

# Principles Of Computerized Tomographic Imaging Classics In Applied Mathematics

**Principles of Computerized Tomographic Imaging Fundamentals of Computerized Tomography Cardiac CT Imaging Computed Tomography Computed Tomography Multi-Detector CT Imaging Micro-computed Tomography (micro-CT) in Medicine and Engineering PET/CT Imaging Cardiac PET and PET/CT Imaging Computerized Tomography for Scientists and Engineers Veterinary Computed Tomography Multidetector Computed Tomography in Cerebrovascular Disease CT Imaging Dual Source CT Imaging CT Scanning Mathematics and Physics of Emerging Biomedical Imaging The Mathematics of Computerized Tomography Multi-Detector Computed Tomography in Oncology Computed Tomography Atlas of PET/CT Imaging in Oncology Hybrid PET/CT and SPECT/CT Imaging 3D Image Reconstruction for CT and PET Medical Imaging Systems CT of the Heart Spectral, Photon Counting Computed Tomography Atlas of Small Animal CT and MRI Mathematical Methods in Image Reconstruction Springer Handbook of Medical Technology Technical Fundamentals of Radiology and CT MRI and CT Atlas of Correlative Imaging in Otolaryngology Computed Tomography Imaging and Radioanalytical Techniques in Interdisciplinary Research Computed Tomography for Technologists Approximation Theory and Algorithms for Data Analysis Multislice-CT of the Abdomen Computed Tomography and Magnetic Resonance of the Thorax X-rays for Archaeology Hybrid SPECT/CT Imaging in Clinical Practice Clinical PET and PET/CT Practical SPECT/CT in Nuclear Medicine**

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**PET/CT Imaging** Mar 28 2022  
The aim of this book is to provide concise information and quick reference on the basics and practice of PET/CT for beginners. The chapters are written by Nuclear Medicine experts from different countries with enormous experience in PET/CT practice. Starting with the basics of PET/CT describing physics and

the use of radiopharmaceuticals in PET/CT, the book explores the principle of PET/CT in radiotherapy planning. The last five chapters explore normal variation, pitfalls and artefacts commonly seen with various routinely used PET radiotracers. The text is enriched by tables and highlighted clinical cases for better understanding. This

book will be of interest mostly to nuclear medicine physicians and radiologists, but it may be appealing also to a wider medical community including oncologists and radiotherapists. Multidetector Computed Tomography in Cerebrovascular Disease Nov 23 2021 Multidetector Computed Tomography in Cerebrovascular Disease: CT

Perfusion Imaging focuses on anatomy and procedural strategy for perfusion CT imaging in clinical neurology and cerebrovascular disease. This text-atlas combines pictures and schematic diagrams to show how this new modality can be used to assess anatomy and guide therapeutic intervention

**X-rays for Archaeology** Sep 29 2019 The application of X-rays to objects of archaeology and insights into construction and chemical composition in a non-destructive manner date back to the discovery of radiation. This book contains measurement data taken with portable XRF and XRD, and data taken with accelerating ion beams and synchrotron radiations, and with their explanation.

Springer Handbook of Medical Technology Jul 08 2020 This concise, user-oriented and up-to-date desk reference offers a broad introduction to the fascinating world of medical technology, fully considering today's progress and further development in all relevant fields. The Springer Handbook of Medical Technology is a systemized and well-structured guideline which distinguishes itself through simplification and condensation of complex facts. This book is an indispensable resource for professionals working directly or indirectly with medical systems and appliances every day. It is also meant for graduate and post graduate students in hospital management, medical engineering, and medical physics.

**Computed Tomography for Technologists** Feb 01 2020 Leveraging the organization and focus on exam preparation found in the comprehensive text, this Exam Review will help any student to successfully complete the ARRT General Radiography and Computed Tomography exams. The book includes a bulleted format review of content, Registry-style questions with answers and rationales, and a mock exam following the ARRT format. The companion website offers an online testing simulation engine.

