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Nota di contenuto	Virtual Clinical Trials for the Assessment of Novel Breast Screening Modalities -- Computer-Aided Diagnosis for B-Mode, Elastography and Automated Breast Ultrasound -- Measurement and Clinical Use of Breast Density -- Low-Dose Molecular Breast Imaging - Diagnostic and Screening Applications in Women with Dense Breasts -- Will New Technologies Replace Mammography CAD as We Know It? -- Advanced Telecommunications in Breast Imaging – Streamlining Telemammography, Telepathology and Teleoncology Services to Improve Patient Care -- Predicting the Benefit of Using CADe in Screening Mammography -- Modeling Breast Cancer Screening Outcomes -- The Impact of Introducing Full Field Digital Mammography into a Screening Programme -- Fully Automated Nipple

Detection in 3D Breast Ultrasound Images -- Breast Imaging with 3D Ultrasound Computer Tomography: Results of a First In-vivo Study in Comparison to MRI Images -- Factors Affecting Agreement between Breast Density Assessment Using Volumetric Methods and Visual Analogue Scales -- Breast Tissue Segmentation and Mammographic Risk Scoring Using Deep Learning -- Optimization of X-Ray Spectra for Dual-Energy Contrast-Enhanced Breast Imaging: Dependency on CsI Detector Scintillator Thickness -- Dose-Saving Potential of Linear- and Non-Linear Energy Weighting in Photon-Counting Spectral Mammography -- Compositional Three-Component Breast Imaging of Fibroadenoma and Invasive Cancer Lesions: Pilot Study -- Potential Usefulness of Presentation of Histological Classifications with Computer-Aided Diagnosis (CAD) Scheme in Differential Diagnosis of Clustered Microcalcifications on Mammograms -- Potential Usefulness of Breast Radiographers' Reporting as a Second Opinion for Radiologists' Reading in Digital Mammography -- Effective Detective Quantum Efficiency (eDQE) Measured for a Digital Breast Tomosynthesis System -- Comparison of SNDR, NPWE Model and Human Observer Results for Spherical Densities and Microcalcifications in Real Patient Backgrounds for 2D Digital Mammography and Breast Tomosynthesis -- Assessing Radiologist Performance and Microcalcifications Visualization Using Combined 3D Rotating Mammogram (RM) and Digital Breast Tomosynthesis (DBT) -- Digital Breast Tomosynthesis: Image Quality and Dose Saving of the Synthesized Image -- Patient Specific Dose Calculation Using Volumetric Breast Density for Mammography and Tomosynthesis -- Comparative Performance Evaluation of Contrast-Detail in Full Field Digital Mammography (FFDM) Systems Using Ideal (Hotelling) Observer versus Automated CDMAM Analysis -- Mammographic Density Effect on Readers' Performance and Visual Search Pattern -- Towards a Quantitative Measure of Radiographic Masking by Dense Tissue in Mammography -- Three Dimensional Dose Distribution Comparison of Simple and Complex Acquisition Trajectories in Dedicated Breast CT – A Monte Carlo Study -- Quantitative MRI Phenotyping of Breast Cancer across Molecular Classification Subtypes -- A Novel Framework for Fat, Glandular Tissue, Pectoral Muscle and Nipple Segmentation in Full Field Digital Mammograms -- Texture-Based Breast Cancer Prediction in Full-Field Digital Mammograms Using the Dual-Tree Complex Wavelet Transform and Random Forest Classification -- Evaluation of a New Design of Contrast-Detail Phantom for Mammography: CDMAM Model 4.0 -- Threshold Target Thickness Calculated Using a Model Observer as a Quality Control Metric for Digital Mammography -- Contrast-Enhanced Digital Mammography Lesion Morphology and a Phantom for Performance Evaluation -- Stability of Volumetric Tissue Composition Measured in Serial Screening Mammograms -- Breast Density Classification Based on Volumetric Glandularity Measured by Spectral Mammography -- Is Volumetric Breast Density Related to Body Mass Index, Body Fat Mass, Waist-Hip Ratio, Age and Ethnicity for Malaysian Women? -- Automated Volumetric Breast Density Derived by Statistical Model Approach -- Volumetric Breast Density and Radiographic Parameters -- The Relationship of Volumetric Breast Density to Socio-Economic Status in a Screening Population -- Use of Volumetric Breast Density Measures for the Prediction of Weight and Body Mass Index -- Mammographic Density and Breast Cancer Characteristics -- Managing Tiled Images in Breast Density Measurements -- Reliability of Breast Density Estimation in Follow-Up Mammograms: Repeatability and Reproducibility of a Fully Automated Areal Percent Density Method -- Usefulness of a Combination DBT(Digital Breast Tomosynthesis) and

