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Image Processing in Radiology: Current Applications

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New York, NY: Springer, 2008, 434 pages, $209

The purpose of this book is to provide extensive information on the fundamental technical aspects of present-day advanced image processing and its use in clinical applications. Radiologists and other medical specialists greatly benefit from using this computer processing information in the daily clinical management of patients, providing more precise diagnosis and improving patient throughput. This book is aimed toward radiologists, radiology fellows and residents, surgical and medical specialists, radiation therapists, medical physicists and their trainees, and medical imaging computer application specialists and their students.

The book is organized into 3 sections (29 chapters) covering the technical basis of image processing, clinical applications, and special topics and is coauthored by more than 70 specialists. Section 1 consists of 9 chapters covering advanced image processing using ultrasound, MRI, multidetector CT, segmentation, 2-dimensional graphics, 3-dimensional image processing and image fusion, virtual endoscopy, and an overview of diagnostic workstations. Section 2 consists of 15 chapters dealing with clinical applications involving the head and neck, chest, cardiovascular system, gastrointestinal tract, abdominal solid viscera, urinary tract, and musculoskeletal system. Section 3 consists of 5 chapters discussing 3-dimensional imaging in emergencies, computer-aided diagnosis in the breast and in CT colonography, image-guided robotic-assisted interventions, and virtual planning of liver surgery.

Each chapter is well written and flows well, the references are comprehensive, and the images are superb and printed on high-quality paper. It is difficult to single out a chapter that stands out. All are superb, and the authors should be commended for this extraordinary work.

Limitations that should be addressed in the next edition of this book include the lack of pertinent images dealing with dental and maxillofacial applications (chapter 9), the lack of a discussion on applications for radiation therapy planning and for creating anatomic models (casts) to be used for surgical reconstruction prostheses, and the lack of an update on molecular imaging.

Related books on this topic include *A Practical Approach to Medical Image Processing and Analysis* (E. Barry, Taylor and Francis, 2008), *Medical Image Processing, Reconstruction and Restoration: Concepts and Methods* (J. Jan, Marcel Dekker, 2006), and *Biomedical Signal and Image Processing* (K. Najarian and R. Splinter, CRC Press, 2006).

This book belongs in the personal library and teaching libraries of radiologists, medical and surgical specialists, and any other professional dealing with advanced image processing and is an excellent book that is worth its price.

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