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## Editorial

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**Biographical notes:** Yueh-Min Huang received his MS and PhD in Electrical Engineering from the University of Arizona in 1988 and 1991, respectively. He is a Distinguished Professor of the Department of Engineering Science, National Cheng-Kung University, Taiwan. His research interests include multimedia communications, wireless networks, artificial intelligence and e-learning. He has Co-authored two books and has published about 200 refereed professional research papers. He also received many research awards, such as the Best Paper Award of 2007 IEA/AIE Conference, Best Paper Award of the Computer Society of the Republic of China in 2003 and the Awards of Acer Long-Term Prize in 1996, 1998 and 1999. He is in the editorial board of the *Journal of Wireless Communications and Mobile Computing*, *Journal of Security and Communication Networks* and *International Journal of Communication Systems*. He is a Fellow of British Computer Society (FBCS).

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The wide deployment of wireless networks along with rapidly growing popularity of mobile devices (such as smart phones and portable thin-client devices) in the last decade has enabled Ubiquitous Multimedia Computing (UMC). UMC opens up a whole range of interesting and attractive applications, such as watching movies in vehicles, reading electronic magazines in parks and capturing videos to the internet in outdoor education.

UMC consists of three layers in terms of both software and hardware: systems, networking and applications. The system layer is responsible for providing the common functions required by all UMC applications, such as mixing/de-mixing of audio/video streams; storage, retrieval, and exchange of multimedia data; management of distributed context acquired from environments and mobility management across heterogeneous networks. The network layer is responsible for providing the QoS-guaranteed delivery services required by different UMC applications in different types of networks, such as packet loss rate guarantees, transmission delay guarantees and the maximum/minimum throughput guarantees. The application layer is responsible for providing efficient coding/decoding of multiple media formats, a user-friendly interface that provides voice control, touch control, automatic sensing of environments and so on.

The goal of this special issue is to foster the state-of-the-art research in the area of UMC from three perspectives: systems, networking and applications. We received 19 submissions from seven countries in total. Only six papers were selected from the 19 submissions. The selected papers cover the three aspects of UMC. We are delighted to present you the six papers.

In 'Open framework for distributed context management in ubiquitous environments', Jun-Hong Lu, Chiung-Ying Wang and Ren-Hung Hwang present an open framework for ubiquitous environments, with a distributed context management architecture and a communication model based on standard protocols. With the presented framework, a smart device can join the ubiquitous environment and search for context-aware services based on standard protocols, such as UPnP. They also implement a prototype of the framework to demonstrate the feasibility of the framework.

In 'Seamless integration of MANET and the internet with terminal mobility supported by SIP', Thirapon Wongsardsakul and Kanchana Kanchanasut apply Session Initiation Protocol (SIP) to support terminal mobility for real-time multimedia communications for seamless communication between MANET and the internet. They adopt an underlying structure for a P2P look-up service called Structured Mesh Overlay Network (SMON) and then

extend it to SMON+ to cover MANETs and fixed IP networks. On top of SMON+, they apply a P2P SIP to offer seamless interoperability to both the users on MANETs and the internet.

In 'Ubiquitous fair bandwidth allocation for multimedia traffic on a WiMAX mesh network with multi-channels', Scott Fowler and Xingjun Zhang study how to provide fair bandwidth allocation for multimedia traffic on a WiMAX mesh network with multi-channels. They investigate the potential unfairness that bursty multimedia traffic may be subjected to and propose a new frame-based packet scheduling algorithm. They also evaluated the performance of the proposed dynamic changing scheduling algorithm by extensive simulations, and the results justify the effectiveness of the proposed algorithm.

In 'Low-complexity adaptive error-control schemes for real-time scalable video transmission over WLANs', Chen-Wei Lee, Tien-Wen Sung, Yih-Ching Su and Chu-Sing Yang propose an adaptive error control scheme for real-time scalable video transmission over WLANs. Their scheme makes use of unequal error protection, the layering and scalability characteristics of MPEG-4 FGS and the optimal packet length, which can be obtained through mathematical analysis.

In 'A centralised Transmission Tree Scheduling algorithm for IEEE 802.16 mesh networks', Rung-Shiang Cheng and Whe-Dar Lin propose a centralised Node-based Transmission Tree Scheduling (nTTS) algorithm for IEEE 802.16 mesh networks. The proposed algorithm takes the effects of channel interference into account and is designed to improve both the channel utilisation ratio and the QoS performance of the mesh network. The simulation conducted by the authors verifies the effectiveness of the proposed nTTS algorithm.

In 'Distributed Video Coding: an overview of basics, research issues and solutions', Wen Ji, Min Chen, Jong Hyuk Park, Naixue Xiong and Yiqiang Chen provide an overview of Distributed Video Coding (DVC), which is an emerging field that offers a brand-new paradigm for solving some challenging problems in video-coding applications. DVC has showed good prospects, especially in wireless video sensor network, video monitoring, mobile camera, satellite video communication and the other energy supply limited video applications.

Finally, we would like to express our sincere thanks to all the authors for their valuable contributions and also to the referees for their hard work in reviewing the papers in a timely manner. Our special thanks go to Professor Han-Chieh Chao and Professor Yuh-Shyan Chen, the Editor-in-Chiefs of IJAHUC, for their support throughout the preparation of this special issue.