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Selected Papers of the 14th International Conference on Computer and Information Technology
(ICCIT 2011)

Guest Editorial

Salahuddin Muhammad Salim Zabir
Orange Labs/France Telecom R&D, Japan
Keio Shinjuku Oiwake Building 9F, 3-1-13 Shinjuku, Shinjuku-ku, Tokyo 160-0022, Japan

Jemal H. Abawajy
School of Engineering and Information Technology, Deakin University
Geelong, VIC, 3072, AUSTRALIA

Farid Ahmed
Applied Information Sciences Department, Johns Hopkins University Applied Physics Laboratory
Laurel, MD 20723, USA

Joarder Kamruzaman
Gippslans School of IT, Faculty of IT, Monash University, Gippsland Campus
Churchill Vic 3842, Australia

Mohammad Ataul Karim
Office of Research, Old Dominion University
4111 Monarch Way #203, Norfolk, VA 23508, USA

Nurul I. Sarkar
School of Computing and Mathematical Science, Auckland University of Technology
Room: WY106, Private Bag 92006, Auckland 1142, New Zeland

Networking of computing devices has been going through rapid evolution and thus continuing to be an ever expanding area of importance in recent years. New technologies, protocols, services and usage patterns have contributed to the major research interests in this area of computer science. The current special issue is an effort to bring forward some of these interesting developments that are being pursued by researchers at present in different parts of the globe. Our objective is to provide the readership with some insight into the latest innovations in computer networking through this.

This Special Issue presents selected papers from the fourteenth conference of the series (ICCIT 2011) held during December 22-24, 2011 at the American International University, Bangladesh. The first ICCIT was held in Dhaka, Bangladesh, in 1998. Since then the conference has grown to be one of the largest computer and IT related research conferences in the South Asian region, with participation of academics and researchers from many countries around the world. Since 2008 the proceedings of ICCIT has been included in IEEExplore.

In 2011, a total of 353 full papers were submitted to the conference of which 126 were finally accepted after reviews conducted by an international program committee comprising 85 members from 14 countries. This was tantamount to an acceptance rate of 35%. From these 126 papers, nine highly ranked manuscripts were invited for this Special Issue. The authors were advised to enhance their papers significantly and submit them to undergo review for suitability of inclusion into this publication. Of those, six papers survived the review process and have been selected for inclusion in this Special Issue. These papers address issues concerning different domains of networks namely, mobile IPv6, battlefield application of wireless sensor networks, VoIP over wireless links, identity management and Statistical Disclosure Attack (SDA), cyclic prefix for AWGN and Rayleigh fading and Ant colony optimization for network routing.

The paper titled "A Probabilistic Scheme for Reducing the Packet Loss in Mobile IPv6" deals with the packet loss issue by mobile nodes in an IPv6 network. The authors, Khan Md. Al-Farabi and Md. Humayun Kabir notice that with mobile IPv6 it is possible to ensure optimal path routing that eliminates the packet delay problems encountered with mobile IPv4. However, even with mobile IPv6, packet losses increase with the degree of mobility of the node. The authors propose a buffering scheme based on mobility prediction to overcome the issue.

The authors Tamal Chakraborty, Iti Saha Misra and Salil K. Sanyal report their research findings on VoIP performance over WLAN and cognitive radio in the manuscript titled "Proactive QoS Enhancement Technique for Efficient VoIP Performance over Wireless LAN and Cognitive Radio Network". The authors take into account the role of different codec parameters and propose an optimization algorithm to keep delay and latency within tolerable limits. Then, based on the results they obtain through their experimentations with the testbed and simulations, they come up with an algorithm that relies on codecs and active queues to ensure high throughput of VoIP traffic with enhanced QoS.

