Preface

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Biographical notes: George Michailidis is a Full Professor of the Statistics Department in the University of Florida and the Director for the UF Informatics Institute. His research focuses on developing methodology for high dimensional data and addressing the corresponding algorithmic and inference issues. Research projects include joint estimation of multiple graphical models, vector autoregressive models, pathway enrichments analysis and fast monitoring techniques for high-dimensional streaming data. He developed extensive methodology for the analysis of time evolving networks. Applications of his research includes analysis of Omics data for cancer and diabetes studies, as well as studying computer, communication, transportation, social and financial networks.

Panos M. Pardalos serves as Distinguished Professor with the Industrial and Systems Engineering Department in the University of Florida. Additionally, he is the Paul and Heidi Brown Preeminent Professor of industrial and systems engineering. He is also an affiliated faculty member of the computer and information science Department, the Hellenic Studies Center, and the biomedical engineering program. He is also the Director of the Center for Applied Optimization. He is a world leading expert in global and combinatorial optimisation. His recent research interests include network design problems, optimisation in telecommunications, e-commerce, data mining, biomedical applications, and massive computing.

Arsenios Tsokas received his BSc and MSc in Mathematics from the Aristotle University of Thessaloniki and follows a PhD in Industrial and Systems Engineering in the University of Florida. His current interests include data analysis with applications in medicine with emphasis on prediction of intra- and postoperative complications. His interests also include network science with applications on network robustness and time series forecasting.

Computational biomedicine is a novel and promising discipline. It is a diverse field combining mathematics, statistics, computer science, data science, biology and medicine. It aims to apply computational methods to instigate discoveries in the field of medicine and to facilitate diagnosis and treatment. It complements clinical medicine, offering to revolutionise our understanding of the human body and its functions, of the causes and course of diseases and of therapeutic strategies. Biomedical data science, biomedical informatics and computational biomedicine assume increasingly pivotal roles in biological and health sciences and in healthcare, as hospitals generate medical data at an unparalleled rate. Among various contributions, computational biomedicine has helped to identify novel genomic and predictive biomarkers, to develop tools for the rapid identification of infectious pathogens and to model physiological systems. It has offered computational methods to generate and analyse vast genomic datasets and link them to phenotypes. It also promises to assist clinicians in making informative decisions in every step of patient treatment, integrating computer-based modelling and machine learning in clinical practice.

The *5th International Conference on Computational Biomedicine (CBM 2018)* brought together clinicians, engineers and researchers working on biomedicine, data analysis, machine learning and operations research. It served as a meeting point to discuss recent innovations and advancements in algorithms, tools and techniques in a broad field and to promote interdisciplinary research collaborations. This special issue is the result of contributions of experts working in the field. It contains novel techniques for disease prediction and detection as well as the introduction of useful tools for gene analysis and patient monitoring. It is aimed at a wide audience, ranging from graduate students, faculty members and researchers to engineers and clinicians.