

CALL FOR PAPERS

IEEE SIGNAL PROCESSING MAGAZINE Special Issue on Medical Imaging

The field of medical imaging has revolutionized modern medicine, producing a broad arsenal of technologies used to map the body's internal structure and function. At the heart of medical imaging is a host of image processing technologies that play a pivotal role, not only in processing and analyzing the images, but also in forming them. Modern-day imaging systems rely on tomographic image reconstruction based on the solution of ill-posed inverse problems. Today's functional brain mapping involves a complex pipeline of image processing, machine learning, and statistical resampling procedures, leading to images depicting patterns of activity in the brain. Automated image analysis techniques are widely used to monitor drug effects in large-scale clinical trials, to assist in the diagnosis of patients, to plan and guide surgery, and even to replace some invasive procedures. New imaging hardware is driving the need for new algorithms required to compute images from complex sources of acquired data. The purpose of this special issue will be to acquaint the broader signal processing community with a sampling of cutting-edge issues in today's medical imaging.

This Call for Papers is an invitation for contributed articles, having a tutorial flavor, about timely and interesting topics in medical imaging that would have broad appeal to the signal and image processing community.

Scope of topics:

- Mapping the human brain
- Multi-modality imaging
- Image-guided intervention
- Biomechanical modeling in image analysis
- X-ray phase imaging
- Content-based image retrieval and computer-aided diagnosis
- Tractography
- Inverse methods for emerging imaging modalities
- Complex and system level models for image formation and analysis

Submission Procedure:

Before writing full manuscripts, prospective authors are asked to submit proposal-like white papers to the web submission system at <http://www.ee.columbia.edu/spm/> according to the following timetable.

Schedule (all deadlines are firm no exceptions)

White paper due:	June 1, 2009
Decision based on the white paper:	July 1, 2009
Revised full paper due:	October 1, 2009
Review complete for the revised manuscript:	January 1, 2010
Final manuscript due:	March 1, 2010
Publication date:	July, 2010

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