

Introduction to Biomedical Imaging

By Andrew G. Webb

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Introduction to Biomedical Imaging By Andrew G. Webb

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

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"...a well-written book for all…highly recommended..." (*Medical Physics*, August 2003)

From the Back Cover
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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.

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