EDITORIAL

Special issue "The convergence of Evolutionary Intelligence and Networking"

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Networking is among most proliferative fields of research of Internet-based systems. As a large umbrella of a number of paradigms, including Wireless Sensor Networks, Mobile Networks, Cellular Networks, Vehicular Networks, IoT networks, etc., to it converge all kinds of scientific and engineering disciplines making it a fully interdisciplinary research field. The bottom line of most approaches to solving issues and challenges in networking systems include some form of *intelligence* to design, implement, deploy and use networking systems that meet a variety of demanding requirements on hardware, software and applications. Among such requirements we could list energy-aware networking, support to real-time networking, efficient communication at large scale, secure networking, performance and optimization. A whole array of intelligent methods is thereof used to successfully address such requirements.

This special issue addresses a multidisciplinary perspective on several networking problems where various intelligent methods are used and converge to achieve the intelligent networking view. It comprises five papers, which are arranged and summarized as follows.

The first paper "*Energy Consumption Laxity-Based Quorum Selection for Distributed Object-Based Systems*" by Enokido et al. discusses energy-aware algorithms for distributed applications based on laxity-based quorum selection to reduce the overhead of computations. By simulation and experimental study, the empirical results show the efficiency of the proposed algorithm for reducing energy consumption.

Şentaş et al. in the second paper "*Performance Evaluation of Support Vector Machine and Convolutional Neural Network Algorithms in Realtime Vehicle Type and Color Classification*" present a system for traffic management and flow based on video cameras for traffic observation. Their system is developed in the context of Vehicular Networks by using real-time object detection and classification system and Support Vector Machine (SVM) classifier model in terms of recall, precision, and intersection over union performance metrics. Experimental results show that two methods can be used to classify real-time streaming traffic video data.

The third paper by Shinki et al. "*Message Broadcasting by Opportunistic Communication on Unit Disk Graphs*" motivate the usefulness of opportunistic network as a key technology in the area of information sharing, disaster evacuation guidance in Delay-Tolerant Networks (DTNs), Vehicular Ad Hoc Networks (VANETs), etc.

The authors investigate the importance and correlation of movement pattern to the efficiency of opportunistic communication. By assuming movement on a unit disk graph, the impact of the movement patterns based on Lévy walk and Homesick Lévy walk to the efficiency of message broadcasting is studied.

In the fourth paper, "*Implementation of adaptive scheme in evolutionary technique for anomaly-based intrusion detection*", Dwivedi et al., propose a technique for anomaly-based intrusion detection by combining Ensemble of Feature Selection and Adaptive Grasshopper Optimization Algorithm (AGOA) methods. AGOA on its turn uses the Support Vector Machine as a fitness function to choose the extremely efficient features and to maximize the classification performance. The performance of the proposed hybrid method has been evaluated on intrusion data set ISCX 2012.

Wang et al. in the fifth paper, "*A Construction of Smart City Evaluation System based on Cloud Computing Platform*" bring a platform for evaluating and optimizing smart city applications. To that end, a set of indexes included in smart city and the relation among them are at the core of the proposed smart city evaluation indexes system for optimization strategy. An application-oriented cloud computing platform is design to improve the evaluation results and maximize the capacity of smart cities

List of papers of this special issue

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1. Energy Consumption Laxity-Based Quorum Selection for Distributed Object-Based Systems

    Tomoya Enokido, Dilawaer Duolikun, Makoto Takizawa

2. Performance Evaluation of Support Vector Machine and Convolutional Neural Network Algorithms in Realtime Vehicle Type and Color Classification

    Ali Şentaş, Isabek Tashiev, Fatmanur Küçükayvaz, Seda Kul, Süleyman Eken,Ahmet Sayar, Yaşar Becerikli

3. Message Broadcasting by Opportunistic Communication on Unit Disk Graphs

    Kenya Shinki, Kouichirou Sugihara, Naohiro Hayashibara

4. Implementation of adaptive scheme in evolutionary technique for anomaly-based intrusion detection

    Shubhra Dwivedi, Manu Vardhan, Sarsij Tripathi, Alok Kumar Shukla

5. A Construction of Smart City Evaluation System based on Cloud Computing Platform

    Changhao Wang, Shining Li, Tao Cheng, Bingqi Li

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