PREFACE

Bioinformatics is an emerging area of interdisciplinary research and practical applications which requires collection, storage, exploration and processing of increasing amounts of complex heterogeneous data. The fundamental role of Bioinformatics is to increase the understanding of biological processes. Its methods have become an important part of research in many areas of Biology. For example, a number of computational approaches like pattern recognition, image and signal processing play a significant role in the extraction of meaningful information from large volumes of raw data in experimental Molecular Biology. In the field of Genetics and Genomics, Bioinformatics aids in sequencing and annotating genomes and predicting their functionalities and mutations. It provides tools for the text mining of biological literature and the development of appropriate ontologies to organize and query biological data. Bioinformatics tools play a significant role in the comparison of genetic and genomic data and more generally in the understanding of evolutionary aspects of Molecular Biology. Nowadays, Machine Learning and in particular Deep Learning methods are expected to solve successfully various kinds of formal and practical problems arising from the management and analysis of biological data.

This special issue of *Serdica Journal of Computing* is aimed at presenting some current trends in Bioinformatics research and especially the impact of application of advanced Computer Science and Artificial Intelligence approaches to building novel Computational Biology models, techniques and

tools. At the same time, one of the main goals of this issue is to present the interdisciplinary and inter-professional research in Bioinformatics in an understandable form and thus make its results accessible and attractive for the general computing-oriented audience.

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Guest Editor