Editorial

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Biographical notes: Brij Bhooshan Gupta received his PhD in the area of Information and Cyber Security from the Indian Institute of Technology Roorkee, India. He has published more than 140 research papers in international journals and conferences of high repute. His biography was selected and published in the 30th edition of *Marquis Who's Who in the World, 2012*. He is a senior member of IEEE, member, ACM, SIGCOMM, etc. His research interest includes information security, cyber security, mobile/smartphone, cloud computing, web security, intrusion detection, computer networks and phishing.

Jian Huang is working as an Associate Professor in the Beihang University. He has developed the dynamic traffic information system and public transit information system in Beijing. He is the recipient of the first prize of Beijing Technological Award 2012. His research interests include ITS, spatial analysis and big data technology.

The internet of things (IoT) is a novel paradigm that is rapidly gaining ground in the scenario of modern wireless telecommunications. The IoT enables large numbers of previously unconnected devices to communicate and exchange data and deal with services that span areas from healthcare to transportation and much more (Stergiou et al., 2018; Gupta et al., 2016; Whitmore et al., 2015). With the rapid and wide-scale application of IoT, many critical challenging issues emerged and should be addressed for sustainable development. For example, massive sensor data that converged have to be processed efficiently and intelligently with the help of advanced computing power, such as cloud computing framework; also the defence of severe IoT-attacks (e.g., the recent Mirai 'IoT' botnet attack) call for innovative security strategies and technologies. These considerations have led to this special issue to explore the research advances and provide the state-of-the-art papers on the principle, methodology, implementation, and usage of intelligent IoT and related technologies (Tewari and Gupta, 2017a, 2017b; Alsmirat et al., 2017). This special issue contains six papers dealing with different aspects of IoT and other related areas (Gupta and Gupta, 2018; Zhang and Gupta, 2016; Alomari et al., 2012; Elmisery et al., 2017; Memos et al., 2017).

The first article entitled, 'A new ontology ranking method with OntoDUIA for ontology retrieval system' co-authored by Jianghua Li and Boyu Li presented a novel ontology ranking method OntoDUIA which evaluates user-query related ontologies and ranks them based on a set of metrics of query relevance, usability, instance distribution and authority of ontology. To evaluate OntoDUIA, a series of experiments are conducted to compare the performance among OntoDUIA and some existing ontology ranking methods as well as human experts. Experimental results show that OntoDUIA can effectively meet user's ontology ranking demand, and it achieves stable and reliable ranking results. Finally, OntoDUIA can also be applied to ontology retrieval system.

The second paper entitled, 'Cloud computing resources scheduling optimisation based on improved bat algorithm via wavelet perturbations', authored by Yan Zhang et al. presented a cloud computing resources scheduling optimisation algorithm based on wavelet-perturbation-based bat algorithm (WPBA). The algorithm first employs wavelet perturbation to enhance bat algorithm's performance followed by population-entropy-guided substitution to control diversity and improve the converging speed and accuracy. Then it adopts WPBA to achieve resources scheduling optimisation of the cloud computing. The experiment shows that using WPBA has significantly improved the overall performance of the algorithm and has also remarkably optimised the resource scheduling capability of cloud computing and heightened the overall resource utilisation.

The third paper entitled, 'Invulnerability analysis in intelligent transportation system' authored by Fujun Han

et al. presents a complex network of transportation system, including 73 traffic bus routes and 1,003 stations. Authors analyse the features of public transport system towards the view of complex network theory. The results show that proposed network model has most features of complex networks. Finally, authors compare the robustness of transportation system under fixed attacks and random attacks. Simulation results show that it has better robustness under random attacks.

The fourth paper entitled, 'Smart generic cabling and network planning in office network' is authored by Banghai Xu et al. In this paper, authors presented a design for generic cabling according to the requirement of enterprise networks. Author's claim that proposed generic cabling is well extensible and compatible. In addition, authors also presented the network planning for enterprise network such that it provides good service for the whole enterprise.

The fifth paper entitled, 'SparkCUDE: a spark-based differential evolution for large-scale global optimisation' authored by Hu Peng et al. presented a spark-based DE algorithm for larger-scale global optimisation problems, called SparkCUDE, in which the spark computation model with ring topology is introduced and the CUDE algorithm is employed as the internal optimiser. The original CUDE was proposed in author's previous work, in which uniform local search enhances exploitation ability and the commensal learning is proposed to adaptively select optimal mutation strategy and parameter setting simultaneously under the same criteria. Experimental studies are conducted on the benchmark functions of CEC2010 on large-scale global optimisation. Comprehensive experiments demonstrate the effectiveness and efficiency of the proposed approach.

The sixth paper entitled, 'A new quantum rotation angle of quantum-inspired evolutionary algorithm for TSP' authored by Jialin Li et al. presented a modified quantum rotate gate to adaptively adjust the rotation angle, according to the evolution generations and the adapt to degree of the value to adaptive dynamic adjustment of the rotation angle, resulting abetter global search capability. Moreover, this paper also adopted the $H\varepsilon$ gate on the probability amplitude of the rotation to make the corrective manipulation. The comparative experimental results showed that the algorithm's stability and accuracy have been greatly improved in solving the TSP problem, compared with the conventional quantum evolutionary algorithm.

This special issue is due to encouragement of Dr. Nadia Nedjah who is instrumental in the organisation process. Many individuals have contributed for success of this issue. Special thanks are due to dedicated reviewers who found time from their busy schedule to review the articles submitted in this special issue. This special issue presents some selected papers in touching important aspects, principle, methodology, implementation, and usage of intelligent IoT and related technologies and also emphasises many open questions. The wide spread use of IoT is encouraging researchers to look at various open questions and a lot more work need to be done before it becomes a reality and widely accepted by the user community.

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