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Nota di contenuto	Advances in Diagnostic and Therapeutic Ultrasound Imaging; Contents; Preface; Part I Recent Advances in UltrasoundInstrumentation; Chapter 1 3-D Ultrasound Imaging; 1.1 Introduction; 1.2 Disadvantages of 2-D Ultrasound; 1.3 3-D Ultrasound Scanning Techniques; 1.4 Mechanical Scanning; 1.4.1 Linear Mechanical 3-D Scanners; 1.4.2 Tilt 3-D Mechanical Scanners; 1.4.3 Endocavity Rotational 3-D Scanners; 1.5 Free-Hand Scanning with Position Sensing; 1.5.1 Tracked 3-D US with Articulated Arm Sensing; 1.5.2 Free-Hand 3-D US with Acoustic Tracking. 1.5.3 Free-Hand 3-D Scanning with Magnetic Field Sensing1.5.4 3-D US Tracked by Speckle Decorrelation; 1.6 Free-Hand 3-D US Scanning Without Position Sensing; 1.7 2-D Array Scanning for Dynamic 3-D Ultrasound (4-D US); 1.8 3-D Ultrasound Visualization; 1.8.1 Multiplanar Reformatting; 1.8.2 Volume Rendering Techniques; 1.9 3-D Ultrasound-Guided Prostate Therapy; 1.9.1 Early-Stage Prostate Cancer Management; 1.9.2 US-Guided Prostate Brachytherapy; 1.9.3 3-D TRUS-Guided Brachytherapy System; 1.9.4 3-D TRUS Imaging System; 1.9.5 Prostate Segmentation; 1.9.5.1 Initialization; 1.9.5.2 Refinement. 1.9.5.3 Propagation1.9.6 Dosimetry; 1.9.7 Calibration of the Coordinate Systems; 1.9.8 Needle Segmentation; 1.10 Evaluation of 3-D TRUS-Guided Brachytherapy System; 1.10.1 Methods of Calibration; 1.10.1.1 Fiducial Localization Error; 1.10.1.2 Fiducial Registration Error;

1.10.1.3 Target Registration Error; 1.10.2 Results of Calibration; 1.10.3 Accuracy of Needle Placement; 1.10.4 Accuracy of Needle Angulation; 1.10.5 Accuracy of Needle Targeting; 1.10.6 Accuracy of Needle Tracking; 1.10.7 Accuracy of Seed Implantation; 1.11 Conclusions; Acknowledgments; References.
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Sommario/riassunto

This groundbreaking resource offers you exclusive coverage of the latest techniques in diagnostic and therapeutic 3-D ultrasound imaging instrumentation and techniques. Providing a solid overview of potential applications in clinical practice, you find need-to-know details on major diseases, including vascular diseases, breast cancer, cardiac abnormalities and prostate cancer.