[Download] Diagnostic Ultrasound Imaging: Inside Out (Biomedical Engineering)

Diagnostic Ultrasound Imaging: Inside Out (Biomedical Engineering)

Thomas L. Szabo
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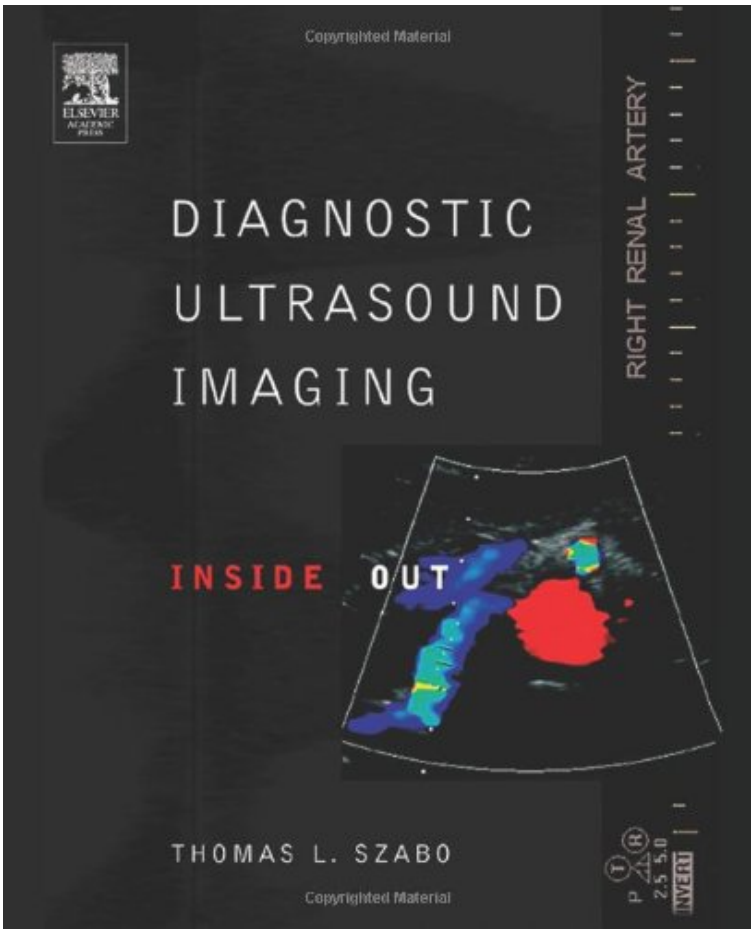

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Thomas L. Szabo : Diagnostic Ultrasound Imaging: Inside Out (Biomedical Engineering) before purchasing it in order to gage whether or not it would be worth my time, and all praised Diagnostic Ultrasound Imaging: Inside Out (Biomedical Engineering):

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for doing research in the area. In summary it has a intuitive physics and detailed equations -- therefore works for a wide range of people.

Diagnostic Ultrasound Imaging provides a comprehensive introduction to and a state-of-the-art review of the essential science and signal processing principles of diagnostic ultrasound. The progressive organization of the material serves beginners in medical ultrasound science and graduate students as well as design engineers, medical physicists, researchers, clinical collaborators, and the curious. This it the most comprehensive and extensive work available on the core science and workings of advanced digital imaging systems, exploring the subject in a unified, consistent and interrelated manner. From its antecedents to the modern day use and prospects for the future, this it the most up-to-date text on the subject. Diagnostic Ultrasound Imaging provides in-depth overviews on the following major aspects of diagnostic ultrasound: absorption in tissues; acoustical and electrical measurements; beamforming, focusing, and imaging; bioeffects and ultrasound safety; digital imaging systems and terminology; Doppler and Doppler imaging; nonlinear propagation, beams and harmonic imaging; scattering and propagation through realistic tissues; and tissue characterization.Based on the author's over thirty-five years of experience in developing laboratory methodology and standards and conducting research in ultrasound.Conveys the fundamentals of diagnostic ultrasound as well as state-of-the-art reviews of major topics from a historical perspective. Matlab MATLAB problems and examples included.MATLAB problems and examples included

You might think: Yet another book covering a well-known medical topic? - yes, that is right but it is written from a technical insider in a way that helps to understand the essential physics and signal processing techniques behind modern imaging systems as well as the processing of the resulting echo information step-by-step. Some of the 15 chapters are dedicated to one special part or "inside" of a diagnostic imaging system: Various transducer construction and system technology or beamforming methods. These different topics are explained on a level that is suitable both for newcomers and for experienced readers. Basic equations and underlying concepts are given to understand the function of the latest commercial products used in medical applications. A reference list citing fundamental publications is added to each chapter. But how does ultrasound interact with tissue or blood and what about nonlinear aspects during propagation? The book also gives detailed and enhanced answers, explains well-known models concerning bioeffects, scattering or non-linear effects caused by contrast agents within the remaining chapters - always having modern applications and examples in mind. The author is successful to span the descriptive bridge between the technology implemented inside a modern ultrasonic imaging system for emitting and for processing the information that is coming back from outside after interacting with the human body. Theory and reality is combined in a comprehensive, illustrative and practical manner to enjoy the reading and learning of diagnostic ultrasound imaging. Christian Kollmann, Vienna, European Journal of UltrasoundThis book is well suited to MATLAB, a high-level programming language, including demonstrations of figures and examples with MATLAB programming lines. Accompanying program sets, solutions, and programs can be found on the Elsevier web site. In addition, a review of Fourier transforms is included with step-by-step worked out examples.This book is recommended for universities offering graduate programs in diagnostic ultrasound imaging, engineering, and medical physics. It fills the need for an advanced scientific text of diagnostic ultrasound research. Martha F. Earl, Reference Coordinator, University of Tennessee Graduate School of Medicine, Preston Medical LibraryFrom the Inside FlapA Volume in the Academic Press Series in Biomedical Engineering Diagnostic Ultrasound Imaging provides a comprehensive introduction to and a state-of-the-art review of the essential science and signal processing principles of diagnostic ultrasound. The progressive organization of the material serves beginners in medical ultrasound science and graduate students as well as design engineers, medical physicists, researchers, clinical collaborators and the curious. This is the most comprehensive and extensive work available on the core science and workings of advanced digital imaging systems, exploring the subject in a unified, consistent and interrelated manner. From its antecedents to the modern day use and prospects for the future, this is the most up-to-date text on the subject. Diagnostic Ultrasound Imaging provides in-depth overviews on the following major aspects of diagnostic ultrasound: absorption in tissues; acoustical and electrical measurements; beamforming, focusing, and imaging; bioeffects and ultrasound safety; digital imaging systems and terminology; Doppler and Doppler imaging; nonlinear propagation, beams and harmonic imaging; scattering and propagation through realistic tissues; tissue characterization. Key features: Over 300 illustrations including imaging modes in color Unified treatment of physics and signal processing Access to MATLAB programs for simulations Extensive bibliography and guide to literature Many topics in both time and frequency domainsFrom the Back CoverA Volume in the Academic Press Series in Biomedical EngineeringDiagnostic Ultrasound Imaging provides a comprehensive introduction to and a state-of-the-art review of the essential science and signal processing principles of diagnostic ultrasound. The progressive organization of the material serves beginners in medical ultrasound science and graduate students as well as design engineers, medical physicists, researchers, clinical collaborators and the curious. This is the most comprehensive and extensive work available on the core science and workings of advanced digital imaging systems, exploring the subject in a unified, consistent and interrelated manner.

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