

Editorial Preface

Service Composition and Business Application

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This regular issue of the International Journal of Web Services Research (JWSR) collects five papers.

The first paper, titled “A Hybrid Meta-Heuristic Approach for QoS-Aware Cloud Service Composition,” aims to address the problems in QoS-aware service composition, such as slow convergence speed, a large number of calculations and falling into a local optimum. S.Bharath Bhushan *et al.* propose a hybrid particle swarm optimization (HPSO) technique combining particle swarm optimization (PSO) and fruit fly (FOA) to perform the evolutionary search process. The experimental results show that the proposed HPSO outperforms the simple particle swarm optimization algorithms regarding fitness value, execution time, and error rate.

The second paper is titled “OrientSTS-Spatio Temporal Sequence Searching for Trip Planning.” Chunjie Zhou *et al.* present a novel spatiotemporal sequence (STS) searching system with optimization algorithms for optimal personalized trip planning. By combining personal profiles and scene features, the system generates a set of weighted scenes of each city for each user, and it can retrieve the optimal sequence of scenes regarding distance, weight, visiting time, and scene features. The empirical results validate the efficiency of the proposed algorithms based on real datasets from social networks.

In the third paper titled “SF-APP: A Secure Framework for Authentication and Privacy Preservation in Opportunistic Networks,” Prashant Kumar *et al.* discuss the security challenges and threats to opportunistic networks. Aiming at the specific security requirements of opportunistic networks, they propose a Secure Framework for Authentication and Privacy Preservation (SF-APP) for opportunistic networks, as well as an algorithm that considers authentication, privacy preservation, and trust management. The security analysis of SF-APP and simulation results show that the proposed framework is capable of fulfilling the security requirements of opportunistic networks.

The goal of the fourth paper titled “Bertrand Oligopoly Competition in Composite Web Service Network” is to improve the profitability of the software-component economy. Rui Xu *et al.* present a congestion-aware demand model that makes several assumptions regarding the SaaS service marketplace, and they formulate the SaaS service providers’ pricing behaviors as a network Bertrand oligopoly competition. The critical game-theoretic analysis includes the existence and uniqueness of the pure strategy Nash equilibrium. Moreover, they provide one sufficient condition where if all SaaS service providers follow the best response strategy, the strategy profile converges to the unique pure strategy Nash equilibrium.

The fifth paper is titled “Probabilistic Classifier for Fashion Image Grouping Using Multi-layer Feature Extraction Model.” Seema Wazarkar *et al.* design a probabilistic classification model

composed of two parts to collect fashion-related images from social networks. The first part, feature extraction, considers six essential features to deal with the heterogeneous nature of the given images. The second part, classification algorithm, outputs a collection of homogeneous images with the help of probability computations. A comparative study of the proposed classification model with existing popular supervised and unsupervised classification approaches shows that this model is also useful for fashion trend analysis.

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