

## **Special Issue on Machine Learning in Medical Imaging Machine Vision and Applications (Springer)**

Medical imaging is indispensable for patients' healthcare. Machine learning plays an essential role in the medical imaging field, including computer-aided diagnosis, medical image analysis, organ/lesion segmentation, image registration, and image-guided therapy. Because of large variations and complexity, it is generally difficult to derive analytic solutions or simple equations to represent objects such as lesions and anatomy in medical images. Therefore, tasks in medical imaging require learning from examples for accurate representation of data and knowledge. Because of its essential needs, machine learning in medical imaging is one of the most promising, growing fields. As medical imaging has been advancing with the introduction of new imaging modalities and methodologies such as cone-beam/multislice CT, positron-emission tomography (PET)/CT, tomosynthesis, and diffusion-weighted MRI, new machine-learning algorithms/applications are demanded in the medical imaging field.

### **Scope**

The main aim of this special issue is to help advance scientific research within the broad field of medical imaging and machine learning. This special issue focuses on major trends and challenges in this area, and it presents work aimed to identify new techniques and their use in medical imaging. We are looking for original, high-quality submissions on innovative research and development in all aspects of machine learning in medical imaging including, but not limited to:

- Computer-aided detection/diagnosis
- Machine learning (e.g., with support vector machines, kernel methods, statistical methods, probabilistic modeling, manifold-space-based methods, artificial neural networks) applications to medical images with 2D, 3D, and 4D data
- Medical image analysis (e.g., pattern recognition, classification, segmentation, registration) of anatomic structures and lesions
- Multimodality fusion (e.g., MRI/PET, PET/CT, X-ray/ultrasound) for diagnosis, image analysis, and image-guided interventions
- Image reconstruction (e.g., expectation maximization and statistical methods)
- Image retrieval (e.g., context-based retrieval, lesion similarity)

### **Information for Authors**

Authors should prepare their manuscript according to the Instructions for Authors available from the online submission page of the 'Machine Visions and Applications' at <http://www.editorialmanager.com/mvap/>. When submitting, please choose "SI: Machine Learning in Medical Imaging" as the Article Type. All submissions will go through the regular Machine Vision and Applications peer reviewing procedure.

### **Important Dates**

Manuscript Due: January 1, 2012

First Round of Reviews: April 1, 2012

Final Decision: August 1, 2012

Publication Date: December 1, 2012

### **Guest Editors**

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