Editorial

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Biographical notes: Aboul Ella Hassanien is the Founder and Head of the Egyptian Scientific Research Group (SRGE) and a Professor of Information Technology at the Faculty of Computer and Information, Cairo University, He has more than 1000 scientific research papers published in prestigious international journals and over 45 books covering such diverse topics as data mining, medical images, intelligent systems, social networks and smart environment. His other research areas include computational intelligence, medical image analysis, security, animal identification, space sciences and telemetry mining and multimedia data mining.

Mohamed Elhoseny received his PhD in Computer and Information from Mansoura University, Egypt (in a scientific research channel with the Department of Computer Science and Engineering, University of North Texas, USA). He is currently an Assistant Professor at the Faculty of Computers and Information, Mansoura University. He authored/co-authored over 100 international publications and 5 books with Springer and Taylor & Francis. He is the Editor-in-Chief of *Big Data and Cloud Innovation* and *Frontiers of Supercomputing* and Associate Editor of *IEEE Access*, and *PLOS One*. He guest-edited several special issues with IEEE, Hindawi, Springer, Inderscience and MDPI. He has been associated with several international conferences.

Siddhartha Bhattacharyya received his Bachelors in Physics and Optics and Optoelectronics and Masters in Optics and Optoelectronics from University of Calcutta, India in 1995, 1998 and 2000 respectively. He completed his PhD in Computer Science and Engineering from Jadavpur University, India in 2008. He is currently a Senior Research Scientist at VSB Technical University of Ostrava, Czech Republic, and is also the Principal of RCC Institute of Information Technology, Kolkata, India. He is a co-author of four and co-editor of 20 books, and has published over 200 publications in international journals and conference proceedings. His research interests include soft computing, pattern recognition, hybrid intelligence and quantum computing.

This is a special issue of the *International Journal of Hybrid Intelligence*, covering the intelligent techniques and machine learning algorithms for the ad-hoc and the smart sensor-based applications. Over the last decade, there has been an increasing interest in research of sensors and wireless networks. The interconnection of embedded devices is expected in many systems including mobility, intelligent transportation, and smart cities. It is being promoted by the software engineering community to use intelligent techniques as the adequate solution to handle the current requirements of complex ad-hoc and sensors applications that demand distribution, flexibility, and robustness. However, machine learning research as general and intelligent algorithms as specific has been focused mainly in the traditional network problems with 'structure' (images, audio, video), and not in the smart and modern ad-hoc or wireless networks problems, making the data processing in such systems a big challenge. In this special issue, we show how machine learning algorithms and novel intelligent techniques may be used to address the open problems in most of the sensors-based applications including internet of things (IoT), self-organised wireless sensor networks and intelligent data aggregation and routing models. Because the hybrid intelligence plays an important role in intelligent algorithms and machine learning methodologies, the special issue on 'Intelligent techniques for ad-hoc and wireless sensor networks' published on the *International Journal of Hybrid Intelligence* can play an important role by providing a venue for academics as well as industrial practitioners to disseminate their results in a peer-reviewed environment.

The accepted papers explore diverse modelling approaches and computational intelligence techniques including routing techniques, data fusion of multi-sensors, fuzzy logic and support vector machines. A number of novel methods and approaches are proposed and applied to a wide range of real-world problems such as machine learning for energy saving in sensor networks, IoT-based applications, big data processing, and real-time monitoring. For example, in the paper 'A new energy-preserving cloud offloading algorithm for smart mobile devices', proposes a new model to avoid energy consumption in smart mobile applications.

Finally, we hope that the readers will find all papers in this special issue interesting and useful. The guest editors wish to thank all the authors and reviewers that contributed to this special issue, and to the Editor-in-Chief and editorial office of the *International Journal of Hybrid Intelligence* for their support.