Editorial

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Biographical notes: Issa Traore received in 1998 a PhD in Software Engineering from Institute Nationale Polytechnique (INPT)-LAAS/CNRS, Toulouse, France. Since November 1999, he has joined the Faculty of the Department of ECE, University of Victoria, Canada. He is currently an Associate Professor and held, from October 2003 to December 2007, the position of Computer Engineering Programme Director. His research interests include behavioural biometrics systems, intrusion detection systems, software security metrics and software quality engineering. He is the Founder and Coordinator of the Information Security and Object Technology (ISOT) Lab.

This Special Issue is based on innovative ideas that were presented at the 2007 Pacific Rim Conference on Computers, Communications, and Signal Processing, held on 22–24 August at the University of Victoria, Victoria, BC, Canada. The conference was co-Chaired by Dr. Fayez El Gebali and Dr Mihai Sima. Dr. Hoda S. Abdel-Aty-Zohdy, presented a keynote lecture on Biologically-Based Signal Processing Chips with Emphasis on Telecommunication Defect Tracking and Reliability Estimation. The proceedings were published by IEEE Computer Society.

PACRIM 2007 is the 10th edition of a series of biennial international forum sponsored by IEEE society, which took place for the first time in 1987 in Victoria, BC, Canada, and was chaired by Dr. Vijay K. Bhargava. Since its inception, the PACRIM conference series has established itself as the premier IEEE biennial event in the Pacific Northwest, attracting participants from several dozen countries all over the world.

Based on initial recommendations made by PACRIM 2007 conference reviewers, a list of papers were selected for their high quality and potential for significant archival publication. The authors were invited to submit extended versions of their papers for this Special Issue of the *International Journal of Communication Networks and Distributed Systems (IJCNDS)*. After a thorough review process, six papers were selected to appear in this Special Issue. This issue covers a variety of important research issues in communications and computers, which represent the major areas of interest of *IJCNDS*.

Selected papers in the communication area include (Ghassemi and Gulliver, this issue; Han and Park, this issue; Szymanski and Gilbert, this issue). Ghassemi and Gulliver propose a low complexity Selective Mapping (SLM) technique for reducing the Peak-to-Average Power Ratio (PAPR) of an Orthogonal Frequency Division Multiplexing (OFDM). Several complexity reduction results are shown in connection with the proposed technique. Szymanski and Gilbert present a framework supporting Guaranteed-Rate communications for clustered computing systems over switch based

networks with 100% throughput and very low delay jitter. It is suggested that the proposed algorithm is suitable for the switch based networks found in cluster computing systems such as Fat-Trees, and for silicon Networks-on-a-Chip.

Han and Park (this issue) introduce a dynamic layer management scheme for a self-organising superpeer ring with a loosely-consistent DHT. The proposed scheme is shown to be better than the fixed superpeer system in terms of search latency at the expense of message overhead added for the dynamic layer management.

Papers selected in the computers area include (Demiya et al., this issue; Garcia-Sanchez et al., this issue; Yang et al., this issue). Qi and Muzio (this issue) propose two new designs for Geffe (Test Patterns) Generators, which preserve at the same time their non-linear characteristics and provide improved fault detection capability compared to linear generators. Garcia-Sanchez et al. (this issue) and colleagues present an optimised publish-subscribe middleware for Peer-to-Peer (P2P) networks. The suitability of the proposed system for the implementation of large-scale content delivery systems is assessed by comparing it with the well-known Hermes system. Yang et al. (this issue) and colleagues introduce a novel adaptive collaborative filtering approach based on user-genre-item relation. It is shown experimentally that the proposed approach exhibits better performance when compared with existing collaborative filtering approaches in the literature. Demiya and colleagues present a grid computing prototype using low resource compact computers embedded in home electronics such as refrigerators and air-conditioners. They established by analysing the performance that the implemented prototype meets the basic requirements for compact grid computing.

We hope that this issue stimulates new directions and innovations that would raise the state of the art of the research being conducted in corresponding areas.

References

Demiya, T., Yoshihisa, T. and Kanazawa, M. (this issue) 'Compact grid: a grid computing system using low resource compact computers'.

Garcia-Sanchez, A-J., Garcia-Sanchez, F., Pavon-Marino, P. and Garcia-Haro, J. (this issue) 'An optimized publish/subscribe middleware for peer to peer systems'.

Ghassemi, A. and Gulliver, T.A. (this issue) 'A low complexity selective mapping OFDM using multiple IFFT stages'.

Han, S. and Park, S. (this issue) 'A dynamic layer management scheme for a superpeer ring with a loosely-consistent DHT'.

Qi, D. and Muzio, J.C. (this issue) 'Non-linear test pattern generators for built-in self-test'.

Szymanski, T.H. and Gilbert, D. (this issue) 'Low jitter guaranteed-rate communications for cluster computing systems'.

Yang, J-M., Li, K.F. and Zhang, D-F. (this issue) 'Adaptive collaborative filtering based on user-genre-item relation'.