

## Spiral And Multislice Computed Tomography Of The Body Thieme

With contributions by numerous experts

Radiographic cephalometry has been one of the most With "Three-Dimensional Cephalometry - A Color important diagnostic tools in orthodontics, since its Atlas and Manual"by the authors Swennen, Schutyser introduction in the early 1930s by Broadbent in the and Hausamen you have an exciting book in your United States and Hofrath in Germany. Generations of hands. It shows you how the head can be analysed in orthodontists have relied on the interpretation of these three dimensions with the aid of 3D-cephalometry. images for their diagnosis and treatment planning as Of course, at the moment the technique is not available well as for the long-term follow-up of growth and in every orthodontic of?ce around the corner. H-treatment results. Also in the planning for surgical ever, especially for the planning of more complex orthodontic corrections of jaw discrepancies, lateral cases where combined surgical - orthodontic tre- and antero-posterior cephalograms have been valu- ment is indicated, it is my sincere conviction that wi- able tools. For these purposes numerous cephalomet- in 10 years time 3D cephalometry will have changed ric analyses are available. However, a major drawback our way of thinking about planning and clinical of the existing technique is that it renders only a two- handling of these patients. dimensional representation of a three-dimensional structure 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 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 multi-slice 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.

Principles and Protocols

Cardiac PET and PET/CT Imaging

Techniques and Clinical Applications

Techniques of Computed Tomography

Computed Tomography of the Coronary Arteries

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.

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.

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.

This book is a comprehensive and richly-illustrated guide to cardiac CT, its current state, applications, and future directions. While the first edition of this text focused on what was then a novel instrument looking for application, this edition comes at a time where a wealth of guideline-driven, robust, and beneficial clinical applications have evolved that are enabled by an enormous and ever growing field of technology. Accordingly, the focus of the text has shifted from a technology-centric to a more patient-centric appraisal. While the specifications and capabilities of the CT system itself remain front and center as the basis for diagnostic success, much of the benefit derived from cardiac CT today comes from avant-garde technologies enabling enhanced visualization, quantitative imaging, and functional assessment, along with exciting deep learning, and artificial intelligence applications. Cardiac CT is no longer a mere tool for non-invasive coronary artery stenosis detection in the chest pain diagnostic algorithms; cardiac CT has proven its value for uses as diverse as personalized cardiovascular risk stratification, prediction, and management, diagnosing lesion-specific ischemia, guiding minimally invasive structural heart disease therapy, and planning cardiovascular surgery, among many others. This second edition is an authoritative guide and reference for both novices and experts in the medical imaging sciences who have an interest in cardiac CT.

Atlas of Non-Invasive Coronary Angiography by Multidetector Computed Tomography

Multislice CT

Mathematics and Physics of Emerging Biomedical Imaging

Multi-slice and Dual-source CT in Cardiac Imaging

Principles, Design, Artifacts, and Recent Advances

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.

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.

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.

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.

3D Image Processing

Multidetector-Row Computed Tomography

Computed Tomography of the Cardiovascular System

Multislice Computed Tomography

Chest Wall Deformities

There have been remarkable achievements in CT technology, workflow management and applications in the last couple of years. The introduction of 4- and 16-row multidetector technology has substantially increased acquisition speed and provides nearly isotropic resolution. These new technical possibilities had significant impact on the clinical use of CT and have yielded a broadening of the spectrum of applications, particularly in vascular, cardiac, abdominal, and trauma imaging. This book presents the practical experience of an international expert group of radiologists and physicists with state-of-the-art multidetector-technology. The chapters in this book will facilitate a thorough understanding of 4- and 16-slice multidetector-row CT and its clinical applications. This will help to fully exploit the diagnostic potential of this technology.

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, multiphasic acquisition during optimal arterial-phase and venous-phase enhance 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.

Chest wall deformities encompass a variety of congenital and acquired pathologies that affect the pediatric and the adult population. This comprehensive work offers detailed state of the art information on the changing paradigms in ultrastructural evaluation, diagnosis, clinical investigation, and treatment and reflects the shift towards conservative and minimally invasive treatment options. The combination of concise descriptions and high-quality images will provide the reader with a clear understanding of all relevant concepts. Diagnostic and imaging modalities are analysed in depth, and surgical procedures are explained step by step with the aid of clear, informative illustrations. Experts in the management of chest wall deformities from all over the world have contributed their experiences and approaches, making this a unique textbook in the field and an ideal reference work for clinicians and surgeons.

This cross-disciplinary book documents the key research challenges in the mathematical sciences and physics that could enable the economical development of novel biomedical imaging devices. It is hoped that the infusion of new insights from mathematical scientists and physicists will accelerate progress in imaging. Incorporating input from dozens of biomedical researchers who described what they perceived as key open problems of imaging that are amenable to attack by mathematical scientists and physicists, this book introduces the frontiers of biomedical imaging, especially the imaging of dynamic physiological functions, to the educated nonspecialist. Ten imaging modalities are covered, from the well-established (e.g., CAT scanning, MRI) to the more speculative (e.g., electrical and magnetic source imaging). For each modality, mathematics and physics research challenges are identified and a short list of suggested reading offered. Two additional chapters offer visions of the next generation of surgical and interventional techniques and of image processing. A final chapter provides an overview of mathematical issues that cut across the various modalities.

