CBMS – International Symposium on Computer-Based Systems

Special Track on
Computational Intelligence in Medical Imaging (CIMI)

Scope

Computational intelligence (CI) in medical imaging is a growing field that employs artificial intelligence (AI) techniques to analyze and process medical images with the goal of improving diagnosis, early disease detection, and treatment monitoring. The most popular techniques and approaches in this field include using Deep Learning and Evolutionary Algorithms. This track aims to generate implementations that present single or hybrid computational intelligence methods for solving problems in medical image processing and computer vision.

The special track will be an excellent opportunity for researchers working on CI in medical imaging to exchange their recent ideas and investigations on this topic. In this respect, we welcome high-quality papers on the theoretical, developmental, implementational, and application of CI approaches in medical imaging. More particularly, the special track will encourage original research contributions that address new and existing IC approaches and related methodologies to be employed in the field of medical imaging. Thus, the topics of interest include (but are not limited to) the following topics.

Topics of interest

- **Image Segmentation**: Segmentation refers to the task of dividing an image into meaningful regions. In medical images, segmentation is essential to identify and delineate anatomical or pathological structures. CI-based segmentation algorithms can help in accurately identifying specific areas of interest.
- **Detection of Anomalies and Early Markers**: Computational intelligence approaches can identify patterns that differ from normality and alert healthcare professionals to potential problems.
- **Diagnosis and Classification**: Machine learning algorithms can be trained to diagnose diseases or medical conditions based on images. This may include detecting diseases on X-rays, magnetic resonance imaging (MRI), computed tomography (CT) scans, and other types of medical imaging.
- **Image Registration**: To facilitate correlation and comparison, image registration involves aligning and comparing medical images from different times or modalities. Computational intelligence methods can improve the accuracy and efficiency of these processes.
- **Computer-Aided Diagnosis (CAD)**: CAD systems use artificial intelligence algorithms to assist radiologists and other healthcare professionals in interpreting medical images. They can provide objective analysis and early detection of pathologies.

- **Synthetic Image Generation**: Synthetic image generation creates larger and more varied data sets. This is especially useful when you have limited data sets, as it can improve the generalization ability of CI models.
- **Integration with Clinical Data**: Integrating imaging data with additional clinical information can improve diagnostic accuracy and provide a more complete understanding of the patient's condition.

Important Dates

- **Paper submission deadline**: March 7, 2025
- **Notification of acceptance**: April 20, 2025
- **Camera-ready due**: April 30, 2025
- **Registration**:
    - **Early registration deadline**: May 15, 2025
    - **Late registration deadline**: June 8. 2025
- **CBMS 2024**: June 18-20, 2025.

All submissions close 11:59pm Anywhere On Earth [AOE]

Organizers and contact

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