The article titled "SDA-2H: Understanding the Value of Background Cover Against Statistical Disclosure" deals with issues related to Statistical Disclosure Attack (SDA). The authors Mahdi N. Al-Ameen, Charles Gatz and Matthew Wright examine the effect of background cover, i.e., the fake packets that the other users send on SDA. The authors extend SDA to a new scheme called SDA-2H (SDA with two heads) that takes background traffic into account and then evaluate the performance implications with respect to SDA.

The authors Budhaditya Bhattacharyya, Iti Saha Misra and Salil Kumar Sanyal of the paper "Analysis and Optimization of Error Performance of a WiMAX Transceiver using Novel Adaptive Cyclic Prefix Strategy under AWGN and Rayleigh Fading Scenario" present a novel selection strategy for Adaptive Cyclic Prefix (ACP) on IEEE 802.16e WiMax Physical (PHY) layer. In addition, they propose a Modified ACP (MACP) algorithm for Rayleigh multipath fading scenario and evaluate the performance of the proposed schemes.

The manuscript "Assurance of the Maximum Destruction in Battlefield using Cost-Effective Approximation Techniques" has been authored by Fariha Tasmin Jaigirdar and Mohammad Mahfuzul Islam. The authors consider battlefield application of wireless sensor networks. They propose two efficient approximation algorithms to launch an effective attack on enemy computing resources.

The final title is "New Variants of Ant Colony Optimization for Network Routing". It has been contributed by Debasmita Mukherjee and Sriyankar Acharyya. The paper proposes new variants of Ant Colony Optimization (ACO) techniques for network routing. The authors combine three different heuristics for selecting the next node with the three existing types of ACO based on pheromone deposit calculation. This results in nine variations. The authors also propose a new pheromone deposit calculation method that considers transmission time of each successfully transmitted packet. This leads to nine more variants. The authors compare the performance of all these variations of ACO techniques for network routing.

Finally, the Guest Editors would like to express their sincere gratitude to the 10 reviewers besides the guest editors themselves (Kashif Satter, Md. Asifur Rahman, Abdelrahman Desoky, Mod Farhan Fudzee, Harulnizam Bin Mahdin, Md. Akbar Hossain, Iftekhar Ahmad, AKM Azad, Ashfaqur Rahman and Rafiul Hassan) from several countries (Australia, Japan, New Zealand, Pakistan, Saudi Arabia and USA) who have given immensely to this process. They have responded to the Guest Editors in the shortest possible time and dedicated their valuable time to ensure that the Special Issue contains high-quality papers with significant novelty and contributions.

Guest Editors

Salahuddin Muhammad Salim Zabir is leading research and development on machine to machine (M2M) and e-health, wellness and disabilities at Orange Labs/France Telecom, Japan. He had his PhD and an MS in information science from Tohoku University, Japan. Before that, he obtained his MSc Engineering and BSc Engineering degrees in Computer Science and Engineering from Bangladesh University of Engineering and Technology. Prior to his current appointment, he has served at Tohoku University, Japan, Kyushu University, Japan, Kyung Hee University, Korea and Bangladesh University of Engineering and Technology. He also worked with Panasonic R&D headquarters in Osaka, Japan. His research interests include computer networks, networking protocols, performance evaluations, ubiquitous computing, applications of ICT for development etc. Dr. Zabir has been serving in the program/technical committees of various international conferences and is guest editing special issues of scholarly journals. He is a member of the IEEE and BCS.

Jemal H. Abawajy is an associate professor, Deakin University, Australia. Dr. Abawajy is the director of the "Pervasive Computing & Networks" research groups at Deakin University and a senior member of IEEE. Dr. Abawajy is actively involved in funded research in robust, secure and reliable resource management for pervasive computing and networks. He has published more than 200 research articles in refereed international conferences and journals as well as a number of technical reports. Dr. Abawajy has given keynote/invited talks at many conferences. Dr. Abawajy has guest-edited several international journals and served as an associate editor of international conference proceedings. In addition, he is on the editorial board of several international journals. Dr. Abawajy has been a member of the organizing committee for over 150 international conferences serving in various capacity including chair, general co-chair, vice-chair, best paper award chair, publication chair, session chair and program committee. He is also a frequent reviewer for international research journals (e.g., FGCS, TPDS and JPDC), research grant agencies, and PhD examinations.

