

## Tentative Outline

### Thematic Issue for the journal *Current Bioinformatics*

**Title of the Thematic Issue:** Analysis and Development of Bioinformatics Application Systems using Machine Learning / Deep Learning Techniques

**Guest Editors:** Dr. Jerry Chun-Wei Lin, Dr. Shitharth, Dr. Gautam Srivastava,

**Scope of the Thematic Issue:** The history of modern biology has taught us that understanding the messages used in living organisms is essential to understanding life itself. The messages and information contained in an organism's genome represent the rules governing the development, behavior and fitness of that organism. Bioinformatics encompasses aspects of each of the other three disciplines and provides the information science techniques necessary to integrate data from research in genomics, molecular evolution and macromolecular structure/function relationships to provide an understanding of biological systems at new levels of complexity. Also, Bioinformatics has proven to possess great potential to identify diseases, determine treatment and help make human lives better. With the inspiration and knowledge of computer science, fields such as gene technology, medicine and healthcare can evolve from curing individual patients to healing entire populations. This proposal wide opens the research gate in many contemporary bioinformatics areas which could possibly amalgamate with Machine learning and Deep learning techniques. Few areas are Gene expression data analysis, Drug classification, Automated disease identification and classification, Protein-Protein Interaction (PPI) identification, Heart disease identification, DNA sequence data processing and still many. This proposal mainly consists of articles from these areas but is not only limited to this.

**Keywords:** Bioinformatics, Gene expression, Protein Structure, Disease Identification, DNA sequence, and Machine/Deep Learning Models.

#### Sub-topics:

The sub-topics to be covered within the issue should be provided:

- Gene expression data analysis
- Drug classification
- Automated disease identification and classification
- Protein-Protein Interaction (PPI) identification
- Heart disease identification
- DNA sequence data processing
- Protein structure prediction
- Human genomics data processing

#### Tentative titles of the articles:

1. Deep learning classification model for the detection of tumor from gene expression data
2. A Novel AI model for Developing Drug and Non-Drug Classification System
3. An Intelligent Classification System for Early Identification and Detection of Alzheimer's disease
4. A Hybrid Feature Encoding based Machine Learning Classifier for Predicting Protein-Protein Interaction (PPI)
5. An Enriched Forecasting Model for the Identification and Detection of Cardiovascular Disease
6. A Clustering-based Machine Learning Classification Model for Developing an Automated Cancer Diagnosis Framework
7. A Hybrid Deep Learning Model for the Protein Secondary Structure Prediction System

**Schedule:**

- ✧ Thematic issue submission deadline: February 01, 2023

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