

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

J-BHI Special Issue on “Data Science in Smart Healthcare: challenges and opportunities”

A shift toward a data-driven socio-economic health model is occurring as a result of the increased volume, velocity and variety of data collected from the public and private sector involved in health care and science. In this context, the last five-year period has seen an impressive revolution in the theory and application of computational intelligence and informatics in health and biomedical science.

However, the effective use of data to address the scale and scope of human health problems has yet to realize its full potential. The barriers limiting the impact of practical application of standard data mining and machine learning methods are inherent to the “big data” characteristics that, besides the volume of the data, can be summarized in the challenges of data heterogeneity, complexity, variability and dynamic nature together with data management and interpretability of the results.

The scope of this Special issue will be to discuss challenges and opportunities inherent in biological data science, with particular focus on the infrastructure, software, methods and algorithms needed to analyse large data sets in biological and clinical research.

Topics of interest include, but are not limited to, the following:

- Biomedical data modelling/data mining/model parametrization
- Biomarker discovery and development
- Personalized medicine and treatment optimization
- Big data analysis and tools for biological and medical data
- Health data acquisition/analysis/mining
- Healthcare information systems/knowledge representation/reasoning
- Parallel/high performance computing
- Medical imaging and pattern recognition
- Biopharmaceutical manufacturing
- Closed-loop optimization methods/platforms
- Machine learning and artificial intelligence in bioinformatics
- Pattern recognition/data mining/optimization methods in Bioinformatics
- Visualization of large biological data sets
- Modelling, simulation, and optimization of biological systems

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