Editorial

V. Vijayakumar* and D. Rekha

School of Computing Science and Engineering,
VIT University,
Chennai 600127, India
Email: vijayakumar.v@vit.ac.in
Email: rekha.d@vit.ac.in
*Corresponding author

Xiao-Zhi Gao

Machine Vision and Pattern Recognition Laboratory,
Lappeenranta University of Technology,
Lappeenranta 53850, Finland
Email: xiao.z.gao@gmail.com

Biographical notes: V. Vijayakumar is currently working as a Professor and Associate Dean of School of Computing Science and Engineering in VIT University. He is involved in many research and development activities, he has also organised many national/international seminars/workshops/symposiums/conferences/special sessions in the area of cloud computing and big data which includes ISBCC'16 in India, CCCA'14 in Vietnam and CCNC'14 in the USA. He had authored many books. He is the reviewer for Springer's *Journal of Super Computing*. He is the Guest Editor for few special issue journals of Inderscience and IGI Global. He is a member of ACM, ISTE, CSTA and IAENG.

D. Rekha is currently working as a Senior Assistant Professor in VIT University. She has more than 13 years of experience which includes seven years in teaching and four years in research. She is also a Division Chair of Network and Security Research Group, her area of research includes wireless sensor networks, multihop networks, evolutionary algorithms, mobile cloud computing and internet of things. She published many papers in reputed journals. She served as a General and Technical Program Chair of numerous conferences.

Xiao-Zhi Gao received his PhD degree from the Helsinki University of Technology (currently Aalto University), Finland in 1999. He was appointed as a Docent (Adjunct Professor) at the same university in 2004. He is currently working as a Senior Research Fellow at the Lappeenranta University of Technology, Finland.

This special issue is focused on the issues and challenges in wireless sensor networks (WSNs) and cloud computing, which is now a major threat to our technical environments. It discusses emerging problems in sensor network and cloud environment. WSN consists of a large number of self-powered sensor nodes, which are connected together to exchange and share their information and data. During the past decades, the

WSN has been widely applied in such emerging areas as environment protection, battle field monitoring, and surrounding surveillance. It has the distinguishing features of low cost, small size, and economical power consumption. However, the communications among the wireless sensor nodes sometimes are not efficient enough to ensure the optimal coverage of the targeted regions. Fortunately, cloud computing, a future computing paradigm, is well capable of providing ideal services for the implementation of the WSN. In other words, built on the cloud computing-based platform, the storage and processing of the data collected by the sensors in the WSN can be effectively managed.

The International Symposium on Big Data and Cloud Computing Challenges (ISBCC) is an annual event organised by the School of Computing Sciences, VIT University, Chennai Campus. ISBCC 2016 is the third edition of the conference. VIT University was established with the aim of providing quality higher education on par with international standards. It persistently seeks and adopts innovative methods to improve the quality of higher education on a consistent basis. VIT University Ranked No. 1 Private Engineering Institution by MHRD, Government of India (NIRF-2016 ranking).

The 20% is the acceptance ratio of the special issue under ISBCC 2015 International conference.

In particular, in this issue the reader can find research papers on different topics, all interesting and related to WSNs and cloud computing challenges. Some of these are outlined below.

The paper, by Punit Gupta and Satya Prakash Ghrera, proposed a learning-based fault aware big bang-big crunch algorithm for task allocation to minimise the request failure and improve QoS over a data centre. The algorithm has been inspired from theory of evolution in astrology. Proposed strategy has proven to have better performance in term of execution time, scheduling time and request failure rate as compared to previously proposed task allocation algorithm.

In the paper by Pritee Parwekar and Sireesha Rodda, research focuses on energy efficiency of WSNs. WSNs are testing new domains with increasingly new applications. Resource constraints have been the classic problem associated with these networks and maximising the network life without compromising on the efficacy of the network is the focus of every research endeavour. Considering the relevance of data, the paper talks about the concept of refining the region of interest and concentrating the network resources in such area to optimise the network life without losing out on the relevant data with adequate resolution. Field trials using limited sensors have been undertaken to validate the idea of refined region on interest. The concept has helped increase the network life compared to its traditional equivalent.

Finally, as editors of this special issue, we would like to congratulate with all the authors, reviewers and journal staff, for the realisation of this work. Each of them contributed to the making of a collection of research papers that, in our opinion, represents a step forward in the research on WSN and cloud computing challenges.

Our special thanks go to the Editor-in-Chief for her continuous support.