Radiation Dose from Adult and Pediatric Multidetector Computed Tomography

A True Clinical Study

Technical Principles, Imaging Protocols, Clinical Indications and Future Perspective

Cardiac CT Imaging

Spiral and Multislice Computed Tomography of the Body

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.

COMPUTED TOMOGRAPHY: PHYSICS AND TECHNOLOGY In the newly updated second edition of Computed Tomography: Physics and Technology A Self Assessment Guide, distinguished computed tomography (CT) educator Euclid Seeram delivers a completely revised and expanded collection of multiple-choice questions covering all relevant technological advances, including the use of artificial intelligence, in the field of CT. In the book, readers will find a focused emphasis on physics and technology – an area where students of this discipline have traditionally struggled. The questions are presented in a format similar to those found on the certification examinations of the American Registry of Radiologic Technologists (ARRT), the Canadian Association of Medical Radiation Technologists (CAMRT), and other professional medical imaging organizations around the world. The author has also included true-false questions, short answer questions, and relevant learning outcomes to aid students in their study of the subject. Readers will also find brief notes on: An introduction to computed tomography, including an overview of the field and a historical perspective Digital image processing and the physics of computed tomography Data acquisition principles and technology and image reconstruction fundamentals Deep learning image reconstruction, the major equipment components of a computed tomography scanner, and image post-processing and visualization Multislice CT: Principles and Technology Image quality considerations CT Dosimetry and dose optimization strategies Quality control Perfect for radiological technology and diagnostic radiography students and practitioners, Computed Tomography: Physics and Technology A Self Assessment Guide, will also earn a place in the libraries of biomedical engineering students and radiology residents in training.

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 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. CT at a Glance

## Protocols for Multislice Helical Computed Tomography

### The Fundamentals

#### Multislice-CT of the Abdomen

#### Principles - Protocols - Indications - Outlook

*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.*

*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.*

*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.*

*This book presents the most up-to-date information on the practice of cardiac PET and hybrid PET/CT. Each chapter takes a step-by-step approach, from basic principles of instrumentation, imaging, and protocols to advanced discussions of current and future clinical applications. Coverage also includes a perspective on other emerging imaging modalities, such as MRI, and the relative role of each. In addition, the volume details the technical aspects of cardiac PET and PET/CT imaging. A library of original cases completes the text by illustrating interpretation and technical challenges in cardiac PET and hybrid PET/CT.*

*A Practical Guide Proceedings of the 6th International SOMATOM CT Scientific User Conference Tuebingen, September 2002*

#### Scanning and Contrast Protocols

#### Protocols for Multislice CT

#### Clinical Applications of Cardiac CT

#### 4- and 16-row Applications

*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.*

*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 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.*

*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.*

*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.*

#### Computed Tomography

#### Fundamentals, System Technology, Image Quality, Applications

#### Computed Tomography of the Coronary Arteries, Second Edition

#### Physics and Technology. A Self Assessment Guide

*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.*

*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.*

*This book provides a comprehensive review of CT Virtual Hysterosalpingography, a new non-invasive diagnostic technique that allows the evaluation of the entire gynecologic tract in a single study, by combining the benefits of hysterosalpingography (HSG) with multidetector Computed Tomography (CT). The addition of 64-row CT scanners with HSG has significantly improved visualization and assessment of the uterine cavity and fallopian tubes and allows for the diagnosis of polyps, myomas, uterine anomalies and tubal pathology with a high degree of accuracy. CT Virtual Hysterosalpingography is written and edited by the leaders in the field and covers all aspects of the technique, from its origin and technical principles through to descriptions of the normal anatomy and most common pathologies. This will be an essential text for Gynecologists, Infertility Specialists, Radiologists and Reproductive Endocrinologists who would want to learn about this technique and how it can be implemented in their practice.*

#### Spiral and Multislice Computed Tomography of the Body Thieme

#### A Color Atlas and Manual

#### Comparing Conventional & Multislice Spiral CT in Dental Implantology

#### Computed Tomography - E-Book

#### Multislice CT: A Practical Guide

#### Multi-slice CT in Cardiac Imaging

*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.*

*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*

*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.*

*CT at a Glance gets readers quickly up to speed with the core knowledge and competencies required for computed tomography (CT) scanning, as established by the major radiography organizations around the world, including the ASRT and the CAMRT. This brand new title describes the basic science behind CT with an emphasis on the theory that is essential for practice. Featuring an abundance of illustrations, succinct, straightforward explanations and clear, step-by-step guidance, it includes the fundamental physics, technical principles, and imaging strategies and procedures involved in CT scanning. Over the course of twenty four, concise modular chapters, CT at a Glance covers all the bases for entry-to-practice students, including: The basic physics underlying CT scanning State-of-the-art multislice technologies Data acquisition strategies Equipment components—their functions and applications Image reconstruction and image quality control CT dose and dose optimization procedures Quality control fundamentals CT at a Glance is an indispensable learning resource for students in medical imaging technology courses, including those covering radiography, nuclear medicine, and radiation therapy, as well as for biomedical engineering technology students.*

#### Diagnosis of Cardiovascular Disease

#### CT Virtual Hysterosalpingography

#### CT of the Heart

#### A Practical Approach to Clinical Protocols

#### Physical Principles, Clinical Applications, and Quality Control

*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.*

*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.*

*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*

*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.*

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