Editorial

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Biographical notes: Isaac Woungang received his MASc and PhD, all in Applied Mathematics from the Université du Sud, Toulon-Var, France, in 1990 and 1994 respectively. In 1999, he received his MASc from INRS-Materials and Telecommunications, University of Quebec, Canada. From 1999 to 2002, he worked as Software Engineer at Nortel Networks, Ottawa, Canada. Since 2002, he has been with Ryerson University, where he is now an Assistant Professor of Computer Science. In 2004, he founded DABNEL (the Distributed Applications and Broadband NEtworks Laboratory) R&D group, Ryerson University, Canada. His research interests are telecommunications network design, network security and computational intelligence applications in telecommunications.

The last two decades have witnessed a rapid growth in research on communication networks and distributed systems. *The International Journal of Communication Networks and Distributed Systems* (*IJCNDS*) have been launched to provide a medium for researchers in these areas to publish state-of-the-art research results. The objective is to enable the international research community to help learn the research advancements in this area from each other's work.

IJCNDS is initially planned to be released at the rate of four issues per year. We are now in the second year of publication. We are pleased to present the first issue of the second volume of the Journal, which has seven papers.

The first of these papers is entitled 'Revisiting multipoint relay selection in the optimised link state routing protocol', and is authored by Gantsou et al. The authors investigated the problem of selecting multipoint relays (MPR) in the OLSR protocol, with the goal to reduce the number of redundant retransmissions when dealing with messages broadcast in wireless networks. This problem has been commonly solved through heuristics. Unlike previous solutions, the authors of this paper proposed a solution that includes both a heuristic and a MPR selection model combined with a novel graph exploration technique. They compared their heuristic against existing MPR selection heuristic by solving the aforementioned MPR selection model. They used the CPLEX Callable Library package to establish the effectiveness of their solution compared to existing ones.

Wang et al. studied the problem of spreading packets delivery over multiple paths in a multi-hop sensor network, when considering the energy consumption cost of the whole network rather than that resulting from a single packet delivery. They proposed an analytical model and a routing technique that complement existing probabilistic routing methods. In addition to achieving multiple paths establishments, their model is capable to predict the network lifetime estimate when spreading the traffic through the paths. The authors used simulation to validate their proposed model and show its effectiveness.

Tan et al. studied how to improve fairness in TCP Reno. They proposed a new model of network optimisation problem, where the bandwidth allocation among TCP Reno flows is expressed as the objective function and the requirements of fairness are interpreted as constraints. They used simulation to study the performance of their model and show the effectiveness of their solution.

The paper authored by Rui Teng studied the problem of node addressing in self-organised sensor networks. This paper proposed a novel node addressing auto-configuration scheme for sensor networks. Unlike previous methods, the proposed one is capable of achieving low configuration conflicts and overhead, as well as automatic configuration of node addressing. The author has demonstrated the effectiveness of its proposed scheme through simulation. The primary performance metrics used are the address reconfiguration times, the load difference ratio, and the configuration overhead ratio.

In their paper, Turau et al. explored the idea of using the self-stabilisation concept for achieving fault-tolerance in wireless sensor networks. They proposed a method that can be used to derive self-stabilising algorithms suitable for wireless sensor networks from self-stabilising algorithms designed for the central daemon scheduler. Their proposed method (transformer) turns out to be a generalisation of existing problem-specific solutions for graph algorithms. Using a Java-based simulation package, the authors have demonstrated the superiority of their proposed transformer compared to existing transformers. The comparison is performed through an analysis of the stabiliser behaviour associated with each transformer.

De Oliveira et al. investigated the problem of intrusion detection and revocation (IDR) in wireless sensor networks, with a goal to increase the network resilience in the presence of intruders. The authors proposed an IDR solution in the form of a routing algorithm. This algorithm combines a multiple paths setting strategy, an alternative data forwarding mechanism, and an intruder node revocation method. Unlike previous solutions, the proposed one is capable of dealing with all denial of service attacks that suppress the routing service. The authors have established the effectiveness of their proposed IDR solution by simulation, using the power consumption as their primarily performance metric.

In the last paper in this issue, the authors, Trivedi, Iyengar and Balakrishnan, studied the problem of self-organisation and self-healing of wireless sensor and actor networks (WSANs). Their solution is a deterministic and unified approach-based algorithm, which addresses the unique requirements of WSANs with mobile actor nodes. They proposed a theoretical analysis framework and used it to assess the algorithm properties and evaluate its coverage properties. The authors have established through simulations the superiority of their proposed algorithm over existing benchmark algorithms. The performance criterion that they primarily considered is the message efficiency.

We hope that the readers of this issue 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 works. We are also very much thankful to the members of the Editorial Board for their support in planning the Journal and reviewing several papers. Last, but not the least, we would like to thank the staff of Inderscience, including but not limited to,

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