain, chest, and blood vessels are individually described and illustrated, due attention being paid to the special scanner settings necessary in each case. Practical guidelines to the performance of a

successful investigation are provided, and each chapter also reviews the most recently published literature. This comprehensive book will be an invaluable asset to radiologists at all levels. Book jacket.

Atlas of Non-Invasive Coronary Angiography by Multidetector Computed Tomography - Guillem Pons-Llado 2007-03-06

This atlas presents over 160 illustrations, with 116 in color, and illustrates the capacity of multidetector CT for the analysis of the anatomy of the coronary arteries. The multidetector CT scanner speeds diagnosis and treatment of patients. One of its many uses is to perform CT coronary angiography. Multidetector CT provides clear pictures and takes less time than other non-invasive techniques. The book is written by cardiologists and radiologists.

Multislice CT - Friedrich Knollmann 2006

A team of international experts provides a hands-on, evidence-based overview of the latest clinical applications of multislice computed tomography. Each chapter begins with standard examination protocols for a particular body area and then provides detailed explanations of the key parameter choices for each scanner type - with supportive data from the available literature, wherever possible. The result is today's state-of-the-art definitive guide to the cost-effective use of this revolutionary new technology. Offers a complete overview of the most important

applications of multislice computed tomography for all body areas. Organizes information in a head-to-toe format, making guidance quick and easy to find. Features abundantly illustrated guidance with many color 3-D images. Presents up-to-date coverage based upon the most recent technology, from 4-row to 64-row CT systems. Includes the latest information on contrast agents and equipment protocols. Also includes Multislice CT Angiography, the most advanced technique in vascular imaging. Covers the latest interventional procedures guided by MSCT.

Comparing Conventional & Multislice Spiral CT in Dental Implantology - Wael Aboelmaaty 2013-01

The field of Oral and Maxillofacial Radiology is highly developing and growing everyday. Most of the dental specialists became dependent on new radiographic modalities on a daily basis for accurate diagnosis. Implant dentistry is one of these fields which require accurate assessment pre-operatively of the implant site and also evaluation of implant insertion and success post-operatively. In this study we are comparing between conventional and multislice spiral computed tomography as a tool in pre- and post-implant insertion. We compared the image quality and the accurateness of implant assessment to achieve the best results.

Protocols for Multislice CT - R. Brüning
2006-01-16

This book provides structured up-to-date

information on all routine protocols used for multislice (multidetector row) CT. The volume contains a detailed technical section and covers the prevailing investigations of the brain, neck, lungs and chest, abdomen with parenchymal organs and gastrointestinal tract, the musculoskeletal system and CTA as well as dedicated protocols for the heart. Separate chapters address the how-to of CT-guided interventions such as punctures, drainages, and therapeutic approaches. Each protocol is displayed en bloc, enabling rapid appreciation of indications and the necessary scanner settings. The second edition includes contributions by renowned experts in the field, who not only provide their clinical experience on each topic, but also give guidelines for indications, workflow, postprocessing and reconstruction algorithms.

Protocols for Multislice CT - Roland Bruening
2013-04-17

Multislice technology has made it possible to investigate large sections of the human body in a very short time. The 4- and 16-row systems currently available necessitate the use of new protocols, which are proposed herein. In a convenient double-page layout, this book provides structured information on all routine protocols to be used for multislice CT. The volume covers all investigations of the brain, neck, lung and chest, abdomen and the periphery, as well as special protocols for the heart, for CT angiography and

for CT-guided interventions. Each protocol is displayed en bloc, enabling rapid appreciation of the scanner settings and the indications.

Protocols for Multislice Helical Computed Tomography - Dawson Peter 2019-08-30

Despite the expected decline in the mid-1970s in the use of computed tomography (CT) following the excitement of magnetic resonance imaging (MRI), CT has confounded its detractors and remains the imaging modality of choice, particularly for the chest and abdomen.

Spiral/helical CT with the development of 64-multislice variant has revolutionized diagnostic imaging: image acquisition of large body volumes are obtained in short times during a single-breath hold. Scanning protocols without contrast enhancement are not a challenge; however, with intravenous contrast agents, critical choices are made and bad choices inevitably produce bad scans. This handy guide provides the reader with a simple introduction to the essential ideas involved and a practical guide to the implementation of rational scanning protocols for multislice spiral instruments. Written by Peter Dawson, a well-respected figure in computed tomography and radiology, and a world expert on contrast agents, *Scanning Protocols for Multislice Helical Computed Tomography* is an essential guide for all those working with CT, as well as those in training.

