Journal of Healthcare Engineering

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Special Issue on

Intelligent Computation for Clinical Data Processing in Intensive Care Units

CALL FOR PAPERS

Intelligent computation in signal and image processing in intensive care units (ICUs) has leveraged and incorporated techniques from the broader fields of high-dimensional signal processing, imaging science and computer vision. ICU data differs from other types of medical data in its complexity, large volume size, rate of variability, diversity of physical frequency, and the wide range of anatomy and internal features requiring diagnosis and treatment. However, clinical applications necessitate much stricter accuracy requirements due to the conservative nature of clinical decisions and interventions based on such diverse data. Medical signals and images similarly require more sophisticated processing and analysis methods due to the complex nature of clinical diagnosis. Recent advances in computational intelligence solutions have elicited remarkable success and influence, with the availability of large annotated medical datasets enabling intensive and large-scale training of artificial intelligence (AI) systems, including machine learning (ML) and deep learning (DL) platforms.

This special issue aims to cover recent developments in computational biosignals processing, analysis, applications, and techniques. Next-generation ICUs will be integrated with many techniques and algorithms for intelligent monitoring and clinical observation strategies. As such, original research articles and review articles that explore novel applications of artificial neural networks, evolutionary optimization techniques, support vector machines, Tabu search, fuzzy logic classifiers, the Bayesian probabilistic framework, self-organizing mapping, and statistical parts-based appearance models are particularly encouraged. Although this special issue considers a wide range of signal and clinical image processing topics, submissions should be focused primarily on modalities used in ICUs.

Potential topics include but are not limited to the following:

- Novel applications of multistage classification algorithms and DL or ML in vital signals, smart monitoring technologies, and ICU data
- Decision support in mechanical ventilation and respiratory support systems
- Vital signals processing, analysis, and computational applications
- Noncontact, unobtrusive image processing methods and applications in ICUs and next-generation ICU systems
- Computational intelligence in severity scoring and mortality prediction

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jhe/icsipi/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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