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Nota di contenuto	Segmentation -- A Shape-Guided Deformable Model with Evolutionary Algorithm Initialization for 3D Soft Tissue Segmentation -- Shape Regression Machine -- Active Mean Fields: Solving the Mean Field Approximation in the Level Set Framework -- Liver Segmentation Using Sparse 3D Prior Models with Optimal Data Support -- Cardiovascular Imaging -- Adaptive Non-rigid Registration of Real Time 3D Ultrasound to Cardiovascular MR Images -- Multi-slice Three-Dimensional Myocardial Strain Tensor Quantification Using zHARP -- Bayesian Tracking of Elongated Structures in 3D Images -- Effective Statistical Edge Integration Using a Flux Maximizing Scheme for Volumetric Vascular Segmentation in MRA -- Detection and Labeling -- Joint Sulci Detection Using Graphical Models and Boosted Priors -- Rao-Blackwellized Marginal Particle Filtering for Multiple Object Tracking in Molecular Bioimaging -- Spine Detection and Labeling Using a Parts-Based Graphical Model -- Lung Nodule Detection Via Bayesian Voxel Labeling -- Poster Session I -- Functional Interactivity in fMRI Using Multiple Seeds' Correlation Analyses -- Novel Methods and Comparisons -- Learning Best Features and Deformation Statistics for Hierarchical Registration of MR Brain Images -- Information-Theoretic Analysis of

Brain White Matter Fiber Orientation Distribution Functions --
 Segmentation of Sub-cortical Structures by the Graph-Shifts Algorithm -- High-Quality Consistent Meshing of Multi-label Datasets -- Digital Homeomorphisms in Deformable Registration -- Incorporating DTI Data as a Constraint in Deformation Tensor Morphometry Between T1 MR Images -- LV Segmentation Through the Analysis of Radio Frequency Ultrasonic Images -- Chestwall Segmentation in 3D Breast Ultrasound Using a Deformable Volume Model -- Automatic Cortical Segmentation in the Developing Brain -- Comparing Pairwise and Simultaneous Joint Registrations of Decorrelating Interval Exams Using Entropic Graphs -- Combining Radiometric and Spatial Structural Information in a New Metric for Minimal Surface Segmentation -- A Fuzzy, Nonparametric Segmentation Framework for DTI and MRI Analysis -- Symmetric Positive 4th Order Tensors & Their Estimation from Diffusion Weighted MRI -- Atlas-to-Image Non-rigid Registration by Minimization of Conditional Local Entropy -- Shape Modeling and Analysis with Entropy-Based Particle Systems -- A Volumetric Approach to Quantifying Region-to-Region White Matter Connectivity in Diffusion Tensor MRI -- Brain Image Registration Using Cortically Constrained Harmonic Mappings -- Probabilistic Clustering and Quantitative Analysis of White Matter Fiber Tracts -- Multi-fiber Reconstruction from Diffusion MRI Using Mixture of Wisharts and Sparse Deconvolution -- A Hamiltonian Particle Method for Diffeomorphic Image Registration -- Inter and Intra-modal Deformable Registration: Continuous Deformations Meet Efficient Optimal Linear Programming -- Tracer Kinetics Guided Dynamic PET Reconstruction -- Maximum Likelihood Estimators in Magnetic Resonance Imaging -- Quantifying Metabolic Asymmetry Modulo Structure in Alzheimer's Disease -- Adaptive Time-Frequency Models for Single-Trial M/EEG Analysis -- Imaging Brain Activation Streams from Optical Flow Computation on 2-Riemannian Manifolds -- High Level Group Analysis of fMRI Data Based on Dirichlet Process Mixture Models -- Poster Session II -- Insight into Efficient Image Registration Techniques and the Demons Algorithm -- Divergence-Based Framework for Diffusion Tensor Clustering, Interpolation, and Regularization -- Localized Components Analysis -- Regional Appearance in Deformable Model Segmentation -- Fully Automated Registration of First-Pass Myocardial Perfusion MRI Using Independent Component Analysis -- Octree Grid Topology Preserving Geometric Deformable Model for Three-Dimensional Medical Image Segmentation -- High-Dimensional Entropy Estimation for Finite Accuracy Data: R-NN Entropy Estimator -- Kernel-Based Manifold Learning for Statistical Analysis of Diffusion Tensor Images -- An Anatomical Equivalence Class Based Joint Transformation-Residual Descriptor for Morphological Analysis -- Incorporation of Regional Information in Optimal 3-D Graph Search with Application for Intraretinal Layer Segmentation of Optical Coherence Tomography Images -- Localized Maximum Entropy Shape Modelling -- Computer Aided Detection of Pulmonary Embolism with Tobogganing and Multiple Instance Classification in CT Pulmonary Angiography -- Measures for Pathway Analysis in Brain White Matter Using Diffusion Tensor Images -- Estimating the Mesorectal Fascia in MRI -- A Marginalized MAP Approach and EM Optimization for Pair-Wise Registration -- Geometry Driven Volumetric Registration -- A Recursive Anisotropic Fast Marching Approach to Reaction Diffusion Equation: Application to Tumor Growth Modeling -- Population-Based Fitting of Medial Shape Models with Correspondence Optimization -- Robust Parametric Modeling Approach Based on Domain Knowledge for Computer Aided Detection of Vertebrae Column Metastases in MRI --

Nonrigid Image Registration Using Conditional Mutual Information --
Non-parametric Surface-Based Regularisation for Building Statistical
Shape Models -- Geometrically Proper Models in Statistical Training --
Registration-Derived Estimates of Local Lung Expansion as Surrogates
for Regional Ventilation.

Sommario/riassunto

The 20th International Conference on Information Processing in Medical Imaging (IPMI) was held during July 2–6, 2007, at Rolduc Abbey, located in Kerkrade in the south of the Netherlands. Following the highly successful IPMI in Glenwood Springs in the Rocky Mountains, Colorado, USA (2005), the conference was the latest in a series of biennial scientific meetings where new developments in acquisition, analysis, and use of medical images are presented. IPMI is one of the longest running conferences in medical imaging. It was started in 1969 by a group of young scientists working in nuclear medicine. With a few iterations the conference expanded to other areas and became established as an important meeting for in-depth discussion of new methodological developments in medical imaging. Nowadays it is widely recognized as one of the most exciting and influential conferences in its field. At IPMI meetings a wide variety of topics are covered by a relatively small selection of papers presented in single-track sessions. This year, there were 210 manuscripts submitted to the conference. Of these papers, 26 were accepted for oral presentation, and 37 papers were accepted as posters. Papers were carefully judged by three reviewers and two paper selection committee members, with emphasis on originality, methodological development, scientific rigor, and relevance. Selection of papers was difficult, but using the rankings and detailed comments of the reviewers we were able to make a great selection in an objective way. Unfortunately, due to the large number of submissions, it was inevitable that many high-quality papers did not make it into the final program.
