

Contents

Part I Imaging Technologies

1	Micro-Computed Tomography	3
	Steven K. Boyd	
2	Advanced Experimental Magnetic Resonance Imaging	27
	Ursula I. Tuor	
3	Freehand 3D Ultrasound Calibration: A Review	47
	Po-Wei Hsu, Richard W. Prager, Andrew H. Gee, and Graham M. Treece	
4	Laser Scanning: 3D Analysis of Biological Surfaces	85
	Matthew W. Tocheri	
5	Optical Coherence Tomography: Technique and Applications	103
	J.B. Thomsen, B. Sander, M. Mogensen, L. Thrane, T.M. Jørgensen, G.B.E. Jemec, and P.E. Andersen	
6	Mass Spectrometry-Based Tissue Imaging	131
	Carol E. Parker, Derek Smith, Detlev Suckau, and Christoph H. Borchers	
7	Imaging and Evaluating Live Tissues at the Microscopic Level	147
	John Robert Matyas	
8	Ultrastructure Imaging: Imaging and Probing the Structure and Molecular Make-Up of Cells and Tissues	171
	M. Amrein	
9	Optical Projection Tomography	199
	James Sharpe	

10 Medical Imaging Modalities – An Introduction	225
Jörg Peter	
Part II Software	
11 Volume Visualization Using Virtual Reality	257
Anton H.J. Koning	
12 Surface Modeling	271
Andrei L. Turinsky	
13 CAVEman, An Object-Oriented Model of the Human Body	289
Christoph W. Sensen and Jung Soh	
14 Image-Based Finite Element Analysis	301
Steven K. Boyd	
15 Geometric Morphometrics and the Study of Development	319
Benedikt Hallgrímsson, Julia C. Boughner, Andrei Turinsky, Trish E. Parsons, Cairine Logan, and Christoph W. Sensen	
Part III Applications	
16 Imaging in Audiology	339
Jos J. Eggermont	
17 Applications of Molecular Imaging with MR	363
Linda B. Andersen and Richard Frayne	
18 Genomic Data Visualization: The Bluejay System	395
Jung Soh, Paul M.K. Gordon, and Christoph W. Sensen	
19 Anatomical Imaging and Post-Genomic Biology	411
Benedikt Hallgrímsson and Nicholas Jones	
20 Functional Measures of Therapy Based on Radiological Imaging . . .	427
David Dean, Nathan Cross, Davood Varghai, Nancy L. Oleinick, and Chris A. Flask	
Index	439