Special Issue on "Machine Learning in Medical Imaging"

Aims and Scope:
Machine learning plays an essential role in the medical imaging field, including computer-assisted diagnosis, image segmentation, image registration, image fusion, image-guided therapy, image annotation, and image database retrieval. Due to large inter-subject variability, it is generally difficult to derive analytic formulation or simple equation to represent objects such as lesions and anatomies in the medical data. Therefore, tasks in medical imaging demand learning from patient data for heuristics and prior knowledge, in order to facilitate the detection and diagnosis of abnormality in the medical data.

The goal of this special issue is to publish original, high-quality papers on innovative research and development in the analysis of medical imaging data using machine learning techniques. This special issue will help advance the scientific research within the broad field of machine learning in medical imaging. It will consist of previously unpublished, contributed and invited papers. For the invited papers from MLMI 2013, they must be sufficiently different from their respective conference papers with at least 50% new materials according to the rules in biomedical journals.

The topics of interest in this special issue include all aspects of machine-learning research for medical imaging such as:

- Medical image analysis (e.g., pattern recognition, classification, segmentation, and registration) of anatomical structures and lesions;
- Computer-aided detection/diagnosis (e.g., for lung cancer, prostate cancer, breast cancer, colon cancer, liver cancer, brain disease, acute disease, and chronic disease);
- Multi-modality fusion (e.g., MRI/PET, PET/CT, projection X-ray/CT, X-ray/ultrasound) for diagnosis, analysis and image-guided interventions;
- Image reconstruction (e.g., expectation maximization (EM) algorithm, statistical methods, iterative reconstruction) for medical imaging (e.g., CT, PET, MRI, X-ray);
- Image retrieval (e.g., context-based retrieval);
- Cellular image analysis (e.g., genotype, phenotype, classification, identification, and cell tracking);
- Molecular/pathologic image analysis (e.g., PET, digital pathology);
- Dynamic, functional, physiologic, and anatomic imaging.

Important Dates:

Submission due:	Dec 23, 2013
Results of first round:	Feb 24, 2014
Revised paper due:	April 21, 2014
Final decision:	May 26, 2014
Camera ready:	June 30, 2014
Issue publication:	August 18, 2014

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