Editorial

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Biographical notes: Sudip Misra is an Assistant Professor in the School of Information Technology at IIT Kharagpur, India and an Adjunct Professor at Ryerson University, Toronto, Canada. He received his PhD degree in Computer Science from Carleton University, in Ottawa, Canada, and the Masters and Bachelors degrees respectively from the University of New Brunswick, in Fredericton, Canada, and the Indian Institute of Technology, in Kharagpur, India. His current research interests include algorithm design and engineering for telecommunication networks, software engineering for telecommunication applications, and computational intelligence and soft computing applications in telecommunications.

IJCNDS is already in its second year, and this issue marks the second issue in the second volume. In this issue, there are ten papers, which are primarily the extended versions of ten best papers selected from AccessNets 2007 that was held in Ottawa, Canada.

The first of these papers is titled 'Analytical and experimental study on Ethernet passive optical networks: challenges and solutions', and is authored by Bai et al. In this paper, the authors have reviewed some of the existing MAC protocols for Ethernet passive optical networks (EPONS) and then investigate both analytically and experimentally in considerable detail the performance issues with an EPON model. They used queuing theory analysis to arrive at closed-form expressions for average packet queuing delay and average queue length of the EPON model. They, then, demonstrate the superiority of performance of their approach through simulations.

In the second paper, titled 'Performance analysis of the cdma2000 reverse packet data channel', the authors, Basyouni et al. present results of performance analysis of cdma2000 1xEV-DV reverse packet data channel. cdma2000 1xEV-D, is developed as per the requirements of the third generation partnership project (3GPP2) for high data rates required in 3rd generation wireless networks. They have arrived at lower bounds on the probabilities of acceptance of data sub-packets using the properties of 1xEV-DV turbo encoder. Finally, the authors have provided expressions for the expected file transmission time and effective data rate for different channel characteristics.

In the third paper, titled 'On dynamic packet fragmentation for traffic integration over bandwidth-limited links', the authors, Guo et al. present a dynamic packet fragmentation method to integrate isochronous and best-effort traffic in a home networking system. In such systems, best effort packets of varying size make it difficult to guarantee QoS of isochronous traffic. The authors show that their approach increases the link utilisation and best-effort traffic throughput without changing the requirements for delay and jitter.

In the fourth paper titled 'Capacity analysis and resource management of an integrated WiMAX & Wi-Fi access system for VoIP', by Pan et al., the authors, consider

the system of integrated WiMAX and Wi-Fi technologies and assess the QoS of such a system. They further present a cost analysis based on the capacity evaluation. They further propose a resource management scheme for Wi-Fi to WiMAX handover.

In the fifth paper titled 'On triplexer design for next generation Ethernet passive optical network systems', the authors, Santos et al., investigate a triplexer and filter design for emerging 10 Gbit/s EPON systems. They base their investigations on IEEE 802.av Task Force activities and the limitations involved in the design of filters for WDM.

In the sixth paper titled 'Design and cost performance of WDM passive optical networks (PONs) for multi-wavelength users', the authors studied the design and cost performance of the next generation optical access technology, WDM PON, which are attractive access network technologies characterised by high transmission capacity and optical transparency. The authors have presented a design tool that, with the help of an optical routing device, called Waveguide Grating Router, can help to analyse all technologically feasible WDM PON architectures and the cost performance.

In the seventh paper, titled 'Traffic conformance issues in passive optical networks: challenges and solutions', Ngo and Gravey study the QoS characteristics (delay, jitter and loss) of broadband PONs. Among other contributions in the paper, the authors show that those dynamic bandwidth allocations (DBA) that do not take into account traffic conformance would fail to distinguish between compliant and non-compliant users. The authors illustrate it with the help of a priority-based DBA that is designed for EPONs.

In the eighth paper, titled 'Transparent WDM metro-access networks', the author, Gagnaire, proposes a network configuration capable of federating on a unique WDM all-optical ring, a number of NG-WDM-PONs. They evaluate the efficiency of the control plane of this configuration through numerical results coupled with scenarios of restoration.

The ninth paper, titled 'Cognitive MIMO Radio: an emerging paradigm for enhancing wireless access capability', is authored by Baccarelli et al. In this paper, the authors propose an interesting idea of combining the popular technology, cognitive multiple-input multiple-output (MIMO) radio, which is characterised by flexibility features, with multi-antennas, having multiplexing capabilities. They evaluate the possibility of using such a configuration as a wireless access technology. They proposed an algorithm that is capable of playing the non-cooperative strategic game that takes place in such a configuration. The authors offer analytical results in support of their proposed idea.

Finally, in the tenth paper which is titled, 'Radio-over-fiber for increasing effective coverage of motorway access networks', the authors, Xing et al. propose a radio-over-fiber (RoF) access network technology for motorway communication access for high-speed vehicles. The authors have considered a cross-layer design for their proposed system architecture. The authors have offered numerical results to establish their proposed architecture.

We hope that readers will enjoy reading these papers and find them valuable. The readers are encouraged to contact the authors, if they need any further clarification regarding their works presented.

Finally, we take this opportunity to express a few words of our thankfulness. First, we would like to thank all the authors for considering *IJCNDS* as a medium for publishing their work. We are also very much thankful to the members of the Editorial Board for their support in planning the journal and reviewing several papers. Special thanks go to

Dr. Jun Zheng for painstakingly suggesting the candidate papers for consideration in this special issue. Last, but not the least, we would like to thank the staff at Inderscience, including but not limited to, Dr. Mohammed Dorgham and Mr. Jim Corlett, for the continuous support and assistance they have provided us in the pre-publication process.