
Editorial

Vikrant Bhateja

Department of Electronics and Communication Engineering,
Shri Ramswaroop Memorial Group of Professional
Colleges (SRMGP),
Lucknow-227105 (U.P.), India
Email: bhateja.vikrant@ieee.org

Biographical notes: Vikrant Bhateja is an Associate Professor, ECE Department and also Head (Academics and Quality Control), SRMGP, Lucknow, India. He has a total academic teaching experience of 12 years with more than 100 publications in reputed international conferences, journals and book chapters. His area of research include: digital image processing, computer vision and medical imaging with publications in journals like: *IEEE Sensors*, *IEEE TIM*, Elsevier *Measurement*, Springer *CSI Transactions*. His two books have been published under Springer AISC Series as Proceeding Editor and presently three are in press. He is also an Associate Editor in journals, Inderscience: *IJIM* and IGI Global: *IJRSDA*.

On the behalf of the editorial board, I am happy to announce the release of this issue of *IJConvC*, comprising an aggregation of eight unique articles focussing on different spheres of convergence computing. The first section of this issue comprises four articles on mobile computing, wireless networks and e-learning from the special issue on mobile computing. The second section consists of four additional articles relevant to the journal.

The issue also consists of a few extended versions of papers, which were initially presented at the *Third International Conference on Frontiers in Intelligent Computing: Theory and Applications* (FICTA-2014), held during 14–15 November 2014 at Bhubaneswar (Odisha), India. This conference was jointly organised by Bhubaneswar Engineering College (BEC), Bhubaneswar, India and CSI Student Branch, ANITS, Vishakhapatnam (A.P.), India with Dr. S.C. Satapathy as a Corresponding Editor and Professor Vikrant Bhateja as Technical Programme Committee Chair. FICTA 2014 received a good number of submissions from the different areas relating to intelligent computing; finally, with the acceptance ratio of 0.43 its proceedings were published as Vols. 327 and 328 of Springer Advances in Intelligent Systems and Computing (AISC) Series.

Whenever data is transmitted over wireless sensor network there is more chance of some fault due to wormhole attack during data aggregation. There exist numerous wormhole detection techniques that do not well suited deal with the packet losses arising due to wormhole. This forms the central idea of the very first article in this issue: ‘Wormhole attack detection and data aggregation algorithm for wireless sensor networks’, which is contributed by Kumar and Dutta. In this paper, authors’ have proposed and evaluated an algorithm that detects the wormhole attack during data aggregation with the help of the common neighbouring information which is a lightweight technique.

Next article in the issue is a congestion-based extension to existing multipath routing protocol AOMDV (CA-AOMDV) presented by Bhardwaj and Kant. AOMDV is based on minimum number of hops count between source and destination nodes and is not suitable for real time applications because of its high end to end delay, jitter and packet loss. CA-AOMDV selects a least congested path instead of minimum number of hops between source and destination nodes. CA-AOMDV performs well under high load and varying mobility conditions and performs better than AOMDV in real time applications.

The third article by Manjunath and Jaisankar focuses on how road safety can be enhanced by the deployment of wireless communication systems for vehicular networks. The 802.11p protocol modifies the 802.11 standard for wireless local area networks (WLANs) in a vehicular environment. This paper presents the MATLAB/Simulink implementation of IEEE 802.11p for vehicular area network and its application to rear end collision avoidance system with Honda algorithm. To further, demonstrate the efficiency, authors' have also presented the case studies with different vehicle speeds.

Another article in sequence by Selvi presents an 'Unequal cluster-based fault prediction algorithm for wireless sensor networks'. In the proposed algorithm, each sensor node tries to estimate the amount of energy it will spend to transfer k bit data in the near future using integrated double exponential smoothing model. It uses two different smoothing factors to estimate the current energy level and uses it as a forecast for the future value. The simulation result effectively demonstrates how the proposed algorithm effectively prevents the cluster head and its members from failure and thereby extends the network lifetime significantly.

The next section presents four articles from regular issue.

The fifth article deals with the concept of communicational spaces and tries to renew, clarify and formalise it from a physical and mathematical standpoint. This work by Ahamer highlights the formalisms of statistical thermodynamics to deal with a large number of states in a state space. Such formalism is applied to the large number of options to communicate. In this tradition, a definition of distance in space is attempted. Each form of communication is thought to constitute its own type of space. Moreover, space is seen as an opportunity for processes; and time is seen as a substrate to enact processes. In a less formulaic chapter, a definition of space is explored on the basis of principal options to interact. The social and practical implications of such conception are explored. To sum up, the deep meaning of space is understood in the sense that space separates possibilities for communication.

The textile industry is a traditional pillar industry in China, in the process of industrialisation; it has accumulated a large number of funds for the construction of national economy. At the same time, along with the development of many professional textile and garment market, they have made great contributions in promoting the development of the regional economy. The sixth article by Hang et al. presents an empirical analysis of the impact of textile professional market on the regional economy. It extracts common factors of regional economy indicators as explained variables through factor analysis. The study concluded to the oriental silk professional market, the size of the textile professional market, improvement of directors' average compensation and the good modest growth of shareholders' equity can promote the development of regional economy.

Mobile JXTA applications and services that are usually available on client/server platforms identify solutions for P2P systems where decentralisation is considered. Rajkumar et al. in this seventh article, explore architecture for P2P hedonic double

auction model that can be implemented to estimate the bidding price of the players based on their previous performance. In addition, it also accommodates the effect of individual personalities that depend on the existence of central authorities in JXTA environment with proxy and proxiless peer-groups.

The last article in this issue focuses upon a new approach to build mathematical models for data classification problems by Yarlagadda et al. In this work, the basic concept of liner regression is adopted for development of the models. The coefficients of the regressive model are computed using least square estimation and differential evolution technique separately. Total of 14 datasets having pure numerical, pure categorical and mixed features values are considered for the experimentation. A simple integer coding is used to convert categorical features values to numerical feature values. Three high dimensional datasets are investigated for developing efficient mathematical models. From the result analysis, it is clearly observed that differential evolution-based approach is performing better in terms of providing correct classifiers. The feature selection algorithm removes many unnecessary features of the datasets and reduces the computational cost of building the mathematical models.

To sum up, this double issue has highlighted the new advancements in the domain of wireless sensor networks, mobile computing along with a robust emphasis upon convergence computing. The collected articles provide interesting and promising advances of the state of the art trends and I hope that spectrum of research works covered under this issue will be of value for multitude of readers. At the same time, we are grateful to the authors for making their valued research contributions to this issue and their patience in crucial revision stages.

The technical standards and quality of published content is based on the strength and expertise of the reviewer board members who have been grossly involved in providing high quality reviews for the submitted papers. Our special thanks goes to the Editor-in-Chief of the *International Journal on Convergence Computing (IJConvC)*, Prof. Changpeng Ji, Liaoning Technical University, China, for all his help, support rendered to this issue.