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Editorial

The last issue this year of *CIT*'s Vol.25 brings four papers from the areas of Service-Oriented Architectures (SOA), multi-agent systems, data mining and machine learning.

Service Oriented Architectures (SOA) are considered as a standard for enterprise software development, allowing for dynamic discovery and composition of software services in a heterogeneous environment. Within such a framework, fault management represents a significant challenge which should be dealt with in SOA-based systems (SBS). In the first paper of the issue, titled *Extended Fault Taxonomy of SOA-Based Systems*, Prasad Bhandari and Ratneshwer Gupta consider fault management in SBSs. Basing on various previous efforts to tackle this issue, the authors address three important aspects, namely SOA cycle specific faults, distributed system faults, and faults related to non-functional system properties, by providing a respective taxonomy which can serve as a reference point to get a wider general understanding of possible faults that can occur in SBSs.

In the second paper of the issue, Guerram Tahar investigates the Pickup and Delivery Problem (PDP), which consists of the search of an optimal set of vehicles and respective routes, in order to pick up items from a set of origins and deliver them to another set of destinations. In the case of dynamic PDPs (DPDPs), characterized by unpredictable events like path cuts and/or vehicle failures occurring during PDP schedule execution, this latter has to be suitably revised. The author hence presents in his paper *A Multi Agent Based Organizational Architecture for Pickup and Delivery Problem* a multi-agent architecture, where agents are organized by groups and roles, and collaborate in order to find an optimal global solution for DPDP by optimizing a multi-objective function. The optimization process has two phases: grouping the requests over the vehicles and vehicle routing optimization. The proposed multi-agent architecture solves two possible problems that can occur in DPDP, namely path cut and vehicle failure and is illustrated by a case study.

The paper *An Efficient Rule-Hiding Method for Privacy Preserving in Transactional Databases* by Farsad Zamani Boroujeni and Doryaneh Hossein Afshari considers privacy preservation of association rules obtained from a dataset. The problem confronted in the paper results from the need to achieve an acceptable trade-off between data privacy and data mining, since a known obstacle in using data mining techniques such as association rules is the risk of leakage of sensitive data after the data is released to the public. The approach taken by the authors to preserve the privacy of association rules is based on hiding sensitive association rules through deletion and reinsertion of items in the database. Reduction of side effects on non-sensitive rules is achieved by calculating item correlation between sensitive and non-sensitive rules, subsequently selecting the item with the minimum influence in non-sensitive rules as the victim item, while reduction of data distortion and preservation of data quality are accomplished by selecting modification transactions with the highest number of sensitive items. The authors demonstrate favorable performance of their approach both on a non-dense real dataset and a synthetic dataset.

Sajidha Syed Azimuddin and Kalyani Desikan address an open issue in K means clustering which is initial seed concept selection. In their paper *A Simple Density with Distance Based Initial Seed Selection Technique for K Means Algorithm* they introduce a modification of the basic K means clustering algorithm through non-random selection of initial seed concepts, which consists in selecting initial seed concepts by taking into account both density and distance of concepts in a data-

set. The selection is performed in a single pass so that the next seed is taken from the densest region which is well separated from the previously selected seed, hence efficiently solving the problem of outliers. Comparison with previously reported methods (interval-based, K means and K Means++) shows similar or better results on a number of datasets.

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