Spiral and Multislice Computed Tomography of

the Body - Mathias Prokop 2011-01-01

Whole body computed tomography has developed at a rapid pace in the past decade, spurred on by the introduction of spiral and multislice scanning. These new technologies have not only improved diagnostic accuracy, but also made new applications possible that were previously accessible only through more complex or invasive techniques. This new book expertly fills a gap in the literature by combining the practically relevant technical background with the clinical information required for correctly performing and interpreting CT examinations. The book presents the state-of-the-art capabilities and requirements of CT as a key diagnostic and interventional tool, with special emphasis on the role of spiral and multi-slice CT. You will find a thorough introduction to CT technology from scanner design to 3D image reconstruction, useful practical hints on how to optimize your examination protocols and how to keep the radiation exposure of your patients to a minimum, as well as an extensive clinical section in which symptoms, pathology and CT morphology are integrated to provide you with the basis for subtle interpretation of CT findings using the most modern CT techniques. Highlights include:- Full coverage of single-slice, 4-slice and 16-slice scanning techniques- Introduction to extended CT applications including cardiac CT, CT fluoroscopy, and 3D image processing- Organ-

specific protocols for scanning and contrast administration- Practical guidelines for maximizing image quality and minimizing radiation exposure- Useful suggestions for image interpretation and for avoiding pitfalls and errors- Convenient format by organ system and disease entity- Full discussion of organ-specific pathology and CT morphology- CT indications integrated with other imaging modalities At a time when CT examinations are becoming more technically demanding and complex, with an increasing number of scan parameters and advances in 3D reconstructions, this book is an essential professional tool. Experienced practitioners will find their diagnostic and technical skills improved by reading the book, and beginners will enjoy the clear, systematic approach that will help them use the technique with confidence.

Computed Tomography - Willi Kalender

2000-11-23

"This book provides a comprehensive and user-friendly description of the theoretical and technical essentials of computed tomography (CT), an imaging technique used extensively by the medical community." --Book Jacket.

Multidetector-Row CT of the Thorax - U. Joseph

Schoepf 2005-12-31

With the advent of multidetector-row technology, excitement has returned to computed tomography. Not only can we now image faster and with better resolution than ever before. More

importantly, the development of sophisticated image acquisition techniques has enabled us to venture into areas previously considered to be beyond the scope of CT imaging. The knowledge, experience, and vision of a host of renowned international experts in cutting-edge thoracic applications of multidetector-row CT are condensed within this book. The result is a critical, comprehensive review of the novel opportunities, but also the new challenges, brought about by the development of ever-faster CT acquisition techniques. Presents the latest developments in CT imaging of the thorax. Comprehensively reviews the literature. Offers useful practical guidelines. Addresses both opportunities and challenges. Written by leading international experts.

Computed Tomography - Euclid Seeram 2009

Radiologic technologists play an important role in the care and management of patients undergoing advanced imaging procedures. This new edition provides the up-to-date information and thorough coverage you need to understand the physical principles of computed tomography (CT) and safely produce high-quality images. You'll gain valuable knowledge about the practice of CT scanning, effective communication with other medical personnel, and sectional anatomic images as they relate to CT. Features a chapter devoted to quality control testing of CT scanners (both spiral CT and conventional scan-and-stop),

helping you achieve and maintain high quality control standards. Provides the latest information on: advances in volume CT scanning; CT fluoroscopy; multi-slice spiral/helical CT; and multi-slice applications such as 3-D imaging, CT angiography, and virtual reality imaging (endoscopy)--all with excellent coverage of state-of-the-art principles, instrumentation, clinical applications and quality control. Two new chapters cover recent developments and important principles of multislice CT and PET/CT, giving you in-depth coverage of these quickly emerging aspects of CT.

