Editorial

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Biographical notes: Mohammad S. Obaidat is an internationally known academic/researcher/scientist. He received his PhD in Computer Engineering from Ohio State University, USA. He is currently a Full Professor of Computer Science and Software Engineering at Monmouth University. Among his previous positions are Chair of the Computer Science Department and Director of Graduate Program at MU. He has received extensive research funding and authored/co-authored ten books and over 420 refereed scholarly journal and conference articles. He has served as a Consultant for several corporations worldwide and is Editor of many scholarly journals including being Editor-in-Chief of the *Wiley International Journal of Communication Systems* and Editor of *IEEE Wireless Communications*. He is the President of the Society for Modeling & Simulation International, SCS. He was awarded the distinguished Nokia Research Fellowship and the distinguished Fulbright Award. In 2009, he received the SCS prestigious McLeod Founder's Award in recognition of his outstanding technical and professional contributions to modelling and simulation. He is a Fellow of SCS and a Fellow of IEEE.

Ching-Hsien Hsu received his BS and PhD in Computer Science from Tung Hai University and Feng Chia University (FCU), Taiwan, in 1995 and 1999, respectively. He is currently an Associate Professor in the Department of Computer Science and Information Engineering at Chung Hua University. His research interest is in parallel and distributed computing, cloud and grid computing and P2P computing. He has published more than 100 academic papers in journals, books and conference proceedings. He received the outstanding research award form CUU in 2005, 2006, 2007 and 2008. He is serving on the editorial board of several journals.

Wireless and mobility environments (WME) emerged rapidly as an exciting new paradigm that presents a challenging model of computing service and faces interesting problems related to distributed resource management, ranging from information sharing to cooperative computing.

The objective of wireless and mobility services aims at providing computing and communication services any time and anywhere. It usually refers to the establishment and deployment of computing technology in such a way that it becomes an indivisible part of the fabric of everyday's life and commerce. As wireless and mobile computing presents a new trend of information and communication technology for connecting cyber and physical domains, in such era, computers in the traditional sense gradually fade from view. Namely, information and communication technology is available anywhere and anytime through devices that are embedded in our environment, completely interconnected, intuitive, effortlessly portable and constantly available.

Although, WME presents exciting enabling opportunities, the benefits will only be obtained if technique and protocol aspects can be appropriately addressed. As a result, to realise the advantages of intelligent services in WME, the services and applications have to be suitable for WME. Therefore, the service of wireless and mobility computing is an important challenge for commerce, the public sector, academia and the individuals.

This special issue of the *International Journal of Communication Networks and Distributed Systems (IJCNDS)* is intended to foster state-of-the-art research in the area of integration of wireless and mobile services, including the topics of collaboration environment, implementations, running experiments, deployment on real systems and novel applications associated with this paradigm. We accepted only five papers out of many submissions. The papers selected for this issue not only contribute valuable insights and results but also have particular relevance to the wireless and mobility computing community. All of them present high quality results for tackling problems arising from the ever-growing wireless and mobility services.

S. Tamilselvan and K. Manivannan in their paper entitled 'Optimisation of soft handoff margin in WCDMA cellular system' analyse the downlink performance of a WCDMA system and find the optimum soft handoff margin in order to reduce interference in WCDMA and maximise system capacity. This study demonstrates that the WCDMA system capacity can be improved by using the site selection diversity transmission technique. Moreover, the increase in system capacity could be also achieved by the interference reduction provided by the signal-to-interference ratio (SIR) based power control. It is an in-depth studies of the wideband code division multiple access system.

The paper by Susmit Bagchi entitled 'PUM applications and VMDFS file structure: amortised analysis and evaluation' introduces the environments of personalised ubiquitous multimedia (PUM) applications along with the file system structure of virtual memory based mobile distributed file system (VMDFS) in view of supporting the PUM applications. The amortised analysis of the VMDFS implementation models is described in mathematical constructs considering the combinations of different pre-fetch models and network models. A set of properties regarding the VMDFS performance is hypothesised through the analysis. The experimental evaluations of VMDFS implementation models validate the hypothesised properties.

The paper by Christine Bassem and Amal El-Nahas entitled: 'LSD: link strength based discovery protocol for dynamic ad hoc networks' proposes a fully distributed, energy efficient service discovery protocol for highly dynamic ad hoc environment. The

proposed protocol opts for saving device energy and delay by selecting the most stable routes to the service providers. The protocol is evaluated through simulation experiments. Results showed a significant improvement in terms of saving the power capacity of the devices in the network and minimising the delay and the failure rate of service requests.

The paper by R. Bolla and M. Repetto entitled 'An integrated mobility framework for ad hoc distributed personal networks' proposes a mobility framework for personal networks based on the idea of a personal mobile address to bind a network address to the user rather than to a network interface, allowing the address to follow the user as he moves. They show how this mobility framework could be used for real-time interactive communications, in particular for voice-over-IP sessions managed by SIP. Moreover, they sketch a software architecture for this framework and evaluate its feasibility by means of a prototype.

The paper by Ahmad S. Al-Mogren entitled 'The integration of telecommunication and dissemination networks' proposes a multi-channel dissemination-based architectural model within the general telecommunication network. The model takes into account the unique characteristics of the dissemination and mobile environment. The model preserves the feature of the dissemination model by not wasting the bandwidth of the dissemination channel to answer the request of every client individually. The index is used to tell the clients when to listen and, consequently, to save battery's life. The architecture is suitable to be applied in all existing dissemination applications where a group of users have the same profile. This work complements the work of other research areas in the dissemination environment.

All of the above papers address either technique issues in wireless and mobility computing systems or propose novel application models in the various WME fields. They also trigger further related research and technology improvements in application and services of WME. This special issue serves as a landmark source for education, information, and reference to professors, researchers and graduate students interested in updating their knowledge about techniques and novel application models for wireless and mobility service systems.

We are indebted to the reviewers for their outstanding work in reviewing the papers in a timely manner. Thanks also are due to all authors including those whose papers were not included in this special issue.

Finally, we thank the Editors-in-Chief of the *International Journal of Communication Networks and Distributed Systems (IJCNDS)*, Professors Sudip Misra and Isaac Woungang, for hosting this special issue. We hope that you find this special issue informative and useful in your research efforts.