

IJCNC 2011 Special Issue on “Networks and Communications”

Computer networks have become a part of everyone’s life and the Internet has grown humongously since its inception. Though the underlying purpose of computer networks is resource sharing, the communication paradigm has slowly evolved from the traditional client-server model to the current peer-to-peer model. Based on the nature of the communication media, computer networks can be fundamentally classified into wired and wireless networks. These two categories of computer networks differ significantly in many aspects including the communication protocols, physical layer technologies, routing protocols, transport protocols, resource constraints, security issues and etc. Several sub-categories of networks have also emerged within the two broad categories of wired and wireless networks. This Special Issue has been conceived to promote state-of-the-art research in computer networks, network protocols, data communication technologies and network security. In this pursuit, we invited papers illustrating research results, projects, surveys and industrial experiences that describe significant advances in several areas related to the above areas.

After a thorough review, a total of 15 papers have been selected for publication in the Special Issue. Among these 15 papers, (i) 4 papers are extensions of invited papers from the Second International Conference on Networks and Communications (NetCoM 2010) held in Bangalore from January 2-4, 2011; (ii) 3 papers were selected from a total of 89 papers received in response to the Open Call for the Special Issue; and (iii) 8 papers were selected from a total of 162 papers received in response to the Call for regular issue of IJCNC.

The 15 papers selected for publication can be grouped into the following six categories:

- (i) *Physical Layer Communication*: R. Sreenivasan et. al propose an adaptive and co-operative spectrum sensing technique using group intelligence to effectively combine the spectral occupancy decisions from different cognitive radios; Md. S. Ali et. al propose a multi-carrier CDMA scheme for next generation wireless communication systems to effectively combat multi-path interference and provide variable and adaptive data rates.
- (ii) *Medium Access Control (MAC) Layer*: A. Sarma et. al propose a context aware mobile initiated handoff for performance improvement in IEEE 802.11 networks; Chin proposes a novel approach for dynamic scheduling in dense wireless LANs by exploiting the presence of more than one Access Point associated with a mobile station; H. Jang et. al propose a piggybacking mechanism of Acknowledgments (ACK) for airborne TDMA resulting in improved network throughput and effective dissemination of weather conditions to improve the throughput for air traffic.
- (iii) *Mobile Ad hoc Networks (MANETs)*: R. Goyal et. al propose a Type of Service, Power and Bandwidth Aware AODV (TSPBA-AODV) protocol for Quality of Service (QoS) in routing; T. N. Janakiraman and A. Senthil Tilak propose a clustering scheme for homogeneous MANETs in which the number of strong neighbors, mobility and battery power level at a node to chose cluster heads.
- (iv) *Multi-media Communication*: F. Tommasi and C. Melle describe an architecture to relay (on-demand) a real-time IP multicast audio-video stream broadcasted by a satellite on a terrestrial link; K. Shuaib et. al develop a semi-optimal video smoothing technique and queuing model to manage the transmission of MPEG-4 and H.264 video streams for QoS-based networks; H. Oda et. al opropose a new transport-layer protocol for video streaming, called TCP Stream, which combines loss-based and delay-based congestion control to transmit data at a rate that adjusts to the peer network traffic; M. Boutabia and H. Afifi

propose a novel hybrid mobility management scheme, based on tight cooperation between fast handovers for mobile IPv6 and session initiation protocol to ensure an uninterrupted real-time service.

- (v) *Trust Management*: M. Colombo et. al propose the integration of a role-based authorization system in a network service provisioning framework to support multi-provider networks; P. Rantala et. al propose a hybrid trust model for BGP routing in the Internet by combining voting and recommendation to estimate the trust of neighbor routers located in different autonomous systems.
- (vi) *Throughput Enhancement*: C. Marques et. al propose a dynamic resource allocation architecture for effective reconfiguration of clusters of web servers in the Internet; F. He et. al propose an application identification framework, including a traffic classifier, that classifies traffic at aggregate-flow level leveraging aggregate-flow cache.

Finally, we wish to acknowledge and thank the IJCNC editorial board and the reviewers for their hard work and earnest efforts to make this Special Issue a success. Also, our sincere thanks to the staff of AIRCC involved in the organization of this Special Issue. We hope it would be a nice and enjoyable reading!

Guest Editors

Natarajan Meghanathan
Jackson State University, USA

Chih-Lin Hu
National Central University, Taiwan