Dual Source CT Imaging Sep 21 2021 This book provides an introduction to Dual Source Computed Tomography (DSCT) technology and to the basics of contrast media administration. This is followed by 25 in-depth clinical scan and contrast media injection protocols.

Hybrid SPECT/CT Imaging in Clinical Practice Aug 28 2019 Exploring a technology that is significantly impacting the noninvasive evaluation of the physiology and anatomy of tumors, as well as the diagnosis of infectious processes and cardiac diseases, this source presents recent advances and clinical applications of sequential, single session single-photon emission computed tomography and computed tomography imaging. This source is written by pioneers in hybrid imaging and offers authoritative sections on state-of-the-art breakthroughs in sentinel lymph node identification, cardiac imaging, and the study and treatment of a variety of disorders including lymphoma, thyroid and

parathyroid tumors, neuroendocrine tumors, prostatic cancer, and bone metastases.

**Principles of Computerized Tomographic Imaging** Nov 04 2022 A comprehensive, tutorial-style introduction to the algorithms necessary for tomographic imaging.

**Fundamentals of Computerized Tomography** Oct 03 2022 This revised and updated second edition - now with two new chapters - is the only book to give a comprehensive overview of computer algorithms for image reconstruction. It covers the fundamentals of computerized tomography, including all the computational and mathematical procedures underlying data collection, image reconstruction and image display. Among the new topics covered are: spiral CT, fully 3D positron emission tomography, the linogram mode of backprojection, and state of the art 3D imaging results. It also includes two new chapters on comparative statistical evaluation of the 2D reconstruction algorithms and alternative approaches to image reconstruction.

Cardiac CT Imaging Sep 02 2022 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 is an extensive update of the previous edition bringing the reader up-to-date with the immense amount of updated content in the discipline.

*Computerized Tomography for Scientists and Engineers* Jan 26 2022 This volume provides examples of applications of tomography in engineering from leading CT experts. Typical problems include monitoring of multiphase flows, crystal growth, blast furnaces, stirred vessels, non-destructive testing, plasma diagnostics, and determining the strength of bones. X and Y- rays, electrical impedance and resistance measurements, ultrasound, and lasers are all covered. Various mathematical issues are addressed as are various physical problems. As the book provides an account of current developments in imaging, it is quite useful applied to other fields where identical mathematical techniques are employed. Imaging has evolved into an interdisciplinary field with mathematics as a common

language.

**Computed Tomography** Jun 30 2022 This volume provides an overview of X-ray technology and the historical development of modern CT systems. The main focus of the book is a detailed derivation of reconstruction algorithms in 2D and modern 3D cone-beam systems. A thorough analysis of CT artifacts and a discussion of practical issues such as dose considerations give further insight into current CT systems. Although written mainly for graduate students, practitioners will also benefit from this book.

**CT Imaging** Oct 23 2021 CT imaging has become a mainstay of medical imaging. After 30 years this is a mature technology but the accumulation of innovations over the past decades have given it extraordinary capabilities and new applications continue to emerge. In this book Alex Mamourian uses early CT technology to explain the fundamentals of CT imaging and then builds on that base to explain how innovations such as slip-ring and multidetector arrays allow for rapid, high resolution imaging. This book covers complex applications such as CT cardiac imaging and dual-source dual-energy CT scanning as well as the pitfalls and artifacts that will be encountered in clinical practice. The book also includes chapters on the language of radiation dose and strategies for dose reduction that are essential for optimal CT imaging and patient safety. Hybrid PET/CT and SPECT/CT

Imaging Feb 12 2021 This practical guide is a reference source of cases for images obtained on state-of-the-art integrated PET/CT and SPECT/CT imaging systems. It covers the full spectrum of clinical applications, including head and neck tumors, breast cancer, colorectal cancer, pancreatic cancer, and genitourinary tumors. In addition a wealth of illustrations reinforce the key teaching points discussed throughout the book.

