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## Preface

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**Biographical notes:** Qing-An Zeng received his MS and PhD degrees both in EE from the Shizuoka University in Japan. In 1997, he joined NEC Corporation, Japan, where he was engaged in the R&D of 3G systems. In 1999, he joined the University of Cincinnati as a faculty member. In 2010, he joined North Carolina A&T State University as a faculty member. His research interests include wireless networks, ad hoc and sensor networks, QoS, security, PLC, smart grid, vehicle communications, social networks, modelling and analysis, and queuing theory. He is a senior member of IEEE.

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Welcome to the special issue of the *International Journal of Mobile Network Design and Innovation*. This is a special issue addressing new technologies from a broad interdisciplinary perspective. In keeping with the journal's mission, this special issue is dedicated to new results from high-quality original interdisciplinary academic and practitioner research, surveys, and case studies which address information technology related issues, answer questions, or solve problems. The aim of this special issue is to bring together researchers and professionals of both new technologies and applications. Topics addressed include advanced technologies, wireless communication systems, and other key technologies which include cloud computing, networking, security, and related applications. 13 articles are included in this special issue and all the articles were referred.

The papers included in this special issue are more technical in nature. The first article, by M. Kokilamani and E. Karthikeyan proposes a new approach for path selection strategy is introduced by using energy factor is known as energy aware ad hoc on-demand multipath distance vector (EA-AOMDV) routing protocol. The proposed method attempts to solve the above mentioned problems in the way of selecting energy aware nodes on the path. The main objective of the proposed scheme is to maximise the life time of the node and as well as lifetime of the network. The second article is entitled, optimal fuzzy min-max neural network (FMMNN) for medical data classification using group search optimiser algorithm, by L.J. Rubini and P. Eswaran. The paper proposes a method which is to utilise orthogonal local preserving projection (OLPP) and optimal classifier. In the proposed scheme, OLPP will be used to reduce the feature dimension. Once the feature reduction is formed, the prediction will be carried out based on the optimal classifier. The third article, by S. Chilukuri et al. discusses the problems faced when providers of content are mobile. The authors also present some existing solutions to provider mobility in content centric-networks (CCNs) and

analyse their relative merits and demerits. The fourth article, by N. Ahmad and S.Z. Hussain, proposes a new technique that reduces the query retransmission, energy consumption, and link breaks overhead of reactive routing protocol which is very useful for the situation where previous communication does not exist or topology changes frequently. They made the pruning of query-packets of neighbouring nodes at the waited intermediate nodes instead of pruning at target node and made tBERS more energy and query retransmission efficient by choosing reliable route for data transmission. The fifth article, by W. Zhang et al. presents the implementation of an effective mobile malware detection framework by proposing a new feature selection method, which is term frequency-sample frequency differentiation (TF-SFD), to reduce the features with little importance. They also proposed a false positive rate (FPR) filter based on sample frequency differentiation (SFD) for reducing FPR and discussed four machine learning methods and the experimental results. The sixth article, by N. Palaniappan and S. Ramasamy provides a detailed survey on procedures dealing with mobile offloading schemes. The survey has been done on various procedures involved in mobile offloading schemes with the common similarities such as energy and cost optimisation, dynamic offloading and VM migration. The seventh article, by M. Mor et al. introduces an android app for collecting real time sensor data from sensors interfaced with connected controller and simultaneously streaming the data to the MySQL server database using HC-05 Bluetooth and internet connection. The eighth article, by P. Chaturvedi and A.K. Daniel proposes an energy efficient node scheduling protocol for target coverage using the concept of probabilistic coverage, contribution and the trust values of the nodes. In third research, the realistic probabilistic coverage model to define the node's sensing and communication characteristic as exponential decay in the detection quality with respect to the distance is considered. They used the clustering technique using the fuzzy

inference based on the distance, residual energy and node degree parameters for the trust calculation. The proposed node scheduling protocol for target coverage minimises the energy consumption and maximises the network lifetime as compared to the disjoint set cover (DSC) protocol. The ninth article, by H. Mu and Z. Zheng proposes a mutual authentication protocol based on random numbers which can help determine the new keys with their fixed key seeds. As to the performance of the protocol, the authors discussed the security as well as its storage and computation overhead. The tenth article is entitled, 'Research of a low-cost localised fault algorithm for wireless sensor networks', by J. Zhang. The paper investigates the basic method of fault localisation using active probing and analyses the key problems of active probing. The eleventh article, by A. Paul and S. Sinha proposes the concept of a Sybil detection method for a specific category of Sybil attack where the attacker changes its transmission power along with IDs time to time. The authors calculated received signal power (RSP) of some initially suspected nodes for a number of time instances and draw a cubic Bezier curve with these values to distinguish between a legitimate node and a Sybil node. They also analysed the results of each step of the

proposed method through simulations. The twelfth article, by A. Saxena and R. Sindal investigates the performance of different strategies of media access control (MAC) resource allocation, driven through different scheduler such as round robin, proportional fair (PF), best channel quality indicator (CQI), max transmission point (TP) and resource fair (RF). The authors compared the performance of resource allocation schedulers under indistinguishable arrangement, measure the throughput, fairness, and spectral efficiency. The final article, by L. Le addresses a topology-aware overlay network model and proposes a super-node based overlay model which can alleviate the mismatch in the Mobile IP environment effectively and efficiently. The proposed near-home principle and near-ROSP principle have been evaluated by the extensive simulations.

Finally, we would like to thank the authors for their valuable contributions and the reviewers for their time and efforts in providing many valuable suggestions and comments. We particularly wish to express our gratitude to the Editors-in-Chief, Dr. Michael Bartolacci, and Inderscience Publisher's staff, for their kind support in the preparation. We sincerely hope that *IJMNDI's* audience will enjoy reading this special issue.