

Special Session: Biomedical Signals and Image Processing

Key Note Speaker:

Prof. Vinod Kumar (Dy. Director IIT Roorkee)

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Session Organizers:

Dr. Chittaranjan Rout, Dept. of Biotechnology and Bioinformatics, Jaypee University of Information Technology, Waknaghat, Solan, India.

Dr. Jitendra Virmani, Dept. of Electronics and Communication Engineering, Jaypee University of Information Technology, Waknaghat, Solan, India.

During ICIP-2015, a special session on “**Biomedical Signals and Image Processing**” shall be organized by Dr. Chittaranjan Rout and Dr. Jitendra Virmani. This theme assumes a lot of significance as it is expected to make significant contribution towards advancements in healthcare and development of new generation instruments for medical diagnosis.

Original contributions are solicited for the special session on “**Biomedical Signals and Image Processing**” scheduled to be held on **12th December 2015** during ICIP-2015: Third International Conference on Image Information Processing to be held from December 10 - 13, 2015 at Jaypee University of Information Technology (JUIT), Waknaghat, Shimla, Himachal Pradesh, INDIA.

With the advancements in imaging technology in healthcare, voluminous high resolution image data is available for analysis and several commercial computer aided diagnostic systems (CADs) are developed to assist the clinicians and doctors in decision making. The CAD systems are developed using raw ECG, EEG, EMG and other biomedical signal and also by using MRI, CT, US and X-Ray images. To provide a more effective healthcare system, more efficient image registration, data management and data mining methods/algorithms are required for application purposes. Therefore, automated data acquisition, compression, fusion, retrieval, and feature extraction, selection, expert systems development hold key to successful implementation. The process requires application of machine learning techniques on image data. The CAD systems developed using features extracted from biomedical signals, like ECG, EEG, EMG and EOG etc. have shown promising outcomes. The features derived from ECG and EEG together can also be used for biometric authentication. The overview of the recent research published in this domain indicates that there is significant impetus for collaborative research between engineering and medical fraternity.

The aim of this session is to provide a platform to researchers and academicians to present their research results in the area of biomedical signal and image processing. We thus invite researchers to contribute both original research and review papers presenting novel techniques and methodologies for this session.

The areas of coverage for this special session are:

Papers presenting original research/review in the area of Biomedical Signal and Image Processing are sought. **Topics include, but are not limited to:**

- Processing of ECG, EEG, EMG and other biomedical signals
- Medical image enhancement for improved visualization of diagnostic features.
- Medical image quality assessment
- Image restoration methods Applied to medical imaging
- Thresholding technique for finding contours of 2-d & 2-D objects in medical images
- Sequential segmentation technique to find out thin vessels in medical images

- Emerging computational framework for medical image processing
- Data compression techniques For storage & retrieval of big medical image data
- Auto focusing techniques for MRI images.
- Automatic registration of medical image data
- X-Ray, CT, MRI, PET and Ultrasound Image Processing
- Echocardiographic Image Processing
- Automatic segmentation methods for medical images
- Automatic Lesion/ Abnormality detection
- Statistical and Fractal methods in texture classification & analysis of medical images.
- objects and shape identification in medical images
- Extraction and selection of optimal features for disease classification
- Soft computing methods in medical image processing
- Expert system based Image Processing.
- Multispectral classification techniques applied to medical images.
- Design of Computer Aided Diagnostic Systems for clinical applications
- Big Medical Image data storage and retrieval
- Medical Image Fusion
- Ethical issues in acquisition of biomedical data