Computed Tomography - Euclid Seeram

2008-12-22

This is a Pageburst digital textbook; Radiologic technologists play an important role in the care and management of patients undergoing advanced imaging procedures. This new edition provides the up-to-date information and thorough coverage you need to understand the physical principles of computed tomography (CT) and safely produce high-quality images. You'll gain valuable knowledge about the practice of CT scanning, effective communication with other medical personnel, and sectional anatomic images as they relate to CT. Comprehensively covers CT at just the right depth for technologists - going beyond superficial treatment to accommodate all the major advances in CT. One complete CT resource covers what you need to

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Provides the latest information on: advances in volume CT scanning; CT fluoroscopy; multi-slice spiral/helical CT; and multi-slice applications such as 3-D imaging, CT angiography, and virtual reality imaging (endoscopy) - all with excellent coverage of state-of-the-art principles, instrumentation, clinical applications and quality control. Two new chapters cover recent developments and important principles of multislice CT and PET/CT, giving you in-depth coverage of these quickly emerging aspects of CT. Nearly 100 new line drawings and images illustrate difficult concepts, helping you learn and retain information. All-new material updates you on today's CT scanners, CT and PACS, image quality and quality control for multislice CT scanners, and clinical applications.

Techniques of Computed Tomography - Frank

Alsop 2019-03-15

Computed tomography (CT) is a way of using X-rays to take pictures or images in very fine slices through the part of the body that the doctor has asked to be investigated. The book offers a comprehensive and user-oriented description of

the theoretical and technical system fundamentals of computed tomography (CT) for a wide readership, from conventional single-slice acquisitions to volume acquisition with multi-slice and cone-beam spiral CT. It covers in detail all characteristic parameters relevant for image quality and all performance features significant for clinical application. Readers will thus be informed how to use a CT system to an optimum depending on the different diagnostic requirements. This includes a detailed discussion about the dose required and about dose measurements as well as how to reduce dose in CT. All considerations pay special attention to spiral CT and to new developments towards advanced multi-slice and cone-beam CT. This book is intended for all those who work daily, regularly or even only occasionally with CT: physicians, radiographers, engineers, technicians and physicists.

Radiation Dose from Adult and Pediatric

Multidetector Computed Tomography - D. Tack
2007-12-31

This book considers in depth all the factors that influence the radiation dose and the risk associated with MDCT in children and adults. Only a small proportion of referring clinicians, radiologists, and technologists are aware of both the radiation risks and their underlying mechanisms. The book proposes detailed guidelines for optimization of the radiation dose

when using MDCT. It is written by experts of international standing.

Cardiac CT and MR for Adult Congenital Heart Disease - Farhood Saremi 2013-11-22

This is the first major textbook to address both computed tomography (CT) and magnetic resonance (MR) cardiac imaging of adults for the diagnosis and treatment of congenital heart disease (CHD). Since the introduction of faster CT scanners, there has been tremendous advancement in the diagnosis of CHD in adults. This is mostly due to the higher spatial resolution of CT compared to MR, which enables radiologists to create more detailed visualizations of cardiac anatomic structures, leading to the discovery of anomalous pathologies often missed by conventional MR imaging. This book is unique in highlighting the advantages of both CT and MR for the diagnosis of CHD in adults, focusing on the complementary collaboration between the two modalities that is possible. Chapters include discussions of case examples, clinical data, MR and CT image findings, and correlative cadaveric pictures. The chapters focus not only on the diagnosis of the primary problem, but also give readers information on visual clues to look for that often reveal associated pathologies. This book appeals primarily to diagnostic and interventional radiologists, as well as cardiologists and interventional cardiologists.

Multi-slice and Dual-source CT in Cardiac

Imaging - Bernd M. Ohnesorge 2006-12-15

This book discusses the state-of-the-art developments in multi-slice CT for cardiac imaging as well as those that can be anticipated in the future. It is a comprehensive work covering all aspects of this technology from the technical fundamentals to clinical indications and protocol recommendations. This second edition draws on the most recent clinical experience obtained with 16- and 64-slice CT scanners by world-leading experts. The book also has chapters on area-detector CT and the brand new dual-source CT.

