Emerging Technologies in Breast Imaging and Mammography

Rangaraj Rangayyan, and Swamy Laxminarayan (Editors)
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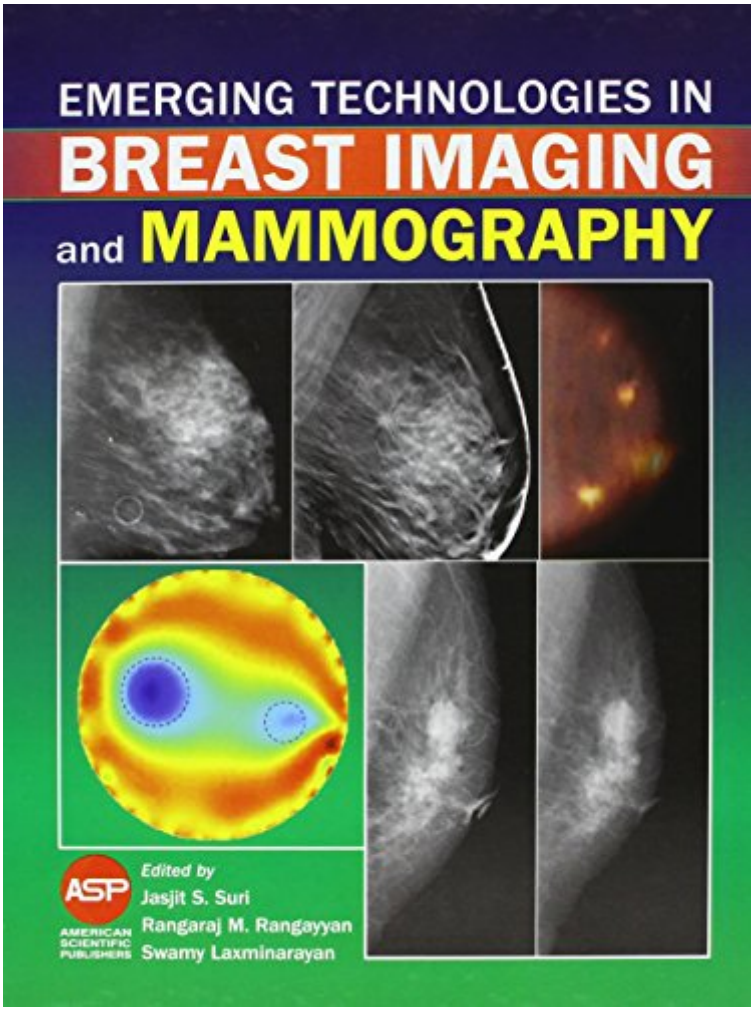

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Rangaraj Rangayyan, and Swamy Laxminarayan (Editors) : Emerging Technologies in Breast Imaging and Mammography before purchasing it in order to gage whether or not it would be worth my time, and all praised Emerging Technologies in Breast Imaging and Mammography:

DESCRIPTION: Breast cancer is the second leading cause of cancer deaths in women today and is the most common cancer among women, excluding non-melanoma skin cancers. According to the World Health Organization (WHO), more than 1.2 million people will be diagnosed with breast cancer this year worldwide. The new emerging technologies are going to play a role in early breast cancer detection, diagnosis and for improving the sensitivity and specificity of the imaging or computer-aided diagnosis systems. This book is the first of its kind to address the issues

on cutting edge emerging technologies for breast imaging and mammography. The book covers all facets of nature to image the breast, may it be light (optical), sound (ultrasound), magnetism, attenuation, microwave, electrical impedance, fusion of these modalities, and some of the very hot topics on Computer Aided Detection. The novelty of this book is due to the contributions of pioneers around the world. This book offers a very comprehensive and up-to-date perspective on the state of breast cancer screening instrumentation, diagnosis, and therapy and recommends steps for developing the most reliable breast cancer detection and therapeutic methods possible. This volume, for the first time, covers numerous topics on how to attack breast cancer from almost all different angles of medical imaging modalities such as X-ray, CT, MR, PET, SPECT, nuclear, ultrasound, microwave, optical, electrical impedance, thermal, infrared, and its fusion. Another novelty of this book is modeling breast cancer detection, diagnosis, and therapy in 3-D. The book begins with highlights on different kinds of breast cancer and its pathology and then introduces the engineers, scientists, innovators, and strategists to put their algorithms and designs for solving the number one killer problem in women s health imaging. The book is divided into six parts: Part-I is dedicated to X-ray mammography and its applications, including modeling X-ray spectra, phase-contrast, and stereoscopic mammography. Part-II is dedicated to 3-D breast imaging and tomosynthesis, one of the most cutting-edge topics from pioneers. Part-III is dedicated to breast imaging using ultrasound and its applications. This involves detection, elastography, vibro-acoustography, breast biopsy, and breast cancer therapy using HIFU. Part-IV concentrates on some emerging techniques such as optical, microwave, electrical impedance tomography, nuclear, and infrared and thermal imaging techniques. Part-V is dedicated to some of the advanced computer-aided detection techniques applied to architectural distortion. Finally, the book concludes, in Part-VI, on the fusion of various modalities and some future predictions in the breast imaging area.