**MRI and CT Atlas of Correlative Imaging in Otolaryngology** May 06 2020 This atlas addresses controversies on imaging modalities for ENT. The relative merits of MRI and CT imaging for particular areas and specific pathologies are discussed. Using a large number of images in both modalities of normal anatomy and pathologies, this should be a useful aid to diagnosis for both radiologists and ENT specialists.

Atlas of Small Animal CT and MRI Sep 09 2020 Atlas of Small Animal CT & MRI is a highly illustrated diagnostic imaging guide to common clinical disorders of dogs and cats. Contains over 3,000 high quality CT, MRI and related diagnostic images Offers a unique approach emphasizing comparative imaging and pathologic correlation Focuses on important imaging features relevant to imaging diagnosis of disease in dogs and cats Written by internationally renowned experts in the field Imaging and Radioanalytical Techniques in Interdisciplinary

Research Mar 04 2020 The overall goal of this book is to promote research and development of imaging and radioanalytical techniques by publishing high-quality chapters in this rapidly growing interdisciplinary field. This book discusses the principles and applications of imaging and radioanalytical techniques across a wide spectrum of interdisciplinary science, technology and medicine, where these techniques are expected to make significant difference and contribution. It also explores the history of the field, current trends, and future directions. The book focuses mainly on cutting-edge applications, and associated equipments and methods, such as instrumentation systems and computing hardware/software. The primary target audience for this book includes students, researchers, clinicians, and professionals who are interested in medical and ground penetrating radar (GPR) imaging, and radioanalytical techniques.

*Veterinary Computed Tomography* Dec 25 2021 This practical and highly illustrated guide is an essential resource for veterinarians seeking to improve their understanding and use of computed tomography (CT) in practice. It provides a thorough grounding in CT technology, describing the underlying physical principles as well as the different types of scanners. The book also includes principles of CT examination such as guidance on positioning and how to achieve a good image

quality. Written by specialists from twelve countries, this book offers a broad range of expertise in veterinary computed tomography, and is the first book to describe the technology, methodology, interpretation principles and CT features of different diseases for most species treated in veterinary practice.

Key features

- An essential guide for veterinarians using CT in practice
- Includes basic principles of CT as well as guidelines on how to carry out an effective examination
- Describes CT features of different diseases for most species treated in practice
- Written by a range of international leaders in the field
- Illustrated with high quality photographs and diagrams throughout

Spectral, Photon Counting Computed Tomography Oct 11 2020 Spectral, Photon Counting Computed Tomography is a comprehensive cover of the latest developments in the most prevalent imaging modality (x-ray computed tomography (CT)) in its latest incarnation: Spectral, Dual-Energy, and Photon Counting CT. Disadvantages of the conventional single-energy technique used by CT technology are that different materials cannot be distinguished and that the noise is larger. To address these problems, a novel spectral CT concept has been proposed. Spectral Dual-Energy CT (DE-CT) acquires two sets of spectral data, and Spectral Photon Counting CT (PC-CT) detects energy of x-ray

photons to reveal additional material information of objects by using novel energy-sensitive, photon-counting detectors. The K-edge imaging may be a gateway for functional or molecular CT. The book covers detectors and electronics, image reconstruction methods, image quality assessments, a simulation tool, nanoparticle contrast agents, and clinical applications for spectral CT.

**Computed Tomography and Magnetic Resonance of the Thorax** Oct 30 2019 The thoroughly revised, updated Fourth Edition of this classic reference provides authoritative, current guidelines on chest imaging using state-of-the-art technologies, including multidetector CT, MRI, PET, and integrated CT-PET scanning. This edition features a brand-new chapter on cardiac imaging. Extensive descriptions of the use of PET have been added to the chapters on lung cancer, focal lung disease, and the pleura, chest wall, and diaphragm. Also included are recent PLOPED II findings on the role of CT angiography and CT venography in detecting pulmonary embolism. Complementing the text are 2,300 CT, MR, and PET scans made on the latest-generation scanners.

