

Editorial Preface

Data Mashups and Service Composition

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This regular issue of the *International Journal of Web Services Research (IJWSR)* collects four papers.

In the first article entitled “Towards Rank-Aware Data Mashups,” Malki et al. focus on Top-k query processing in many emerging data retrieval applications. They proposed an approach that optimizes the evaluation of top-k queries over data services. The proposed approach uses two strategies, namely the Pipeline Parallel Strategy and Necessary Invocation Strategy, which aim to reduce the composition processing time and the number of unnecessary service invocations, respectively. The evaluation results proved that their strategies are effective.

In the second article entitled “Real-Time Weather Analytics: An End-to-End Big Data Analytics Service Over Apache Spark With Kafka and Long Short-Term Memory Networks,” Sendhilvel et al. focus on weather forecasting challenges. They developed a robust weather forecast model that automatically learns from the daily feed of weather data inputted through third-party API sources. The feed of weather data is sourced from OpenWeatherMap data provider and then streamed into the forecast model through Kafka components. An LSTM network used by the forecast model is designed to learn from predictions continuously and perform the actual analysis.

In the third article entitled “Context-Aware Web Service Clustering and Visualization,” Kumara et al. provide a novel solution to the challenge of service clustering. To structure models of context for terms retrieved from the Web, they proposed a context-aware similarity (CAS) method that learns domain context by machine learning. The CAS method analyzes the hidden semantics of services within a particular domain, and the awareness of service context helps to find cluster tensors that characterize the cluster elements. Experimental results show that their clustering approach works efficiently.

In the fourth article entitled “A Deep Q-Learning Network for Dynamic Constraint-Satisfied Service Composition,” Yu et al. focus on the challenge of service composition in dynamic scenarios. They proposed a novel solution by training a DQN network to replace the Q-table. The solution can model the uncertainty of services with fine-grained QoS attributes effectively and choose suitable candidate services to compose on the fly in dynamic scenarios. Experimental results on both artificial and real datasets demonstrate the effectiveness of the proposed method.

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Liang-Jie (LJ) Zhang received his Ph.D. on Pattern Recognition and Intelligent Control from Tsinghua University. Currently, he is the Chief Technology Officer (CTO) and Senior Vice President of Kingdee International Software Group Company Limited. Dr. Zhang has published more than 160 technical papers in journals, book chapters, and conference proceedings. He has 50 granted patents. He was elected as an IEEE Fellow in 2011, and in the same year won the Technical Achievement Award “for pioneering contributions to Application Design Techniques in Services Computing” from the IEEE Computer Society. He has served as the President of Shenzhen Big Data Alliance since 2013. Dr. Zhang is the Editor-in-Chief of the International Journal of Web Services Research (IJWSR).