Editorial Preface

Business Process Driven Task Scheduling

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This regular issue of the International Journal of Web Services Research (IJWSR) collects five papers. The first paper, titled: Business Process Driven Trust-Based Task Scheduling, aims to resolve the issue of dynamically selecting appropriate cloud services in a hybrid cloud service system. Shu et al. proposed a business process (BP) driven task scheduling system by adopting a trust-based non-dominated sorting genetic algorithm (NSGA2) to solve the multi-objective task scheduling problem. A case study with simulated experiments is illustrated to show the usability and effectiveness of the proposed system.

In the second paper entitled: Automatic Dynamic Web Service Composition using AND/OR Directed Graphs, Elmaghraoui et al. proposed a dynamic web service composition approach based on representing the semantic relationship between web services using a weighted directed AND/OR graph. A set of dynamic optimization techniques were introduced to reduce the size of the graph and thus improve the scalability and performance of this approach. Besides the sequence and fork relations between services, this solution also supports the parallel relation. Furthermore, a recovery mechanism was integrated to ensure the continuity of the execution of the composition.

In the third paper, titled: Anomaly Detection Algorithm Based on Subspace Local Density Estimation, aims to resolve the challenges in the area of anomaly detection based on subspace local density estimation. Chunkai et al. proposed a novel multiple trident trees structure and split the data using 3 sigma principle for feature selection, and the evaluation instance densities were used as the anomaly scores. Experimental results show that the proposed method outperforms the state-of-art methods in effectiveness and efficiency.

The fourth paper, titled: A Novel Tagging Augmented LDA Model for Clustering, aims to deal with the issue that not all user-generated tags can provide useful information for clustering. Zhao et al. propose a clustering approach, named HRT-LDA (High Representation Tags Latent Dirichlet Allocation), by considering the effects of different tags on clustering performance. The proposed approach performs a tag filtering strategy and a tag appending strategy based on transfer learning, Word2vec, TF-IDF and semantic computing.

The fifth paper entitled: A Predictive and Evolutionary Approach for Cost-effective and Deadline-constrained Workflow Scheduling over Distributed IaaS Clouds, aims to resolve the task scheduling problem on virtual machines in cloud computing. Chen et al. employed a time-series-based prediction approach ARIMA to capture dynamic performance fluctuations of different tasks, which were executed on heterogeneous VMs from different IaaS clouds. They then used a Krill-Herd (KH) metaheuristic algorithm to yield the near-optimal scheduling plan. Experimental results show that their method outperforms traditional ones in terms of costs within given deadline constraints.

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