**Cardiac PET and PET/CT Imaging** Feb 24 2022 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.

### **Multi-Detector Computed Tomography in Oncology**

May 18 2021 This new text-atlas focuses on anatomy and procedural strategy for perfusion CT imaging in the diagnosis and management of cancer. It will use a combination of pictures and schematic diagrams that show how this new modality can be used to assess anatomy and guide therapeutic interventions. It begins with an introductory section discussing the state of the art and background support (including software) in the use of the technique; there then follows a sequence of chapters that review applications for each of the main body systems and anatomic regions. The book concludes with a section on the uses of perfusion CT in monitoring clinical trials, and also reviews new applications for combined modalities such as CT/PET. Short Contents

### **Approximation Theory and Algorithms for Data Analysis**

Jan 02 2020 This textbook offers an accessible introduction to the theory and numerics of approximation methods, combining classical

topics of approximation with recent advances in mathematical signal processing, and adopting a constructive approach, in which the development of numerical algorithms for data analysis plays an important role. The following topics are covered: \* least-squares approximation and regularization methods \* interpolation by algebraic and trigonometric polynomials \* basic results on best approximations \* Euclidean approximation \* Chebyshev approximation \* asymptotic concepts: error estimates and convergence rates \* signal approximation by Fourier and wavelet methods \* kernel-based multivariate approximation \* approximation methods in computerized tomography Providing numerous supporting examples, graphical illustrations, and carefully selected exercises, this textbook is suitable for introductory courses, seminars, and distance learning programs on approximation for undergraduate students.

*The Mathematics of Computerized Tomography* Jun 18 2021 This book provides a unified view of tomographic techniques, a common mathematical framework, and an in-depth treatment of reconstruction algorithms. It focuses on the reconstruction of a function from line or plane integrals, with special emphasis on applications in radiology, science, and engineering. The Mathematics of Computerized Tomography covers the relevant

mathematical theory of the Radon transform and related transforms and also studies more practical questions such as stability, sampling, resolution, and accuracy. Quite a bit of attention is given to the derivation, analysis, and practical examination of reconstruction algorithms, for both standard problems and problems with incomplete data. Audience: applied mathematicians, physicists, and engineers working in image reconstruction.

### **Mathematical Methods in Image Reconstruction**

Aug 09 2020 This book provides readers with a superior understanding of the mathematical principles behind imaging.

*Computed Tomography* Apr 04 2020 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.

*Medical Imaging Systems* Dec 13 2020 This open access book gives a complete and comprehensive introduction to the fields of medical imaging systems, as designed for a broad range of applications. The authors of the book first explain the foundations of system theory and image processing, before highlighting several modalities in a

dedicated chapter. The initial focus is on modalities that are closely related to traditional camera systems such as endoscopy and microscopy. This is followed by more complex image formation processes: magnetic resonance imaging, X-ray projection imaging, computed tomography, X-ray phase-contrast imaging, nuclear imaging, ultrasound, and optical coherence tomography. **CT Scanning** Aug 21 2021 Since its introduction in 1972, X-ray computed tomography (CT) has evolved into an essential diagnostic imaging tool for a continually increasing variety of clinical applications. The goal of this book was not simply to summarize currently available CT imaging techniques but also to provide clinical perspectives, advances in hybrid technologies, new applications other than medicine and an outlook on future developments. Major experts in this growing field contributed to this book, which is geared to radiologists, orthopedic surgeons, engineers, and clinical and basic researchers. We believe that CT scanning is an effective and essential tools in treatment planning, basic understanding of physiology, and tackling the ever-increasing challenge of diagnosis in our society.

