FOREWORD

Special Section on Computational Intelligence and Big Data for Scientific and Technological Resources and Services

There has been an explosive growth of a wide variety of scientific and technological resources in both research communities and industry sectors. Such resources have not been extensively explored and utilized by end users mainly because: i) they are widely distributed at various geographical locations such as laboratories, universities, companies, etc. and are typically isolated from each other, ii) there is a lack of suitable models, mechanisms, and protocols for their sharing, reuse, exchange, and distribution, and iii) their support for the real economy requires intelligent aggregation and information retrieval of big data from disparate sources, which are complex and challenging. The rapid advance in high-performance computing and the pervasive use of machine learning and data mining have made it now possible to handle large volumes of high-dimensional, multimodal, heterogeneous, and structured/unstructured data. As a result, the above situation is also being revolutionized by the power of computational intelligence and big data in support of scientific and technological services. The purpose of this special section is to encourage interactions and collaborations between researchers in scientific domains and technologists and practitioners in industry to promote and demonstrate how recent developments of artificial intelligence and big data technologies can be used to integrate and explore various scientific and technological resources to improve business intelligence and accelerate scientific innovation.

In response to the Call for Papers of this special section, we received total 27 submissions. Through a rigorous and objective review process performed by our editors and reviewers, 17 papers have been selected for publication. The work in most of these papers employs a wide range of methods including artificial intelligence, machine learning, big data, game theory, blockchain, etc. to process and analyze different types of scientific and technological resources for various purposes such as business service modeling, knowledge entity extraction, image classification, speech and gait recognition, paper and patent recommendation or sharing, sentimental analysis, energy consumption prediction, etc. The remaining papers focus on improving the performance of data analytics using online machine learning models or hybrid feature selection approaches.

As the guest Editor-in-Chief, I would like to express my sincere appreciation to all the authors for their contributions and to all the reviewers and editors for their voluntary services.

Chase Wu, Guest Editor-in-Chief

Chase Wu *(Nonmember)* is currently a Professor and the Associate Chair of the Department of Computer Science and the Director of the Center for Big Data at New Jersey Institute of Technology. His research interests include big data, machine learning, high-performance networking, parallel and distributed computing, sensor networks, scientific visualization, and cyber security. His research in networking develops fast and reliable data transfer solutions to help users in a wide spectrum of scientific domains move big data over long distances for collaborative data analytics. His research in computing develops high-performance, intelligent workflow solutions to manage and optimize the execution of big data computing applications in heterogeneous network environments. He has published over 270 research articles in highly reputed conference proceedings, journals, and books, and won best paper awards at many conferences.