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Nota di contenuto	Part 1. Introduction -- 1. Introduction -- Part 2. Computerized Diagnosis for Cancer -- 2. Computer-Aided Detection of Lung Cancer -- 3. Computer-Aided Detection and Differentiation of Breast Cancer on Mammograms -- 4. Computer-Aided Differentiation for Pathology Images -- Part 3. Computer-Assisted Radiation Treatment Planning -- 5. Computer-Assisted Target Volume Determination -- 6. Computer-Assisted Treatment Planning Approaches for SBRT -- 7. Computer-Assisted Treatment Planning Approaches for Carbon-Ion Beam Therapy -- 8. Computer-Assisted Treatment Planning Approaches for IMRT -- Part 4. Image-Guided Patient Positioning 9. X-ray Image-Based Patient Positioning -- 10. Surface-Imaging-Based Patient Positioning in Radiation Therapy -- Part 5. Intelligent Radiation Treatment Approaches -- 11. Tumor Tracking Approach -- 12. Visualization of Dose Distributions for Photon Beam Radiation Therapy During Treatment -- Part 6. Computerized Prediction of Treatment Outcomes -- 14. Computerized Prediction of Treatment Outcomes and Radiomics Analysis.
Sommario/riassunto	This book provides a comprehensive overview of the state-of-the-art computational intelligence research and technologies in computer-

assisted radiation therapy based on image engineering. It also traces major technical advancements and research findings in the field of image-based computer-assisted radiation therapy. In high-precision radiation therapies, novel approaches in image engineering including computer graphics, image processing, pattern recognition, and computational anatomy play important roles in improving the accuracy of radiation therapy and assisting decision making by radiation oncology professionals, such as radiation oncologists, radiation technologists, and medical physicists, in each phase of radiation therapy. All the topics presented in this book broaden understanding of the modern medical technologies and systems for image-based computer-assisted radiation therapy. Therefore this volume will greatly benefit not only radiation oncologists and radiologists but also radiation technologists, professors in medical physics or engineering, and engineers involved in the development of products to utilize this advanced therapy.

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