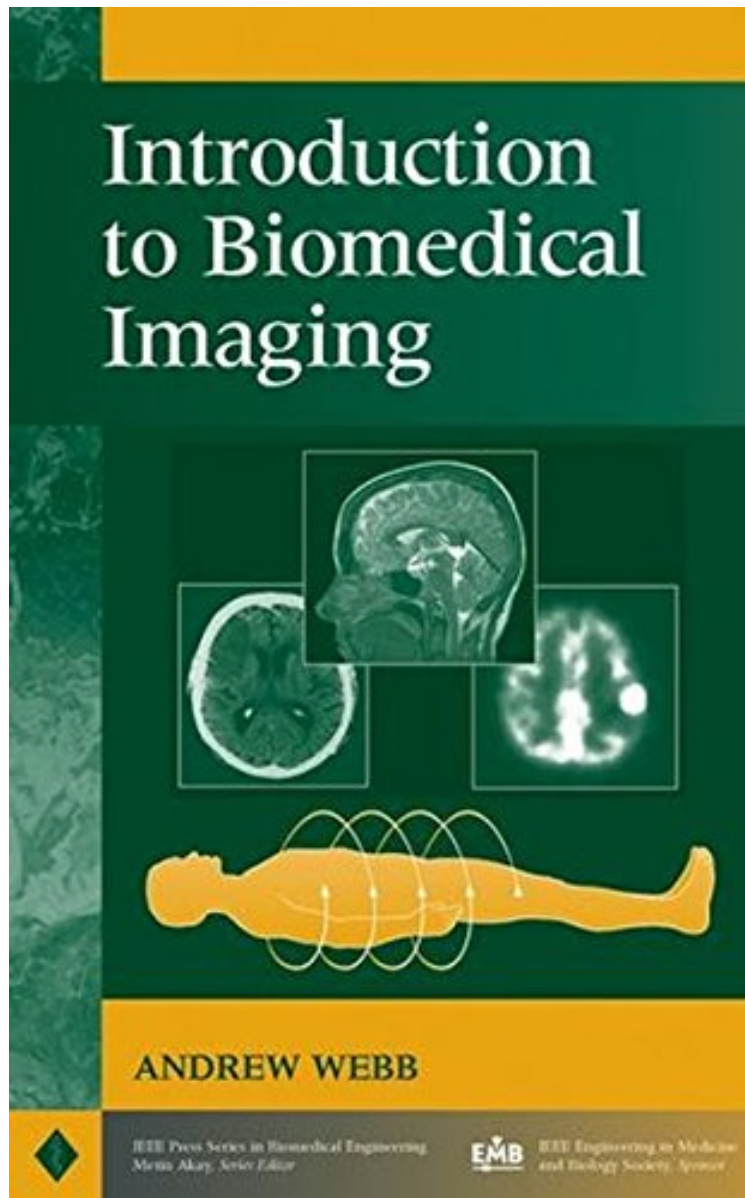


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Introduction to Biomedical Imaging

Andrew G. Webb

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Andrew G. Webb : Introduction to Biomedical Imaging before purchasing it in order to gauge whether or not it would be worth my time, and all praised Introduction to Biomedical Imaging:

