

Special Issue on

Advanced Deep Learning Methods for Biomedical Information Analysis (ADLMBIA)

Due to numerous biomedical information sensing devices, such as, Computed Tomography (CT), Magnetic Resonance (MR) Imaging, Ultrasound, Single Photon Emission Computed Tomography (SPECT), and Positron Emission Tomography (PET), to Magnetic Particle Imaging, EE/MEG, Optical Microscopy and Tomography, Photoacoustic Tomography, Electron Tomography, and Atomic Force Microscopy, etc. Large amount of biomedical information was gathered these years. However, how to develop new advanced imaging methods and computational models for efficient data processing, analysis and modelling from the collected data is important for clinical applications and in understanding the underlying biological process.

Deep learning has been rapidly developed recent years, in terms of both methodological development and practical applications. It provides computational models of multiple processing layers to learn and represent data with multiple levels of abstraction. It is able to implicitly capture intricate structures of large-scale data and ideally suited to some of the hardware architectures that are currently available.

The purpose of this special issue aims to provide a diverse, but complementary, set of contributions to demonstrate new developments and applications of Deep learning and Computational Machine Learning, to solve to solve problems in biomedical engineering. The ultimate goal is to promote research and development of deep learning for multimodal biomedical images by publishing high-quality research articles and reviews in this rapidly growing interdisciplinary field.

Scopes (but are not limited to) the following:

- Theoretical understanding of deep learning in biomedical engineering
- Transfer learning and multi-task learning
- Joint Semantic Segmentation, Object Detection and Scene Recognition on biomedical images
- Improvising on the computation of a deep network; exploiting parallel computation techniques and GPU programming
- Multimodal imaging techniques: data acquisition, reconstruction; 2D, 3D, 4D imaging, etc.)
- Translational multimodality imaging and biomedical applications (e.g., detection, diagnostic analysis, quantitative measurements, image guidance of ultrasonography)
- Optimization by deep neural networks, Multi-dimensional deep learning
- New Model of New Structure of convolutional neural network
- Visualization and Explainable deep neural network

Paper submission:

Authors should prepare their manuscripts according to the online submission requirements of “Machine Vision and Applications” (MVA). All manuscripts will be peer-reviewed following the MVA reviewing procedure. The submissions should clearly demonstrate the evidence of benefits to society or communities at large. Originality and impact on society, in combination with the innovative technical aspects of the proposed solutions will be the major evaluation criteria.

The submission dates are as follows:

Important Dates:

- Submission Deadline: Oct 30, 2019
- First Review: Dec 30, 2019
- Final Decision: March 30, 2020

Guest Editors:

-Lead Guest Editor

Dr. Sharon(Shuihua) Wang, Loughborough University, UK

shuihuawang@ieee.org/s.wang6@lboro.ac.uk

-Guest Editor

Dr. Zhengchao Dong, Columbia University, USA

zd2109@columbia.edu

Dr. Shuai Liu, Inner Mongolia University, China.

cs_liushuai@imu.edu.cn/shuailiu3@acm.org



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