Editorial

After the Special Issue on Emerging Web Technologies and Applications, which started Vol. 23, the second issue of *CIT. Journal of Computing and Information Technology* publishes a number of papers from its regular section along with another one originating from the *16th International Conference on Human-Computer Interaction – HCI International 2014*. The research areas tackled by these papers encompass those of wireless sensor networks, data warehousing, software project management, as well as logistics and facial recognition. The issue ends with a paper on eye tracking based interaction in e-learning systems.

The first of the regular papers is titled *"Trust Integrated Congestion Aware Energy Efficient Routing for Wireless Multimedia Sensor Networks (TCEER)"*. The authors, Arpita Chakraborty, Srinjoy Ganguly, Mrinal Kanti Naskar and Anupam Karmakar, propose a new network congestion algorithm for wireless multimedia sensor networks, which monitors and isolates security attacks from malicious nodes, hence allowing controlling and maintaining an acceptable level of network congestion, as required in this type of networks. The algorithm thus allows for the selection of a neighboring node for the next data hop, until reaching the base station, through assessing its trust value by calculating the respective node potential parameter using a fuzzy logic controller. The results show that the algorithm not only controls congestion, but also is energy efficient.

In the second paper by Sk. Md. Masudul Ahsan and K. M. Azharul Hasan, titled *"Segment Oriented Compression Scheme for MOLAP Based on Extendible Multidimensional Arrays"*, data compression of multidimensional arrays is being tackled. The authors propose a new efficient data compression technique which is based on the notion of extendible array. The main idea of the scheme is to compress each of the segments of the extendible array using position information only. The proposed scheme is compared for different performance issues with prominent compression schemes, showing itself as a very efficient solution when dynamic extension of the array is an issue.

The paper *"Modelling and Evaluating Software Project Risks with Quantitative Analysis Techniques in Planning Software Development"* by Abdelrafe Elzamly and Burairah Hussin focuses on modeling and risk evaluation in planning software development. The authors present a new technique based on stepwise regression analysis, which addresses these issues along with reducing the risk in software process improvement. Top ten software risk factors in planning the software development phase along with thirty control factors were presented to respondents consisting of a group of software project managers, and the collected data were analyzed afterwards. The results of this analysis provide a better understanding of correlation between risk factors and risk management techniques.

In their paper titled *"A Generalized Island Model Based on Parallel and Cooperating Metaheuristics for Effective Large Capacitated Vehicle Routing Problem Solving"*, Meryem Ammi and Salim Chikhi tackle the issue of ensuring an effective distribution over a large distribution network while reducing the required costs, which is one of the foremost concerns in logistics. Basing on their prior work on parallel meta-heuristics and heuristics for solving vehicle routing problems, they develop a cooperative meta-heuristics based on a generalized island model: different genetic algorithms and ant colony system algorithms are located on separate islands, and islands are organized

into archipelagos. The involved algorithms communicate synchronously, globally and locally through exchanging solutions. The synergic work between islands and archipelagos leads then to considerable improvements in the results obtained.

Hidden Markov models (HMMs) for representing temporal relations between facial features in the context of human facial expression recognition are considered by Khadoudja Ghanem, Amer Draa, Elvis Vyumvuhore and Arsene Simbabawe in their paper *"Differential Evolution to Optimize Hidden Markov Models Training: Application to Facial Expression Recognition"*. The paper contributes to the investigation of suitability of differential evolution as a tool to optimize HMM training. Three variants of differential evolution have been compared to the known Baum-Welch algorithm, with the obtained experimental results indicating an improvement in recognition results on public datasets Cohn-Kanade, MMI and Semaine.

The last paper in this issue is published in agreement with the organizers of the 16th International Conference on Human-Computer Interaction – HCI International 2014. *"Eye Tracking and Studying Examples: How Novices and Advanced Learners Study SQL Examples"* by Amir Shareghi Najar, Antonija Mitrovic and Kourosh Neshatian is the extended and consistently modified version of the presentation given within the Conference's Parallel Session HCI in Support of the Age of Learning. In the paper the authors address the way novices vs. advanced students study teaching matter presented through an Intelligent Tutoring System (ITS) supporting SQL teaching. The paper provides a detailed description of the use of an advanced HCI modality, namely eye tracking, as the apparatus for gathering experimental data on students' behavior, as well as its commented analysis. The authors identified a number of eye-gaze patterns detected during the learners' study of the presented worked examples, which they subsequently grouped into so-called eye-gaze behaviors, eventually establishing a clear distinction between the two aforementioned learners' classes.

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