10 of 10 people found the following review helpful. A Review of Some Technology, Not an Imaging Text By Dr. Terrence McGarty This book appears to be a write up of some presentation materials that the author may have given on the topic of medical imaging to general audiences. The text presents a high level overview of the key technologies but fails to follow through in how they are actually implemented. For example: CAT imaging is an inverse Fourier transform process that requires some significant mathematical tools which other authors have developed well in their texts over the past thirty years. This text glosses over these issues. In fact there is no clear presentation of the processes, methods, and limitations. Ultrasound has some complexities beyond the transducers. The images from ultrasound are created by a complex set of mathematical manipulations of the time and spatial signals received back from the sensing pulses. The details of these processes are totally missing from the text. If you want to get a feeling for how the sensors work at a high level then this is a useful text. If you are seeking to understand how the image processing works then this is clearly not worth the time and money. It is not clear who the author was writing for. Clearly it was not for the engineer who was attempting to develop such systems. It may have been for the technicians who want a visceral understanding of the technology. There is a need for a comprehensive and well written text on methods of medical imaging. Such a text must combine three things. First it must deal with the physical phenomena which are used to sample the tissues. Second, it must clearly and completely articulate the methods for processing the data collected into images. This section must be expansive to include 3D and temporal images. Third the book must detail the limitations of the methods employed. Such a book may likely find a large audience for those who design and develop such systems. 0 of 0 people found the following review helpful. Four Stars By Chintan Gandhi Great read and perfect introduction to Imaging. 0 of 0 people found the following review helpful. great learning tool By CoverHog This was an excellent book for biomedical imaging. It wasn't difficult to understand, and I found it really helpful. I was using it with a class, and it was probably one of my favorite biomedical books.

An integrated, comprehensive survey of biomedical imaging modalities An important component of the recent expansion in bioengineering is the area of biomedical imaging. This book provides in-depth coverage of the field of biomedical imaging, with particular attention to an engineering viewpoint. Suitable as both a professional reference and as a text for a one-semester course for biomedical engineers or medical technology students, Introduction to Biomedical Imaging covers the fundamentals and applications of four primary medical imaging techniques: magnetic resonance imaging, ultrasound, nuclear medicine, and X-ray/computed tomography. Taking an accessible approach that includes any necessary mathematics and transform methods, this book provides rigorous discussions of: The physical principles, instrumental design, data acquisition strategies, image reconstruction techniques, and clinical applications of each modality Recent developments such as multi-slice spiral computed tomography, harmonic and sub-harmonic ultrasonic imaging, multi-slice PET scanning, and functional magnetic resonance imaging General image characteristics such as spatial resolution and signal-to-noise, common to all of the imaging modalities

"we recommend this book to anyone with an interest in the challenging and expanding field of biomedical imaging." (Annals of Biomedical Engineering, December 2003) "a useful resource for anyone working in biomedical imaging recommended to anyone with an interest in the challenging and expanding field" (Annals of Biomedical Engineering, Issue 31:11) "I recommend this book as a reference and education guide..." (Biomedical Instrumentation Technology, July-August 2003) "...a well-written book for all highly recommended..." (Medical Physics, August 2003) From the Back Cover An integrated, comprehensive survey of biomedical imaging modalities An important component of the recent expansion in bioengineering is the area of biomedical imaging. This book provides in-depth coverage of the field of biomedical imaging, with particular attention to an engineering viewpoint. Suitable as both a professional reference and as a text for a one-semester course for biomedical engineers or medical technology students, Introduction to Biomedical Imaging covers the fundamentals and applications of four primary medical imaging techniques: magnetic resonance imaging, ultrasound, nuclear medicine, and X-ray/computed tomography. Taking an accessible approach that includes any necessary mathematics and transform methods, this book provides rigorous discussions of: * The physical principles, instrumental design, data acquisition strategies, image reconstruction techniques, and clinical applications of each modality * Recent developments such as multi-slice spiral computed tomography, harmonic and sub-harmonic ultrasonic imaging, multi-slice PET scanning, and functional magnetic resonance imaging * General image characteristics such as spatial resolution and signal-to-noise, common to all of the imaging modalities About the Author ANDREW WEBB, PhD, is a faculty member in the Department of Electrical and Computer Engineering and the Beckman Institute for Advanced Science and Technology at the University of Illinois at Urbana-Champaign. Dr. Webb has contributed to many areas of magnetic resonance imaging including developments in radiofrequency coil design, feedback control of thermal processes, techniques for localized

spectroscopy, and functional brain mapping. He was awarded a Whitaker Foundation Research Award and a National Science Foundation Career Award in 1997, a Wolfgang-Paul Prize from the Alexander von Humbolt Foundation in 2001, and Xerox and Willett awards for young faculty in 2002. He is a Senior Member of the IEEE.