Editorial

The fourth issue (December 2016) of *CIT. Journal of Computing and Information Technology* comprehends five papers from the broad areas of theoretical computer science, artificial intelligence, machine learning and information integration.

The paper *Efficient Implementation for Deterministic Finite Tree Automata Minimization* by Younes Guellouma and Hadda Cherroun belongs to theoretical computer science, more precisely, to automata theory. An important issue within this theory is automata minimization, i.e. designing automata with desired properties whose number of states is as small as possible. Although this issue has been studied relatively extensively for ordinary finite automata, it hasn't got so much attention for tree automata. The paper describes a new method for deterministic tree automata minimization that involves treating the automaton as a graph. The method is based on finding equivalent states in an automaton by using algorithms for detection of strongly connected graph components. In this way, the paper produces an improvement of current state-of-the-art algorithms for minimization of tree automata.

In the paper *Modeling Topological Relationships between Fuzzy Spatio-Temporal Objects*, the authors Haitao Cheng and Fu Zhang present an approach to modeling fuzzy spatio-temporal objects and describing the relationships among them, targeting its possible application in spatio-temporal databases and geographic information systems (GIS). The modeled objects include moving fuzzy points, moving fuzzy lines and moving fuzzy regions. The approach also supports describing fuzzy relationships between such objects. The paper presents an extension of the SQL language based on such theory, with a possible application in GIS and spatio-temporal databases.

Cheah Wai Shiang, Bong Tien Onn, Fu Swee Tee, Muhammad Asyraf bin Khairuddin and Msury Mahunnah present an application of agent-oriented methodology (AOM) to the development of a system for automated video surveillance in their paper *Developing Agent-Oriented Video Surveillance System through Agent-Oriented Methodology (AOM)*. Although AOM is claimed to be able to cope with complex system development, this claim has not been thoroughly verified up to now. The main contribution of the paper is verification of this claim in the case of a complex agent-based surveillance and intruder handling system. The paper presents a detailed description of all the stages of the AOM methodology for this scenario, as well as a JADE implementation of the system.

In their paper *Microcanonical Annealing and Threshold Accepting for Parameter Determination and Feature Selection of Support Vector Machines*, Seyyid Ahmed Medjahed, Tamazouzt Ait Saadi, Abdelkader Benyettou and Mohammed Ouali propose two novel approaches to the popular SVM classification technique, aiming to determine the optimal parameters and the smallest subset of features that improve the classification accuracy rate in medical diagnosis. The first approach, called MA-SVM (Microcanonical Annealing – Support Vector Machine), is a modification of the MA algorithm, while the second one, called TA-SVM (Threshold Accepting – Support Vector Machine), uses the TA algorithm. The results obtained applying these approaches on both UCI Machine Learning Repository datasets and DNA microarray datasets show that MA-SVM improves the classification accuracy rates by removing trivial or insignificant features and effectively finds better parameters values, while TA-SVM is suitable for datasets with a small number of features.

The paper *Integrating Ontological Data Sources Using Viewpoints-Based Approach* by Bouchra Boulkroun, Fouzia Benchikha and Chahinez Bachtarzi targets information integration from multiple heterogeneous data sources within the Internet. Basing on the observation that existing onto-

logy-based approaches do not support the aspect of data multi-representations, which is important in the development of multi-user applications, the authors address a novel semantic integration approach based both on ontologies and on viewpoints paradigms, which is the main contribution of this paper. On the grounds of the proposed integration methodology, the architecture of a unified and integrated system is defined which uses two kinds of mediators for managing user queries.

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