

## Tentative Outline

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

#### Special Issue on Recent Developments in Medical Diagnostic Imaging with Machine Learning and Deep Learning for Healthcare Applications

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

- **Scope of the Thematic Issue:**

Medical image processing and analysis is essential for making sense of, analyzing, and making decisions based on medical images in clinical and utmost care. In the past two decades, technology has allowed for faster diagnosis and more targeted treatment choices, improving patient outcomes, and reducing healthcare costs. Quantitative data is extracted from medical images using state-of-the-art computer approaches based on machine learning and deep learning. Current end-to-end machine learning and deep learning approaches based on neural networks have been highly effective and had a substantial influence in many fields because of the availability of vast datasets.

Although problems in medical image processing including segmentation, visualization, registration, and navigation may seem to be unrelated at first glance, they are really all interconnected in the pursuit of removing clinical bottlenecks. Researchers were able to establish a new standard for performance in their field by using machine learning and deep learning algorithms to obtain previously unattainable results. Machine learning, and more especially deep learning, is being increasingly applied to the massive amounts of data generated by medical imaging modalities including CT scans, ultrasounds, and MRIs to extract useful insights. The machine learning models perform well when faced with such a massive dataset. When originally offered to the public, deep learning wasn't immediately use; currently, however, it is being adapted and refined for use in medical image analysis. Researchers have developed novel approaches to integrating AI and neural networks to address challenging problems like medical image reconstruction because of their increased understanding of the methods. Medical image analysis has several uses, such as denoising, super-resolution, multi-modal image fusion, registration, segmentation, abnormality detection, synthesis, and diagnosis in medical pictures.

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, Heath 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.
- Machine Learning and Deep Learning techniques for medical image analysis.
- Multi-modality Medical (CT, MRI, Ultrasound. etc.) image fusion.
- Medical image retrieval.

- Deep learning based medical image classification, segmentation, recognition, and registration.
- 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,

School of Computer Science Engineering and Technology

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)