[3D Image Reconstruction for CT and PET](#) Jan 14 2021 This is a practical guide to tomographic image reconstruction with projection data, with strong focus on Computed Tomography (CT) and Positron Emission Tomography (PET). Classic

methods such as FBP, ART, SIRT, MLEM and OSEM are presented with modern and compact notation, with the main goal of guiding the reader from the comprehension of the mathematical background through a fast-route to real practice and computer implementation of the algorithms. Accompanied by example data sets, real ready-to-run Python toolsets and scripts and an overview the latest research in the field, this guide will be invaluable for graduate students and early-career researchers and scientists in medical physics and biomedical engineering who are beginners in the field of image reconstruction. A top-down guide from theory to practical implementation of PET and CT reconstruction methods, without sacrificing the rigor of mathematical background Accompanied by Python source code snippets, suggested exercises, and supplementary ready-to-run examples for readers to download from the CRC Press website Ideal for those willing to move their first steps on the real practice of image reconstruction, with modern scientific programming language and toolsets Daniele Panetta is a researcher at the Institute of Clinical Physiology of the Italian National Research Council (CNR-IFC) in Pisa. He earned his MSc degree in Physics in 2004 and specialisation diploma in Health Physics in 2008, both at the University of Pisa. From 2005 to 2007, he worked at the Department of Physics "E. Fermi" of the University of Pisa

in the field of tomographic image reconstruction for small animal imaging micro-CT instrumentation. His current research at CNR-IFC has as its goal the identification of novel PET/CT imaging biomarkers for cardiovascular and metabolic diseases. In the field micro-CT imaging, his interests cover applications of three-dimensional morphometry of biosamples and scaffolds for regenerative medicine. He acts as reviewer for scientific journals in the field of Medical Imaging: Physics in Medicine and Biology, Medical Physics, Physica Medica, and others. Since 2012, he is adjunct professor in Medical Physics at the University of Pisa. Niccolò Camarlinghi is a researcher at the University of Pisa. He obtained his MSc in Physics in 2007 and his PhD in Applied Physics in 2012. He has been working in the field of Medical Physics since 2008 and his main research fields are medical image analysis and image reconstruction. He is involved in the development of clinical, pre-clinical PET and hadron therapy monitoring scanners. At the time of writing this book he was a lecturer at University of Pisa, teaching courses of life-sciences and medical physics laboratory. He regularly acts as a referee for the following journals: Medical Physics, Physics in Medicine and Biology, Transactions on Medical Imaging, Computers in Biology and Medicine, Physica Medica, EURASIP Journal on Image and Video Processing, Journal of Biomedical and Health Informatics.

### **Multi-Detector CT Imaging**

May 30 2022 Developments in CT technology during the last 20 years have impressively improved its diagnostic potentialities. Part of a two-volume set that covers all aspects of CT imaging, Multi-Detector CT Imaging: Abdomen, Pelvis, and CAD Applications contains easily searchable clinical specialty chapters that provide specific information without need of an index. The coverage goes far beyond just a "how-to" or an encyclopedia of findings, however. The authors have uniformly put techniques, clinical findings, pathologic disease presentations, and clinical implications in practical perspective. It is no wonder that with the critical role CT plays and the rapid innovations in computer technology that advances in the capabilities and complexity of CT imaging continue to evolve. While information about these developments may be scattered about in journals and other resources, this two-volume set provides an authoritative, up-to-date, and educational reference that covets the entire spectrum of CT.

*Practical SPECT/CT in Nuclear Medicine* Jun 26 2019 Nuclear Medicine is a diagnostic modality which aims to image and in some cases quantify physiological processes in the body to highlight disease or injury. Within nuclear medicine, over the past few decades, major technological changes have occurred and concomitantly changes in the knowledge and skills required have had to evolve. One of the most significant technological

changes has been the fusion of imaging technologies, to create hybrid systems such as SPECT/CT, PET/CT and PET/MR. With these changes in mind, Practical SPECT/CT in Nuclear Medicine provides a handy and informative guide to the purchase, clinical implementation and routine use of a SPECT/CT scanner. Practical SPECT/CT in Nuclear Medicine will be a valuable resource for all personnel working in nuclear medicine and it will be of particular value to trainees.

