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Image Retrieval -- A Query-by-Example Content-Based Image Retrieval System of Non-melanoma Skin Lesions -- 3D Case–Based Retrieval for Interstitial Lung Diseases -- Image Retrieval for Alzheimer’s Disease Detection -- Clinical Decision Making -- Statistical Analysis of Gait Data to Assist Clinical Decision Making -- Using BI-RADS Descriptors and Ensemble Learning for Classifying Masses in Mammograms -- Robust Learning-Based Annotation of Medical Radiographs -- Multimodal Fusion -- Knowledge-Based Discrimination in Alzheimer’s Disease -- Automatic Annotation of X-Ray Images: A Study on Attribute Selection -- Multi-modal Query Expansion Based on Local Analysis for Medical Image Retrieval.

Sommario/riassunto

We are pleased to present this set of peer-reviewed papers from the ? rst MICCAI Workshop on Medical Content-Based Retrieval for Clinical Decision Support. The MICCAI conference has been the ?agship conference for the m- ical imaging community re'ecting the state of the art in techniques of segm- tation, registration, and robotic surgery. Yet, the transfer of these techniques to clinical practice is rarely discussed in the MICCAI conference. To address this gap, we proposed to hold this workshop with MICCAI in London in September 2009. The goal of the workshop was to show the application of content-based retrieval in clinical decision support. With advances in electronic patient record systems, a large number of pre-diagnosed patient data sets are now bec- ing available. These data sets are often multimodal consisting of images (x-ray, CT, MRI), videos and other time series, and textual data (free text reports and structuredclinicaldata). Analyzing thesemultimodalsourcesfordisease-speci'c information across patients can reveal important similarities between patients and hence their underlying diseases and potential treatments. Researchers are now beginning to use techniques of content-based retrieval to search for disea- speci'c information in modalities to ?nd supporting evidence for a disease or to automatically learn associations of symptoms and diseases. Benchmarking frameworks such as ImageCLEF (Image retrieval track in the Cross-Language Evaluation Forum) have expanded over the past ?ve years to include large m- ical image collections for testing various algorithms for medical image retrieval and classi'cation.