

# 2021 IEEE International Conference on Industrial Informatics (INDIN2021)

Special Session on

## SS 09 - Recent Deep Learning Methods for Biomedical Image Analysis

organized by

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## Call for Papers

With advances in biomedical imaging, the amount of data generated is increasing in biomedical engineering. For example, data can be generated by multimodality image techniques, e.g. ranging from Optical Imaging, Infrared thermography, Computed Tomography, Magnetic Resonance Imaging, Ultrasound, Single Photon Emission Computed Tomography, and Positron Emission Tomography, to Magnetic Particle Imaging, EE/MEG, Bioluminescence imaging, Optical Microscopy and Tomography, Photoacoustic Tomography, Non-contact thermography, Electron Tomography, and Atomic Force Microscopy, etc. This poses a great challenge on how to develop new computational models for efficient data processing, analysis and modelling in clinical applications and in understanding the underlying biological process.

Deep learning (DL) is a rapidly advancing computational model in recent years, in terms of both methodological development and practical applications. It allows 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 largescale data and ideally suited to some of the hardware architectures that are currently available.

The focus of this special session is to share research/review articles which focus on the biomedical image analysis via the recent Deep learning methods. This Special Session also intends to bring

new DL algorithm with innovative ideas and find out the core problems in biomedical image analysis.

Topics under this session include (but not limited to)

- Application of recent deep learning methods in biomedical engineering
- Transfer learning and multi-task learning
- Joint Semantic Segmentation, Object Detection and Scene Recognition on biomedical images
- Explainable AI in biomedical image analysis
- Visualization of deep learning methods
- Attention network for biomedical image analysis
- Improvising on the computation of a deep network; exploiting parallel computation techniques and GPU programming
- New Model of New Structure of convolutional neural network and graph neural network in biomedical image analysis