[Atlas of PET/CT Imaging in Oncology](#) Mar 16 2021 The Atlas of PET/CT Imaging in Oncology serves an educational purpose and is designed to teach radiologists and nuclear medicine specialists about important aspects of molecular imaging and nuclear medicine specialists about the benefits of anatomic imaging. It consists of a brief didactic portion and an extensive selection of interesting and challenging case examples. A special feature of the atlas is an interactive CD-ROM that provides the original PET and CT images of each case in selected planes enabling the users to manually adjust the blending intensity of each modality in a fused image. In addition, users can display the clinical history, imaging techniques and diagnostic findings of each case as well as the corresponding specific teaching point.

**Computed Tomography** Aug 01 2022 This book offers a comprehensive and topical depiction of advances in CT imaging. CT has become a

leading medical imaging modality, thanks to its superb spatial and temporal resolution to depict anatomical details. New advances have further extended the technology to provide physiological information, enabling a wide and expanding range of clinical applications. The text covers the latest advancements in CT technology and clinical applications for a variety of CT types and imaging methods. The content is presented in seven parts to offer a structure across a board coverage of CT: CT Systems, CT Performance, CT Practice, Spectral CT, Quantitative CT, Functional CT, and Special Purpose CT. Each contain chapters written by leading experts in the field, covering CT hardware and software innovations, CT operation, CT performance characterization, functional and quantitative applications, and CT systems devised for specific anatomical applications. This book is an ideal resource for practitioners of CT applications in medicine, including physicians, trainees, engineers, and scientists.

### **Mathematics and Physics of Emerging Biomedical Imaging**

Jul 20 2021 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.

**Computed Tomography** Apr 16 2021 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.

### **Multislice-CT of the**

**Abdomen** Dec 01 2019 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.

*Micro-computed Tomography (micro-CT) in Medicine and Engineering* Apr 28 2022 This book focuses on applications of micro CT, CBCT and CT in medicine and engineering, comprehensively explaining the basic principles of these techniques in detail, and describing their increasing use in the imaging field. It particularly highlights the scanning procedure, which represents the most crucial step in micro CT, and discusses in detail the reconstruction process and the artifacts related to the scanning processes, as well as the imaging software used in analysis. Written by international experts, the book illustrates the application of micro CT in different areas, such as dentistry, medicine, tissue engineering, aerospace engineering, geology, material engineering, civil engineering and additive manufacturing.

Covering different areas of application, the book is of interest not only to specialists in the respective fields, but also to broader audience of professionals working in the fields of imaging and analysis, as well as to students of the different disciplines.

**Technical Fundamentals of Radiology and CT** Jun 06 2020 *Technical Fundamentals of Radiology and CT* is intended to cover all issues related to radiology and computed tomography, from the technological point of view, both for understanding the operation of all devices involved and for their maintenance. It is intended for students and a wide range of professionals working in various fields of radiology, those who take images and know little about the workings of the devices, and professionals who install, maintain and solve technological problems of all radiological systems used in health institutions.

**Clinical PET and PET/CT** Jul 28 2019 A practical manual covering the full spectrum of PET and PET/CT imaging, now in common clinical practice, this book includes images of normal variants, artifacts, and pathologic conditions. Indications for and the relative clinical value of PET in the armamentarium of diagnostic medical imaging are reviewed. The information in the book is organized to be brief, concise, easy-to-understand and readily accessed. This book is intended for all health practitioners who need a concise reference and review of PET imaging

indications, protocols and clinical applications. It will be useful to radiologists, nuclear medicine physicians, and clinicians who refer their patients to PET Centers for diagnostic imaging, including neurologists, neurosurgeons, psychiatrists, cardiologists, internists, and oncologists. Radiologic and nuclear medicine technologists, and physicians in training will also benefit from this work.

*CT of the Heart* Nov 11 2020 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.