Computed Tomography of the Cardiovascular

System - Thomas C. Gerber 2007-12-20

Computed tomography of the heart and cardiovascular system continues to show an impressive and tremendously successful development. Technical improvements translate into new applications and enhanced diagnostic accuracy and the new diagnostic opportunities may potentially be beneficial for many individuals with known or suspected cardiovascular dis

Multislice CT - Maximilian F Reiser 2008-10-20

With contributions by numerous experts

Principles of Cardiac and Vascular Computed

Tomography - Stuart J. Hutchison 2014-04-15

Principles of Cardiac and Vascular Computed Tomography has everything you need to successfully obtain and interpret CT and CTA images. Stuart J. Hutchison-a premier cardiac imaging specialist-explains the dos and don'ts of

CCT so you get the best images and avoid artifacts. Get only the coverage-from evidence-based CTA to noncoronary lesions-you need with clinically oriented, practical information presented in a consistent format that makes finding everything quick and easy. High-quality images and access to the text and more at Expert Consult makes this the one cardiovascular computed tomography resource that has it all. Access videos of CTA procedures at Expert Consult. Get only the coverage that you need-from evidence-based CTA to determination of coronary calcium to noncoronary lesions-from focused, clinically oriented, and practical information. Obtain the best image quality and avoid artifacts through instructions on how to and how not to perform cardiovascular computed tomography. Gain a clear visual understanding through high-quality images-many in color-that reinforce the quality of information in the text. Master probe settings and measurements using numerous tables with useful values and settings. Find information easily thanks to a consistent format.

Multi-slice CT in Cardiac Imaging - Bernd M.

Ohnesorge 2013-03-09

Cardiac diseases and in particular coronary artery disease are the leading cause of death and morbidity in the industrialized countries. The development of reliable cardiac imaging techniques is considered a key issue in improving

patient care. This book presents and discusses the technical concepts, the potential spectrum of applications and the future perspectives of multislice CT in cardiac imaging. The discussion is based on the experience of internationally leading clinical institutions. It shows that this new modality has the potential to become an important and robust tool for non-invasive and early diagnosis of cardiac diseases.

Clinical Applications of Cardiac CT - Filippo Cademartiri 2012-04-23

During the past few years, cardiac CT (CCT) has acquired an increasingly important role as a noninvasive imaging method that allows assessment of coronary heart disease from both the morphological and the functional standpoint. It is quickly becoming a primary clinical tool for the evaluation and follow-up of various conditions related to the heart and great vessels and is providing valuable insights into the natural history of atherosclerosis. The rapid advances in CCT technology, the advent of new clinical applications, and the acquisition of data on prognostic value are just some of the reasons for the publication of this new edition of *Clinical Applications of Cardiac CT*, little more than 3 years after the first edition appeared. The text has been extensively revised and updated to reflect current knowledge and practice, and the structure and layout of the educational content have also been improved. The imaging targets, semeiology,

technique, and clinical applications of CCT are all covered in detail, and in addition relevant information is provided on epidemiology, clinical assessment, and the role of other diagnostic modalities. This book will prove an invaluable tool for radiologists and cardiologists alike.

Multislice-CT of the Abdomen - Christoph Johannes Zech 2012-04-28

This book provides a lucid summary of modern multislice CT imaging of the abdomen, with a focus on the essential imaging findings. After a concise technical introduction, the most important abdominal diseases are described and illustrated with high-quality images. Sections are devoted to the liver and biliary system, the pancreas and spleen, the kidneys and urogenital system, and the bowel and peritoneal cavity. Throughout, key differential diagnostic features are highlighted. The editorial team is composed of internationally renowned radiologists from Europe and the United States, and all chapters have been written by recognized experts in the topic under consideration. *Multislice CT of the Abdomen* will serve as an excellent reference for radiologists participating in further professional training and will prove an ideal source of information for all who wish to deepen their personal knowledge of the subject.

Multislice CT: A Practical Guide - B. Marincek 2000-11-24

Until recently, CT scanner performance was

limited by a series of compromises. With single-detector scanners, one cannot select thin collimation and still maintain the required extent of volumetric coverage. Slow scans cause motion artifacts that impair image quality. The introduction of multidetector CT technology, however, has revolutionized the field. Currently multidetector, multislice CT scanners acquire up to four channels of data from interweaving spirals. The minimum gantry rotation period is as low as half of a second. This increased scan speed allows for thinner collimation and thus higher longitudinal or z-axis resolution in comparison with single-detector CT. The improved image quality with multidetector technology leads to new applications of CT, particularly in cardiac, vascular, and abdominal imaging. On-going clinical studies are evaluating the suitability of this new imaging tool for non-invasive screening and diagnosis of coronary artery disease. A particular advantage to the increased scan speed in vascular imaging is the ability to cut intra venous contrast dosage and still maintain peak enhancement CT throughout the entire acquisition. Thin-section, multiphase acquisition during optimal arterial-phase and venous-phase enhancement significantly improves the accuracy for small lesion and vessel detection, and enhances overall classification of abdominal neoplasms. On the other hand, the increasingly large volume data sets force to new ways of

