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Nota di bibliografia	Includes bibliographical references and author index.
Nota di contenuto	Fast Automatic Detection of Calcified Coronary Lesions in 3D Cardiac CT Images -- Automated Intervertebral Disc Detection from Low Resolution, Sparse MRI Images for the Planning of Scan Geometries -- Content-Based Medical Image Retrieval with Metric Learning via Rank

Correlation -- A Hyper-parameter Inference for Radon Transformed Image Reconstruction Using Bayesian Inference -- Patch-Based Generative Shape Model and MDL Model Selection for Statistical Analysis of Archipelagos -- Prediction of Dementia by Hippocampal Shape Analysis -- Multi-Class Sparse Bayesian Regression for Neuroimaging Data Analysis -- Appearance Normalization of Histology Slides -- Parallel Mean Shift for Interactive Volume Segmentation -- Soft Tissue Discrimination Using Magnetic Resonance Elastography with a New Elastic Level Set Model -- Fast and Automatic Heart Isolation in 3D CT Volumes: Optimal Shape Initialization -- Relation-Aware Spreadsheets for Multimodal Volume Segmentation and Visualization -- A Bayesian Learning Application to Automated Tumour Segmentation for Tissue Microarray Analysis -- Generalized Sparse Classifiers for Decoding Cognitive States in fMRI -- Manifold Learning for Biomarker Discovery in MR Imaging -- Optimal Live Cell Tracking for Cell Cycle Study Using Time-Lapse Fluorescent Microscopy Images -- Fully Automatic Joint Segmentation for Computer-Aided Diagnosis and Planning -- Accurate Identification of MCI Patients via Enriched White-Matter Connectivity Network -- Feature Extraction for fMRI-Based Human Brain Activity Recognition -- Sparse Spatio-temporal Inference of Electromagnetic Brain Sources -- Optimal Gaussian Mixture Models of Tissue Intensities in Brain MRI of Patients with Multiple-Sclerosis -- Preliminary Study on Appearance-Based Detection of Anatomical Point Landmarks in Body Trunk CT Images -- Principal-Component Massive-Training Machine-Learning Regression for False-Positive Reduction in Computer-Aided Detection of Polyps in CT Colonography.

Sommario/riassunto

The first International Workshop on Machine Learning in Medical Imaging, MLMI 2010, was held at the China National Convention Center, Beijing, China on Sept- ber 20, 2010 in conjunction with the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2010. Machine learning plays an essential role in the medical imaging field, including image segmentation, image registration, computer-aided diagnosis, image fusion, ima- guided therapy, image annotation, and image database retrieval. With advances in me- cal imaging, new imaging modalities, and methodologies such as cone-beam/multi-slice CT, 3D Ultrasound, tomosynthesis, diffusion-weighted MRI, electrical impedance to-graphy, and diffuse optical tomography, new machine-learning algorithms/applications are demanded in the medical imaging field. Single-sample evidence provided by the patient’s imaging data is often not sufficient to provide satisfactory performance; the- fore tasks in medical imaging require learning from examples to simulate a physician’s prior knowledge of the data. The MLMI 2010 is the first workshop on this topic. The workshop focuses on major trends and challenges in this area, and works to identify new techniques and their use in medical imaging. Our goal is to help advance the scientific research within the broad field of medical imaging and machine learning. The range and level of submission for this year's meeting was of very high quality. Authors were asked to submit full-length papers for review. A total of 38 papers were submitted to the workshop in response to the call for papers.