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Nota di contenuto	Diffusion Imaging -- Diffusion Propagator Imaging: Using Laplace's Equation and Multiple Shell Acquisitions to Reconstruct the Diffusion Propagator -- Clustering of the Human Skeletal Muscle Fibers Using Linear Programming and Angular Hilbertian Metrics -- PET Imaging -- High-Resolution Adaptive PET Imaging -- Dynamic Dual-Tracer PET Reconstruction -- Image Registration -- DRAMMS: Deformable Registration via Attribute Matching and Mutual-Saliency Weighting -- Simultaneous Consideration of Spatial Deformation and Tensor Orientation in Diffusion Tensor Image Registration Using Local Fast Marching Patterns -- Functional Networks -- Discovering Sparse Functional Brain Networks Using Group Replicator Dynamics (GRD) -- Multimodal Functional Imaging Using fMRI-Informed Regional EEG/MEG Source Estimation -- Space Curves -- Tractography Segmentation Using a Hierarchical Dirichlet Processes Mixture Model -- A Statistical Model of White Matter Fiber Bundles Based on Currents -- Tractography -- Neural Tractography Using an Unscented Kalman Filter

-- Multi-fiber Reconstruction from DW-MRI Using a Continuous Mixture of Hyperspherical von Mises-Fisher Distributions -- Poster Session I -- Regression Models of Atlas Appearance -- Non-rigid Image Registration with Uniform Spherical Structure Patterns -- Joint Bayesian Cortical Sulci Recognition and Spatial Normalization -- Image-to-Physical Registration for Image-Guided Interventions Using 3-D Ultrasound and an Ultrasound Imaging Model -- Automatic Cortical Sulcal Parcellation Based on Surface Principal Direction Flow Field Tracking -- A New Information-Theoretic Measure to Control the Robustness-Sensitivity Trade-Off for DMFFD Point-Set Registration -- Generalized L2-Divergence and Its Application to Shape Alignment -- Fully-Automated White Matter Hyperintensity Detection with Anatomical Prior Knowledge and without FLAIR -- Identification of Growth Seeds in the Neonate Brain through Surfacic Helmholtz Decomposition -- Active Imaging with Dual Spin-Echo Diffusion MRI -- Voxel-by-Voxel Functional Diffusion Mapping for Early Evaluation of Breast Cancer Treatment -- MRI Tissue Classification and Bias Field Estimation Based on Coherent Local Intensity Clustering: A Unified Energy Minimization Framework -- A Unified Framework for MR Based Disease Classification -- MARM: Multiscale Adaptive Regression Models for Neuroimaging Data -- Automatic Segmentation of Brain Structures Using Geometric Moment Invariants and Artificial Neural Networks -- Adaptive Kernels for Multi-fiber Reconstruction -- Smooth 3-D Reconstruction for 2-D Histological Images -- Microscopy -- Nonnegative Mixed-Norm Preconditioning for Microscopy Image Segmentation -- Coupled Minimum-Cost Flow Cell Tracking -- Exploratory Analyses -- Persistence Diagrams of Cortical Surface Data -- Exploratory fMRI Analysis without Spatial Normalization -- Features and Detection -- Marginal Space Learning for Efficient Detection of 2D/3D Anatomical Structures in Medical Images -- A General and Unifying Framework for Feature Construction, in Image-Based Pattern Classification -- Image Guided Surgery -- Bayesian Registration via Local Image Regions: Information, Selection and Marginalization -- A Non-rigid Registration Framework That Accommodates Resection and Retraction -- Shape Analysis -- Discriminative Shape Alignment -- Inverse-Consistent Surface Mapping with Laplace-Beltrami Eigen-Features -- Poster Session II -- Estimating Uncertainty in Brain Region Delineations -- Unifying Encoding of Spatial Information in Mutual Information for Nonrigid Registration -- Projected Generalized Procrustes Alignment -- HARDI Denoising: Variational Regularization of the Spherical Apparent Diffusion Coefficient sADC -- Coronary Lumen Segmentation Using Graph Cuts and Robust Kernel Regression -- Dense Registration with Deformation Priors -- Multivariate High-Dimensional Cortical Folding Analysis, Combining Complexity and Shape, in Neonates with Congenital Heart Disease -- The 3D Moore-Rayleigh Test for the Quantitative Groupwise Comparison of MR Brain Images -- A Framework for Brain Registration via Simultaneous Surface and Volume Flow -- Level Set Image Segmentation with a Statistical Overlap Constraint -- Estimating the Confidence of Statistical Model Based Shape Prediction -- Oriented Morphometry of Folds on Surfaces -- Diffusion MRI Registration Using Orientation Distribution Functions -- Robust Joint Entropy Regularization of Limited View Transmission Tomography Using Gaussian Approximations to the Joint Histogram -- Cortical Correspondence with Probabilistic Fiber Connectivity -- A Variational Image-Based Approach to the Correction of Susceptibility Artifacts in the Alignment of Diffusion Weighted and Structural MRI -- Motion -- 4D MAP Image Reconstruction Incorporating Organ Motion -- Incorporating Patient Breathing Variability into a Stochastic Model of

	Dose Deposition for Stereotactic Body Radiation Therapy -- Segmentation and Validation -- Estimation of Inferential Uncertainty in Assessing Expert Segmentation Performance from Staple -- Detection of Arterial Calcification in Mammograms by Random Walks.
Sommario/riassunto	This book constitutes the refeered proceedings of the 21st International Conference on Information Processing in Medical Imaging, IPMI 2009, held in Williamsburg, VA, USA, in July 2009 The 26 revised full papers and 33 revised poster papers presented were carefully reviewed and selected from 150 submissions. The papers are organized in topical sections on diffusion imaging, PET imaging, image registration, functional networks, space curves, tractography, microscopy, exploratory analyses, features and detection, image guided surgery, shape analysis, motion, and segmentation and validation.