PREFACE TO SPECIAL SECTION ON INTELLIGENT MULTIMEDIA SYSTEM AND DATA MANAGEMENT FOR UBI-COM

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This special section is committed to capture the state-of-the-art and recent advances on various aspects of intelligent multimedia system and data management for ubiquitous computing (Ubi-Com). It aims to bring together the researchers from academia and industry as well as practitioners to share ideas, problems and solutions relating to the multifaceted aspects of intelligent multimedia system and data management, especially focused for Ubi-Com environments. Original articles describing the state-of-the-art state-algorithms, protocols, performance evaluations, and case studies on intelligent multimedia system and data management are solicited for this special section.

We received twenty-one manuscripts. Each manuscript was blindly reviewed by at least three reviewers consisting of guest editors and external reviewers. After the review process, six manuscripts were finally selected for this Special Section.

The first paper in this special section is on Intranet Security for Healthcare Information System, by Malrey Lee, Thomas M. Gatton and Nam-Deok Cho. This paper proposes a novel and efficient security procedure that provides flexible web security access control in intranet-based, healthcare medical information systems. The proposed web-based security access control system improves the intranet data and access security by using encryption and decryption techniques. It further improves security access control by providing authentication that corresponds to different security access levels and requirements, such as relevancy, public ownership and information sensitivity between different enterprise departments. This approach reduces processing time and prevents unauthorized information access and corruption caused by communication protocol errors between client PC's.

The second paper in this special section is on On Improving the Robustness of Partitionable Internet-based Mobile Ad Hoc Networks, by Sunho Lim and Soo-Hoan Chae. In this paper, they propose an enhanced least recently used replacement policy as a part of the aggregate cache mechanism to improve the information accessibility and reduce the access latency in the presence of network partitioning. The enhanced aggregate cache is analyzed and also evaluated by simulation. Extensive simulation experiments are conducted under various network topologies by using three different mobility models: random waypoint, Manhattan grid, and modified random waypoint. The simulation results indicate that the proposed policy significantly improves communication performance in varying network topologies, and relieves the network partition problem to a great extent.

The third paper in this special section is on Cryptanalysis of CIK-128 and CIK-128H Suitable for Intelligent Multimedia and Ubiquitous Computing Systems, by Changhoon Lee, Jongsung Kim, Jaechul Sung, Yang-Sun Lee and Chang Hoon Lee. This paper shows that CIKS-128 and CIKS-128H are vulnerable to related-key differential attacks. According to the results of the paper, the full-round CIKS-128 and CIKS-128H can be broken by 244 and 248 data/time complexities, respectively. These results indicate that CIKS-128 and CIKS-128H are almost in practical attack bounds.

The fourth paper in this special section is on An Enhanced Double-Layered P2P System for the Reliability in Dynamic Mobile Environments, by Ji-Hoon Kim, Jin-Woo Song, Taek-Hun Kim and Sung-Bong Yang. In this paper, they propose a new double-layered P2P system in which super peers are selected based on their mobility. They also propose two reliability improvement schemes, the avoidance scheme and the role changing scheme. They are applied to the proposed system to enhance the reliability of the system. The proposed system is implemented in the dynamic mobile P2P environment where peers may join and leave the network dynamically and the number of peers varies. The various experiments are done with the Network Simulator-2 v2.33. The experimental results show that the proposed system with the two schemes improved the reliability over other double-layered systems in terms of the failure rate by up to 25 %, while increasing the network traffic marginally.

The fifth paper in this special section is on A Personalized Facet-Weight Based Ranking Method for Service Component Retrieval, by Ming Zhong, Yaoxue Zhang,

Laurence Tianruo Yang, Yuezhi Zhou, Pengwei Tian and Linkai Weng. This paper proposes a novel personalized facet-weight based ranking method for service component retrieval, which assigns a weight for each facet to distinguish the importance of the facets, and constructs a personalized model to automatically calculate facet-weights for users according to their historical retrieval records of the facet values and the weight setting. The paper also optimizes the parameters of the personalized model, evaluate the performance of the proposed retrieval method, and compare with the traditional facet-based matching methods. The experimental results show promising results in terms of retrieval accuracy and execution time.

The sixth paper in this special section is on A Case Study on Intelligent Service Design in Ubiquitous Computing, by Hangbae Chang, Hyukjun Kwon, Jonggu Kang and Yanghoon Kim. In this paper, they design the killer services for the scene of labor learning in ubiquitous computing. They explore the unmet needs of teachers in the scene of labor learning and examined whether the unmet needs could be served by the resources and capabilities of ubiquitous computing. They also craft a detail killer services for the scene of labor learning proposed to serve educational users with the service architecture. The result of this paper will be applied to develop new business model in ubiquitous computing as the basic research.

Finally, we would like to thank all authors for their contributions to this special section. We also extend our thanks to the following external reviewers for their excellent job in reviewing the manuscripts: Naixue Xiong, Damien Sauveron, Doo-soon Park, Sang Oh Park, Kyusuk Han, Naveen Chilamkurti, Jonghyuk Lee, Jongsung Kim, Changhoon Lee, Yangsun Lee, Isaac Woungang, Sang-Soo Yeo, Deok Gyu Lee, Taeshik Shon, Hangbae Chang, Leonard Barolli, Seungmin Rho, Young-Sik Jeong, Jeong-Sik Cho.

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Shu-Ching Chen has been a Full Professor in the School of Computing and Information Sciences (SCIS), Florida International University (FIU), Miami since August 2009. Prior to that, he was an Assistant/Associate Professor in SCIS at FIU from 1999. He received Master's degrees in Computer Science, Electrical Engineering, and Civil Engineering in 1992, 1995, and 1996, respectively, and the Ph. D. degree in Electrical and Computer Engineering in 1998, all from Purdue University, West Lafayette, IN, USA. He is the Director of Distributed Multimedia Information Systems Laboratory and Associate Director of The Center for Advanced Distributed System Engineering at SCIS. His main research interests include content-based image/video retrieval, distributed multimedia database management systems and multimedia data mining. He has authored or co-authored more than 200 research papers. He received the Best Paper Award from the 2006 IEEE International Symposium on Multimedia. He was awarded the IEEE Systems, Man, and Cybernetics (SMC) Society's Outstanding Contribution Award in 2005 and was co-recipient of the IEEE Most Active SMC Technical Committee Award in 2006. He was also awarded the Inaugural Excellence in Graduate Mentorship Award from FIU in 2006 and the University Outstanding Faculty Research Award from FIU in 2004. He has been a General Chair and Program Chair for more than 30 conferences, symposiums, and workshops. He is the Editor-in-Chief of International Journal of Multimedia Data Engineering and Management and Associate Editors/Editorial Board for several journals. He is the Chair of IEEE Computer Society Technical Committee on Multimedia Computing. He also has been a Guest Editor for more than ten journal special issues.

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