Tentative Outline

Special Thematic Issue for The Open Bioinformatics Journal

**"Advances in Text and Data Mining of
biological data: models, methods and
applications"**

Guest Editor: Dr. Ivan V. Izonin, Prof. Sergii Babichev

Aims and Scope

The development of biological systems over billions of years has made them very difficult to understand. Biologists and clinical scientists try to understand various biological processes using different tools. However, huge amounts of data for analysis, complex multi-parameter interconnections between the data of a particular set, as well as hidden relationships between them greatly affect to its processing and analysis. Given the latest advances in Artificial Intelligence (AI), in particular text mining, data mining, artificial neural networks, fuzzy logic, machine learning, and others, the process of processing such data can be significantly improved. In particular, it creates potential opportunities for doing high-impact investigations that can solved the real-world tasks in system biology branch. The peculiarities of biological data is that it has a different types, formats and structures, as well as extremely large volumes, which greatly complicates its processing and analysis. Such processing should include models, methods and tools for an efficient storage and retrieval of various types data; an effective conversion and consolidation the data of various formats; fast its optimization and transfer; reliable intellectual analysis to obtain useful information; as well as informative data visualizations for future visual analysis or better human perception. All this necessitates the combination of existing and development new, more fast and precision AI technics for future information discovery and knowledge engineering from such data. This special issue will cover up-to-day text- and data mining models, methods and application of biological data processing and analysis for the transformation of such data into useful information and knowledge. We are welcome the science-intensive solutions that have a strong theoretical basis, as well as demonstrate readiness for practical application in the field of Mining bioinformatics.

Subtopics

The main included themes in this Special Issue include but are not limited to the following topics:

- Database and data warehousing for biological data storage

- Biological data retrieval and optimization

- Data integration strategies in bioinformatics

- Machine learning for biomedical information extraction and analysis

- Ensemble-based methods for classification in bioinformatics

- Frequent patterns algorithms for biological data sequences

- Text mining methods in biomedical domain

- Cluster analysis of biological datasets

- Graph theory for analysis of biological networks

- Gene regulatory networks reconstruction and simulation

- Information visualization techniques in bioinformatics

- Organization of health systems for catastrophes

Schedule

- Manuscript Submission Deadline: 15 December 2020
- Peer Review Due: 10 February 2021
- Revision Due: 20 February 2021
- Announcement of Acceptance by Guest Editor: 25 February 2021
- Final Manuscript Due: 01 March 2021

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