

Symposium on Big Data Analysis and Challenges in Medical Imaging

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CALL FOR PAPERS

The IEEE Global Conference on Signal and Information Processing (GlobalSIP) is the flagship conference of the IEEE Signal Processing Society. GlobalSIP 2016 will be held in Washington, DC, USA, December 7-9, 2016. The conference will focus broadly on signal and information processing with an emphasis on up-and-coming signal processing themes.

IEEE GlobalSIP 2016 Symposium on Big Data Analysis and Challenges in Medical Imaging will focus on advances in computing hardware, signal processing methods, and imaging technologies, research in this area. Today, a huge amount of medical imaging data is being generated from different modalities MRI, fMRI, PET, NIRS, DTI, EEG/MEG, Ultrasound Imaging, Optical imaging. This data is also shared as free resources with the view to push research. Broadly, two issues are emerging- 1) to handle this big data efficiently via advanced signal processing methods and 2) to provide validation across subjects and across data from different modalities. This symposium is aimed at addressing these two broad issues.

The emphasis of this symposium will be big data analysis and challenges in Medical Imaging. Topics include, but are not limited, to the following:

- Big Data Approaches to Medical Imaging
- Advanced machine learning approaches to brain data analysis including network building, parcellation, and brain state decoding
- Statistical machine learning
- Medical imaging data analysis using signal processing on graphs
- Distributed signal processing on networks/graphs in medical imaging data
- Statistical inference, dictionary learning, sparse recovery, matrix factorization, blind source separation methods applied to medical imaging application
- Structured data recovery, e.g., sparse + low-rank matrix factorization, robust PCA, compressive sensing, structured sparsity
- Higher order data analysis, e.g. tensor-based approaches to medical imaging data analysis
- Functional/effective Connectivity of evolving networks
- Anatomical imaging and structural connectivity
- Multimodal (EEG, MEG, MRI, fMRI, PET, NIRS, DTI) neuroimaging data analysis
- Joint study of Structural and functional networks via fMRI plus DTI analysis
- Study of altered brain networks in neuropsychiatric disorders
- Visual scene reconstruction using brain imaging

- Ultrasound Imaging, Optical imaging in neuroscience
- Advanced computational medical imaging, medical image reconstruction
- Dynamic and non-linear time-series analysis

Submission of Papers: Prospective authors are invited to submit full-length papers, with up to four pages for technical content including figures and possible references, and with one additional optional 5th page containing only references. Manuscripts should be original (not submitted/published anywhere else) and written in accordance with the standard IEEE double-column paper template. All paper submissions should be carried out through the CMS system (<http://www.ieeeglobalsip.org/>). A selection of best papers and best student papers will be made by the GlobalSIP 2016 best paper award committee upon recommendations from the Technical Committees.

Notice: The IEEE Signal Processing Society enforces a “no-show” policy. Any accepted paper included in the final program is expected to have at least one author or qualified proxy attend and present the paper at the conference. Authors of the accepted papers included in the final program who do not attend the conference will be subscribed to a “No-Show List”, compiled by the Society. The “no-show” papers will not be published by IEEE on IEEEXplore or other public access forums, but these papers will be distributed as part of the on-site electronic proceedings and the copyright of these papers will belong to the IEEE.

Timeline for paper submission:

<i>June 5, 2016:</i>	Paper submission deadline
<i>August 5, 2016:</i>	Review results announced
<i>September 5, 2016:</i>	Camera-ready papers due