

Thematic Issue Proposal for: The Open Biomedical Engineering Journal

(The thematic issues are peer-reviewed and may contain review articles, research articles, letters)

Title: “Applications of Soft Computing and Machine Learning Techniques for Biomedical Signals and Images”

Lead Guest Editor: Dr. Rahul K. Kher

Guest Editors: Dr. Chirag Paunwala, Dr. Falgun Thakkar, Dr. Heena Kher, Dr. Mita Paunwala

Position of the problem

Biomedical signals- ECG, EEG, EMG, EOG, ERG etc. and images- ultrasound, MRI, CT, PET etc. are very much useful for assessing the wellbeing of a human being. In order to determine the abnormality in a particular organ or part of the body physicians use these signal and images. Although, today's signal recorders and image scanners are of excellent resolution and quality, sometimes they fail to convey the actual scenario of the body part/ organ.

Soft computing and machine learning methods play important role in dealing with biomedical signals/ images and they have numerous applications like noise/ artifact removal from signals/ images, early detection of seizure/ cancer/ tumours, fusion of images for better diagnosis, classification of signals/ images and many more.

This special issue aims at compiling the novel research outcomes of various soft computing and machine learning algorithms applied to varieties of biomedical signals/ images. Following topics may be considered for submission.

Electrocardiogram (ECG), Electroencephalogram (EEG), Electromyogram (EMG), Electrooculogram (EOG); X-ray imaging, Computed Tomography (CT) images, Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET) images, Ultrasound images, Echocardiography; Noise and artifacts removal from biomedical signals/ images; Compression of biomedical signals/ images; Picture archival and communication system (PACS) and Digital Imaging and Communications in Medicine (DICOM); Telemedicine

Artificial Neural Networks (ANN), Fuzzy logic, Neuro-fuzzy systems applications; Evolutionary Computing- Genetic Algorithms (GA), Particle swarm optimization (PSO), Ant colony optimization (ACO), Bacterial Foraging Optimization (BFO), Differential evolution (DE), Biogeography based optimization (BBO); Simulated Annealing, Fuzzy Clustering, Graph-theoretic clustering, Decision Trees, Convolutional neural networks (CNN), Deep learning techniques

Linear Regression, Logistic Regression, Decision Tree, Support vector machines (SVM), Naive Bayes Classification, kNN, K-Means, Random Forest, Dimensionality Reduction Algorithms- Principal and Independent Component analysis, Gradient Boosting algorithms, Ordinary Least Square Regression, Ensemble Methods, Singular Value Decomposition, Reinforcement or Semi-Supervised Machine Learning

Schedule

Manuscript submission deadline	: 1 August 2020
Peer Review due	: 15 September 2020
Revision due	: 31 October 2020
Notification of acceptance by the Guest Editors	: 15 November 2020
Final manuscripts due	: 15 December 2020

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