looking at, presenting, storing, and transferring images. Networking and two- and three dimensional data processing are the key words. *CT of the Heart* - U. Joseph Schoepf 2007-10-27
Leading clinicians and researchers from around the world review the full scope of current developments, research, and scientific controversy regarding the principles and applications of cardiac CT. Richly illustrated with numerous black-and-white and color images, the book discusses the interpretation of CT images of the heart in a variety of clinical, physiological, and pathological applications. The authors emphasize current state-of-the-art uses of CT, but also examine developments at the horizon. They also review the technical basis of CT image acquisition, as well as tools for image visualization and analysis.

Multislice Computed Tomography - Paul M. Silverman 2002

From the author of our best-selling handbook on helical (spiral) CT comes a brand-new, indispensable, practical guide to the next generation of technology--multislice (or multidetector) CT. Dr. Silverman and his renowned colleagues present detailed, easy-to-follow scanning protocols for all areas of the body, for pediatric examinations, and for three-dimensional imaging...and explain the principles behind the protocols. Multislice CT scanning protocols for specific clinical indications are

presented in the same user-friendly outline format as in Dr. Silverman's other handbook.

Representative images appear on the page opposite each protocol. The author's terminology allows the protocols to be used with equipment from any manufacturer.

Multislice CT - Konstantin Nikolaou 2019-08-06

The fourth edition of this well-received book offers a comprehensive update on recent developments and trends in the clinical and scientific applications of multislice computed tomography. Following an initial section on the most significant current technical aspects and issues, detailed information is provided on a comprehensive range of diagnostic applications. Imaging of the head and neck, the cardiovascular system, the abdomen, and the lungs is covered in depth, describing the application of multislice CT in a variety of tumors and other pathologies. Emerging fields such as pediatric imaging and CT-guided interventions are fully addressed, and emergency CT is also covered. Radiation exposure, dual-energy imaging, contrast enhancement, image postprocessing, CT perfusion imaging, and CT angiography all receive close attention. The new edition has been comprehensively revised and complemented by contributions from highly experienced and well-known authors who offer diverse perspectives, highlighting the possibilities offered by the most modern multidetector CT systems. This book will be particularly useful for

general users of CT systems who wish to upgrade and enhance not only their machines but also their knowledge.

Computed Tomography - Jiang Hsieh 2009-01-01

X-ray computed tomography (CT) continues to experience rapid growth, both in basic technology and new clinical applications. Seven years after its first edition, *Computed Tomography: Principles, Design, Artifacts, and Recent Advancements, Second Edition*, provides an overview of the evolution of CT, the mathematical and physical aspects of the technology, and the fundamentals of image reconstruction algorithms. Image display is examined from traditional methods used through the most recent advancements. Key performance indices, theories behind the measurement methodologies, and different measurement phantoms in image quality are discussed. The CT scanner is broken down into components to provide the reader with an understanding of their function, their latest advances, and their impact on the CT system. General descriptions and different categories of artifacts, their causes, and their corrections are considered at length. Given the high visibility and public awareness of the impact of x-ray radiation, the second edition features a new chapter on x-ray dose and presents different dose reduction techniques ranging from patient handling, optimal data acquisition, image reconstruction, and post-process. Based on the advancements over the

past five years, the second edition added new sections on cone beam reconstruction algorithms, nonconventional helical acquisition and reconstruction, new reconstruction approaches, and dual-energy CT. Finally, new to this edition is a set of problems for each chapter, providing opportunities to enhance reader comprehension and practice the application of covered material.

Protocols for Multislice Helical Computed Tomography - Dawson Peter 2006-01-17

Despite the expected decline in the mid-1970s in the use of computed tomography (CT) following the excitement of magnetic resonance imaging (MRI), CT has confounded its detractors and remains the imaging modality of choice, particularly for the chest and abdomen.

