

## Tentative Outline

### Special Thematic Issue for the journal Recent Advances in Computer Science and Communications

#### Special Issue on Recent Advancement in Medical Imaging with Deep Learning for Health Care Applications

*Guest Editors:* Dr. Prabhishek Singh, Dr. Manoj Diwakar

- **Scope of the Thematic Issue:**

Understanding, interpreting, and assessing medical images in clinical and healthcare applications rely heavily on medical image processing and analysis. Increasingly quick diagnosis and more precise treatment options have been made possible by technological advancements in the last two decades, increasing patient safety while decreasing processing time and cost. The advanced deep learning based computational methods are used to extract quantitative information from medical images. The availability of huge datasets has made current neural network based end-to-end machine learning and deep learning methods very successful and had a significant effect in many areas.

Medical image processing issues such as segmentation, visualization, registration, and navigation may seem to be distinct, yet they are all intertwined in the process of resolving clinical bottlenecks. Using deep learning algorithms, researchers were able to achieve record-breaking performance and set the bar for future research. Due to the extensive quantity of medical imaging data of CT scan, ultrasound, and MRI, there is widespread use of machine learning, specifically deep learning, to discover specific patterns on such data. Such large data is well quantified by deep learning models. Deep learning is now being utilized, customized, and particularly developed for medical image analysis, as opposed to when it was first introduced to the community. Having learned more about the techniques, researchers have come up with innovative ideas for combining artificial intelligence (AI) with neural networks to solve difficult issues like medical image reconstruction. There are various applications of medical image analysis that include: medical image denoising, medical image super resolution, multi-modal image fusion, medical image registration, medical image segmentation, medical image super-resolution, diagnose abnormalities in medical images, medical image synthesis etc.

This special issue is meant to give an alertness of medical image processing and analysis and many deep learning algorithms to analyze medical data. It mainly focuses on major achievements and developments in medical imaging, clinical, and health care applications.

**Keywords:** Medical imaging, Medical diagnostics, Health information, Deep Learning, Image Processing, Medical image enhancement and classification, Machine Learning, Health care applications.

#### Sub-topics:

The topics of interest are broad, including but not limited to the related sub-topics listed below:

- Medical (CT, MRI, Ultrasound. etc.) Image reconstruction.
- Multi-modality Medical (CT, MRI, Ultrasound. etc.) image fusion.
- Medical image retrieval.
- Deep learning based medical image classification, segmentation, recognition, and registration.
- Deep learning based medical image analysis and enhancement.

- Handling Medical image dataset using deep learning model.
- Development in healthcare application using deep learning.
- Intelligent steganalysis for Medical image based on deep learning.
- Medical Image forensics based on deep learning.
- Medical image denoising.
- Brain, Chest, Breast, Cardiac, and Musculo-skeletal imaging using deep learning.
- Population health and Patient progress management in Health Care Applications.
- Predicting and preventing risks in Health Care Applications.

#### Tentative titles of the articles:

- Ultrasound Image Speckling
- Image Steganography in Medical Images
- Multimodal Medical Image Fusion
- ECG based Gender Recognition using Ensemble of Deep Neural Networks
- Medical Diagnostics Analysis
- Medical Data Analysis and Prediction
- Soft Biometrics Retrieval System based on Physiological Signals
- Hybrid Fluorescence Medicated Tomography based Bio distribution Assessment
- Multidimensional Polynomial Splines for Physiological Signal Processing

#### Schedule:

- ✧ Paper submission: November 30, 2022
- ✧ Review results to authors: December, 30, 2022
- ✧ Revised paper submission: January 30, 2023
- ✧ Final acceptance notification: March 30, 2023

#### Contacts:

*Guest Editor:* Dr. Prabhishek Singh,

*Affiliation:* Assistant Professor,

Department of CSE,

Bennett University (Times of India Group), Greater Noida, Uttar Pradesh-201310, India

*Email:* [prabhishek.singh@bennett.edu.in](mailto:prabhishek.singh@bennett.edu.in) ; [prabhisheksingh88@gmail.com](mailto:prabhisheksingh88@gmail.com)

*Guest Editor:* Dr. Manoj Diwakar,

*Affiliation:* Department of Computer Science and Engineering, Graphic Era deemed to be University, Dehradun, India.

*Email:* [manoj.diwakar@gmail.com](mailto:manoj.diwakar@gmail.com) ; [dr.manojdiwakar@geu.ac.in](mailto:dr.manojdiwakar@geu.ac.in)