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Nota di contenuto	Front Cover; Dedication; Contents; Series Preface; Preface; Editors; Contributors; Section 1 Introduction; Chapter 1 The history of tomosynthesis; Section 2 System design; Chapter 2 System design and acquisition parameters for breast tomosynthesis; Chapter 3 Detectors for tomosynthesis; Chapter 4 Patient dose; Chapter 5 Tomosynthesis with circular orbits; Chapter 6 Tomosynthesis system modeling; Section 3 Image reconstruction; Chapter 7 Filtered backprojection-based methods for tomosynthesis image reconstruction; Chapter 8 Iterative image reconstruction design for digital breast tomosynthesis Section 4 System performanceChapter 9 Fourier-domain methods for optimization of tomosynthesis (NEQ); Chapter 10 Spatial-domain model observers for optimizing tomosynthesis; Chapter 11 Observer experiments with tomosynthesis; Section 5 Clinical applications; Chapter 12 Clinical applications of breast tomosynthesis; Chapter 13 Chest tomosynthesis; Chapter 14 Tomosynthesis applications in radiation oncology; Chapter 15 Future developments in breast tomosynthesis; Back Cover
Sommario/riassunto	Preface: For much of the past century, projection radiography has been the workhorse in the diagnostic imaging clinic. Tomosynthesis, which introduces depth information to the x-ray radiographic image with

little or no increase in radiation dose, could potentially replace projection radiography as we move into the twenty-first century. This book, Tomosynthesis Imaging, offers the most comprehensive resource to date for this new emerging imaging technology. Digital tomosynthesis imaging is a novel quasi-three dimensional x-ray imaging modality that has been primarily developed during the past two decades, owing to the availability of large-area digital x-ray detectors. The tomosynthesis image is reconstructed from a sequence of projection images that are acquired from a limited angle x-ray scan, therefore, conceptually, tomosynthesis might be considered as limited-angle CT. Because of the limited angle acquisition, resolution in the reconstructed volume is not isotropic. The resolution in image planes parallel to the detector surface is similar to the native detector resolution, but the resolution perpendicular to the detector surface direction is substantially worse, and depends on the scan arc length and on the size of the detail being imaged. Tomosynthesis imaging is being actively investigated for use in a variety of clinical tasks. Currently, tomosynthesis breast imaging is at the forefront, having received approval for clinical use in Europe and Canada in 2008, and FDA approval in the United States in 2011. Although conventional mammography has been very successful in reducing the breast cancer mortality rate, its sensitivity and specificity are less then desirable, especially for women with dense breast tissue--Provided by publisher.