Farid Ahmed is currently with the Applied Information Sciences Department at Johns Hopkins University Applied Physics Laboratory at Laurel, MD. Prior to this position, he had been associate professor of electrical engineering and computer science at the Catholic University of America, Washington, DC. Dr. Ahmed's professional background includes signal/image processing, computer networks, information security, digital watermarking, cryptography, and optical information processing. He has a publication record of over fifty peer-reviewed journal articles and conference papers combined in these areas and holds 5 US patents. Dr. Ahmed is an associate editor of the EURASIP Journal of Wireless Communications and Networking. He has also been serving on the technical program committee of SPIE conference, ICISST, IFIP N2S, IEEE NAECON, and ICCIT etc. Dr. Ahmed is a member of SPIE and Computer Security Institute, and a senior member of IEEE.

Joarder Kamruzzaman is currently an Associate Professor at the Faculty of the Information technology, Monash University, Australia and the Director of the Centre Multimedia Computing, Communications and Applications Research host by the faculty. His research interest includes computer networks and computational intelligence. He has published over 175 peer-reviewed publications, and edited two reference books on computational intelligence theory and applications. His publications received best paper award in IEEE WCNC (2010) and IEEE ICNNSP (2003). Part of his research is funded by the prestigious Australian Research Council Linkage Grant. He is currently serving as a program committee member of a number of international conferences and as an editor of the Journal of Network and Computer Applications.

Mohammad Ataul Karim is Vice President for Research and Professor of Electrical and Computer Engineering of Old Dominion University in Norfolk, Virginia. His research areas include information processing, pattern recognition, computing, displays, and electro-optical devices and systems. Dr. Karim is author of 18 books, 7 book chapters, and over 370 articles. He is an Editor of Optics & Laser Technology and an Associate Editor of the IEEE Transactions on Education. He has served as guest editor for over twenty-eight journal special issues. Professor Karim is an elected fellow of the Institution of Electrical and Electronics Engineers (IEEE), Optical Society of America (OSA), Society of Photo-Instrumentation Engineers (SPIE), the Institute of Physics (InstP), the Institution of Engineering & Technology (IET), and Bangladesh Academy of Sciences. He received his BS in physics in 1976 from the University of Dacca, Bangladesh, and MS degrees in both physics and electrical engineering, and a Ph.D. in electrical engineering from the University of Alabama respectively in 1978, 1979, and 1981.

Nurul I. Sarkar is a senior academic staff member in the School of Computing and Mathematical Sciences at Auckland University of Technology, New Zealand. He is regularly invited to give keynote talks on his field of specialization at various national and international forums. He has more than 17 years of teaching experience in universities at both undergraduate and postgraduate levels and has taught a range of subjects, including computer networking, data communications, wireless networking, computer hardware, and eCommerce. Dr Sarkar holds a PhD in Electrical and Electronic Engineering from the University of Auckland and his current research interests include wireless communication networks, cross-layer design optimization, and network security. Dr Sarkar is the author of more than 100 refereed journal and conference papers, and a book.

Dr Sarkar is a member of various professional organizations and societies, including IEEE Communications Society, and Australasian Association for Engineering Education. He is an elected chairman of IEEE New Zealand Communications Society (ComSoc) Chapter, and a senior member of IEEE and fellow of ITU-UUM.

Dr Sarkar is a guest editor for AP Journal of Networks, an associate editor for International Journal of Wireless Networks and Broadband Technologies, and member of various international editorial review boards. He served as associate technical editor for the IEEE Communications Magazine (2005-2010), TPC co-chair for APCC 2012, IEEE TENCON'10 and ATNAC'10.Dr Sarkar serves on the technical program committees of various leading networking conferences as well as track and session chairs for several national and international forums.