Special Issue on

Intelligent Biomedical Data Analysis and Processing

Objective and Scope:

Today the human lives in the age of Information and technology. Information is the key, the power, and the engine that moves the world's economy. The world is moving with markets data, medical epidemiologic sets, Internet browsing records, geological surveys data, complex engineering models, and so on. Health Sciences are fully embedded in information technology. Health science and Biology are very complex fields and have made a long walk from the ancient times, but processes involved in biology, medicine and physiology are much too intricate to be faithfully modeled. In the early eighties, AI in medicine was the main concern while developing medical expert systems in specialized medical domains aimed at supporting diagnostic decision-making. The main problems addressed at this early stage of expert system research concerned knowledge acquisition, knowledge representation, reasoning and explanation. Now there are many modern hospitals and health care institutions, which are well equipped with monitoring and other advanced data collection devices. The need of knowledge on the domain or on the data analysis process becomes essential in biomedical applications, as medical decision making needs to be supported by arguments based on basic medical and pharmacological knowledge. The new tool for analyses of biomedical applications is "Intelligent Data Analysis (IDA)". IDA can be defined as the use of specialized statistical, pattern recognition, machine learning, data abstraction, and visualization tools for analysis of data and discovery of mechanisms that created the data. The main idea underlying in the concept of Intelligent Data Analysis is extracting knowledge from very large amount of data, with a very large amount of variables, data that represents very complex, non-linear, real-life problems. Moreover, IDA can help starting from the raw data, coping with prediction tasks without knowing the theoretical description of the underlying process, classification tasks of new events based off of past ones, or modeling the aforementioned unknown process. Classification, prediction, and modeling are the cornerstones that Intelligent Data Analysis can bring to us.

The main purpose of this special issue is to provide computational methods for data analysis aimed to narrow the gap between data gathering and data comprehension, as well as emphasis will also be given to solving of problems which result from automated data collection in modern hospitals, such as analysis of computer-based patient records, data warehousing tools, intelligent alarming, effective and efficient monitoring, and so on. The overall aim of this special issue is to collect state-of-the-art contributions on the latest research and development, up-to-date issues, and challenges in the field of Intelligent Biomedical Data Analysis and related applications. Proposed submissions should be original, unpublished, and present novel in-depth fundamental research contributions either from a methodological perspective or from an application point of view. The topics of interest are strictly limited to:
- Computational intelligence in biological and clinical medicine
- Behavioral, Environmental, and Public health informatics

- Biological network modeling and analysis
- Biomedical imaging and data visualization
- Evolutionary algorithms for optimization methodologies for biomedical applications
- Data mining for health data processing and analysis on mobile devices
- Machine learning and deep learning for health-related mobile applications
- Intelligent medical information systems
- Predictive modeling and analytics in healthcare
- Virtual and augmented reality
- Medical image/signal analysis and processing
- Internet of health things
- Biomedical data pattern recognition

Submission Details:

Kindly follow the guidelines given in the journal website for submission and manuscript preparation. Note that the publisher will typeset the final article, but will not format references. For any queries, contact the guest editors.

Schedule:

Submission of manuscript:	March 30, 2020
First notification:	May 30, 2020
Submission of revised manuscript:	June 30, 2020
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