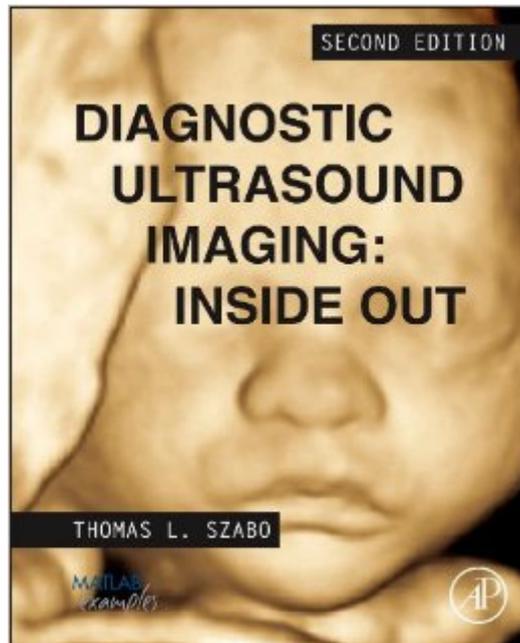# Diagnostic Ultrasound Imaging: Inside Out, Second Edition (Biomedical Engineering)

# Synopsis

Diagnostic Ultrasound Imaging provides a unified description of the physical principles of ultrasound imaging, signal processing, systems and measurements. This comprehensive reference is a core resource for both graduate students and engineers in medical ultrasound research and design. With continuing rapid technological development of ultrasound in medical diagnosis, it is a critical subject for biomedical engineers, clinical and healthcare engineers and practitioners, medical physicists, and related professionals in the fields of signal and image processing. The book contains 17 new and updated chapters covering the fundamentals and latest advances in the area, and includes four appendices, 450 figures, and almost 1,500 references. In addition to the continual influx of readers entering the field of ultrasound worldwide who need the broad grounding in the core technologies of ultrasound, this book provides those already working in these areas with clear and comprehensive expositions of these key new topics as well as introductions to state-of-the-art innovations in this field.Enables practicing engineers, students and clinical professionals to understand the essential physics and signal processing techniques behind modern imaging systems as well as introducing the latest developments that will shape medical ultrasound in the futureSuitable for both newcomers and experienced readers, the practical, progressively organized applied approach is supported by hands-on MATLAB code and worked examples that enable readers to understand the principles underlying diagnostic and therapeutic ultrasoundCovers the new important developments in the use of medical ultrasound: elastography and high-intensity therapeutic ultrasound. Many new developments are comprehensively reviewed and explained, including aberration correction, acoustic measurements, acoustic radiation force imaging, alternate imaging architectures, bioeffects: diagnostic to therapeutic, Fourier transform imaging, multimode imaging, plane wave compounding, research platforms, synthetic aperture, vector Doppler, transient shear wave elastography, ultrafast imaging and Doppler, functional ultrasound and viscoelastic models

# Book Information

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## Customer Reviews

This is a book meant for engineers and upper-level engineering students with an interest in ultrasonic imaging and everything that goes with it (transducers, propagation, systems, hardware, power, safety, image processing etc). It does not deal with defects and pathologies that are visible in an ultrasound scan so it is not so much about diagnosis --- for that you need a text with a medical focus. It is also not a book for a beginner. Very advanced sonographers that have a deeper interest in learning might also find it useful. The author of the book worked for many years in the ultrasound industry for HP (when they did that sort of thing) and now furthers his work at Boston University. It is exceptionally well written and edited from the 1st edition and it covers advanced (relatively) new topics, and it has kept up with the progress in hardware & processing --- so more can be done with the data and converting it to an image that is useful. The Matlab scripts are still available online as of Aug 2016, but I haven't tried them out yet. HTH.

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