Automated Volume Analysis of Dynamic Contrast-Enhanced Breast (DCEB) MRI in Evaluation of Response to Neoadjuvant Chemotherapy (NAC) -- Clinical Efficacy of Novel Image Processing Techniques in the Framework of Filtered Back Projection (FBP) with Digital Breast Tomosynthesis (DBT) -- Assessment Schemes with Full Field Digital Mammography -- Predicting Triple-Negative Breast Cancer and Axillary Lymph Node Metastasis Using Diagnostic MRI -- Understanding the Role of Correct Lesion Assessment in Radiologists' Reporting of Breast Cancer -- Realistic Simulation of Breast Tissue Microstructure in Software Anthropomorphic Phantoms -- A Virtual Human Breast Phantom Using Surface Meshes and Geometric Internal Structures -- Characterisation of Screen Detected and Simulated Calcification Clusters in Digital Mammograms -- Development of a Micro-Simulation Model for Breast Cancer to Evaluate the Impacts of Personalized Early Detection Strategies -- Modelling Vascularity in Breast Cancer and Surrounding Stroma Using Diffusion MRI and Intravoxel Incoherent Motion -- Monte Carlo Modeling of the DQE of a-Se X-Ray Detectors for Breast Imaging -- kVp Tool for Digital Mammography Using Commercial Metallic Foils -- Possibility of Exposure Dose Reduction in Contrast Enhanced Spectral Mammography Using Dual Energy Subtraction Technique: A Phantom Study -- A Protocol for Quality Control Testing for Contrast-Enhanced Dual Energy Mammography Systems -- Trends in Mammogram Image Quality, Dose and Screen-Detected Cancer Rates in an Organized Screening Mammography Program -- Power Spectrum Analysis of an Anthropomorphic Breast Phantom Compared to Patient Data in 2D Digital Mammography and Breast Tomosynthesis -- Contrast-Enhanced Digital Mammography Image Quality Evaluation in the Clinic -- BREAST: A Novel Strategy to Improve the Detection of Breast Cancer -- A Regional Web-Based Automated Quality Control Platform -- A European Protocol for Technical Quality Control of Breast Tomosynthesis Systems -- Conventional Mammographic Image Generation Method with Increased Calcification Sensitivity Based on Dual-Energy -- Development of Mammography System Using CdTe Photon Counting Detector for Exposure Dose Reduction - Study of Effectiveness of the Spectrum by Simulation -- Development of Mammography System Using CdTe Photon-Counting Detector for Exposure Dose Reduction - Evaluation of Image Quality in the Prototype System -- Investigation of Dependence on the Object Orientation in Visibility-Contrast Imaging with the X-Ray Talbot-Lau Interferometer -- Development of New Imaging System Based on Grating Interferometry: Preclinical Study in Breast Imaging -- Basic Study on the Development of a High-Resolution Breast CT -- Analysis of Dependence of Detector Position on Detected Scatter Distribution in Dedicated Breast SPECT -- Evaluation of Physical and Psychological Burden of Subjects in Mammography -- Mammographic Image Database (MIDB) and Associated Web-Enabled Software for Research -- Optimizing High Resolution Reconstruction in Digital Breast Tomosynthesis Using Filtered Back Projection -- The Investigation of Different Factors to Optimize the Simulation of 3D Mass Models in Breast Tomosynthesis -- Clinical Evaluation of Dual Mode Tomosynthesis -- Image Quality of Thick Average Intensity Pixel Slabs Using Statistical Artifact Reduction in Breast Tomosynthesis -- Detection of Spiculated Lesions in Digital Mammograms Using a Novel Image Analysis Technique -- Spatial Correlation Analysis of Mammograms for Detection of Asymmetric Findings -- Temporal Breast Cancer Risk Assessment Based on Higher-Order Textons -- Invariant Features for Discriminating Cysts from Solid Lesions in Mammography -- Breast Masses Identification through Pixel-Based

Texture Classification -- Automated Labeling of Screening Mammograms with Arterial Calcifications -- False Positive Reduction in CADe Using Diffusing Scale Space -- Automated Detection of Architectural Distortion Using Improved Adaptive Gabor Filter -- Detecting Abnormal Mammographic Cases in Temporal Studies Using Image Registration Features -- Analysis of Mammographic Microcalcification Clusters Using Topological Features -- Differentiation of Malignant and Benign Masses on Mammograms Using Radial Local Ternary Pattern -- Statistical Temporal Changes for Breast Cancer Detection: A Preliminary Study -- Comparison of Calcification Cluster Detection by CAD and Human Observers at Different Image Quality Levels -- A Novel Image Enhancement Methodology for Full Field Digital Mammography -- Correlation between Topological Descriptors of the Breast Ductal Network from Clinical Galactograms and Texture Features of Corresponding Mammograms -- Breast Volume Measurement Using a Games Console Input Device -- Towards Spatial Correspondence between Specimen and In-vivo Breast Imaging -- SIFT Texture Description for Understanding Breast Ultrasound Images -- Comparison of Methods for Current-to-Prior Registration of Breast DCE-MRI -- A Study on Mammographic Image Modelling and Classification Using Multiple Databases -- Quasi-3D Display of Lesion Locations Simulated by Two Views of Digital Mammography -- A Shearlet-Based Filter for Low-Dose Mammography -- Evaluation of Human Contrast Sensitivity Functions Used in the Nonprewhitening Model Observer with Eye Filter -- It Is Hard to See a Needle in a Haystack: Modeling Contrast Masking Effect in a Numerica.

Sommario/riassunto

This book constitutes the refereed proceedings of the 12th International Workshop on Breast Imaging, IWDM 2014, held in Gifu City, Japan, in June/July 2014. The 24 revised full papers and 73 revised poster papers presented together with 6 invited talks were carefully reviewed and selected from 122 submissions. The papers are organized in topical sections on screening outcomes, ultrasound, breast density, imaging physics, CAD, tomosynthesis and ICT and image processing.