Spiral/helical CT with the development of 64-multislice variant has revolutionized diagnostic imaging: image acquisition of large body volumes are obtained in short times during a single-breath hold. Scanning protocols without contrast enhancement are not a challenge; however, with intravenous contrast agents, critical choices are made and bad choices inevitably produce bad scans. This handy guide provides the reader with a simple introduction to the essential ideas involved and a practical guide to the implementation of rational scanning protocols for multislice spiral instruments. Written by Peter Dawson, a well-respected figure in computed tomography and radiology, and a world expert on

contrast agents, Scanning Protocols for Multislice Helical Computed Tomography is an essential guide for all those working with CT, as well as those in training.

Multislice CT - M.F. Reiser 2011-11-11

The introduction of multidetector spiral CT into clinical practice is without any doubt one of the most important technical developments in the field of computed tomography in general, and spiral CT in particular, in recent years. Indeed, multislice CT technology, based on the spiral CT technique invented by W. Kalender almost 20 years ago, has opened immense and totally new perspectives for better utilisation of contrast medium during the examination, for optimal multiplanar reconstruction and for increased patient throughput. The potential applications, more specifically in the area of CT angiography of the brain and the heart and vessels, are most interesting and definitely contribute to better patient care as well as to more efficient utilisation of equipment. These exciting new clinical applications explain the keen desire of radiologists and other clinicians to hear and learn more about the first results obtained with this new equipment in daily clinical practice. This book will satisfy their needs. Professor Maximilian F. Reiser was among the first to install multidetector CT in his department in Munich and to gain experience with this new radiological tool. He was also able to organise a very successful and well

attended international meeting on this hot topic as early as z 2000 in Starnberg, Germany.

Multislice CT - Maximilian Reiser 2004

This second revised edition of Multislice CT provides a comprehensive overview of the clinical application of this exciting technique, following the introduction of the newest generation of multi-detector row CT scanners. An initial section considers technical aspects and issues, including those relating to radiation dose and use of contrast material. Thereafter the focus is on the diagnostic applications of multislice CT in each of the most important anatomical regions.

Examinations of the abdomen, head and neck, brain, chest, and blood vessels are individually described and illustrated, due attention being paid to the special scanner settings necessary in each case. Practical guidelines to the performance of a successful investigation are provided, and each chapter also reviews the most recently published literature. This comprehensive book will be an invaluable asset to radiologists at all levels.

3D Image Processing - D. Caramella 2012-12-06

Few fields have witnessed such impressive advances as the application of computer technology to radiology. The progress achieved has revolutionized diagnosis and greatly facilitated treatment selection and accurate planning of procedures. This book, written by leading experts from many different countries, provides a comprehensive and up-to-date

overview of the role of 3D image processing. The first section covers a wide range of technical aspects in an informative way. This is followed by the main section, in which the principal clinical applications are described and discussed in depth. To complete the picture, the final section focuses on recent developments in functional imaging and computer-aided surgery. This book will prove invaluable to all who have an interest in this complex but vitally important field.

Computed Tomography - Willi A. Kalender

2011-07-07

The book offers a comprehensive and user-oriented description of the theoretical and technical system fundamentals of computed tomography (CT) for a wide readership, from conventional single-slice acquisitions to volume acquisition with multi-slice and cone-beam spiral CT. It covers in detail all characteristic parameters relevant for image quality and all performance features significant for clinical application. Readers will thus be informed how to use a CT system to an optimum depending on the different diagnostic requirements. This includes a detailed discussion about the dose required and about dose measurements as well as how to reduce dose in CT. All considerations pay special attention to spiral CT and to new developments towards advanced multi-slice and cone-beam CT. For the third edition most of the contents have been updated and latest topics like

dual source CT, dual energy CT, flat detector CT and interventional CT have been added. The enclosed CD-ROM again offers copies of all figures in the book and attractive case studies, including many examples from the most recent 64-slice acquisitions, and interactive exercises for image viewing and manipulation. This book is intended for all those who work daily, regularly or even only occasionally with CT: physicians, radiographers, engineers, technicians and physicists. A glossary describes all the important

technical terms in alphabetical order. The enclosed DVD again offers attractive case studies, including many examples from the most recent 64-slice acquisitions, and interactive exercises for image viewing and manipulation. This book is intended for all those who work daily, regularly or even only occasionally with CT: physicians, radiographers, engineers, technicians and physicists. A glossary describes all the important technical terms in alphabetical order.