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## Introduction

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**Biographical notes:** Liang Zhang is a Professor of Computer Science at Fudan University, China. He received his BS and PhD degrees in Computer Science from Wuhan University, China. He has published over 100 journal and conference papers concerning multimedia databases, digital library, web services, and recently business process management (BPM). His current research interests include XaaS infrastructure for CPS, and instantaneous collaborative workflows for virtual organizations. His research has been supported by NSFC and other national agencies.

Mingjun Xin is a Professor in the School of Computer Engineering and Science, Shanghai University. He received his PhD from School of Computer Science and Technology, Northwestern Polytechnical University, Xi'an China in 2001. His research interests are location-based social networks, mobile service computing, intelligent decision support system and AI applications.

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This special issue consists of eight research works selected from one invited paper and seven accepted papers of the 11th International Conference on Service Science (ICSS 2018).

ICSS 2018 was held at Shanghai University, Shanghai, China from May 11 to 13, 2018. Service computing has become a cross-discipline topic that covers the science and technology to bridge the gap between business services and IT services. The whole life-cycle of services innovation research mainly includes services modelling and creation, services annotation, services discovery and selection, services composition, services delivery, service-to-service collaboration, services monitoring, services optimisation, services recommendation, as well as services management. ICSS 2018 aimed to bring together scholars and students, researchers and managed from service-related academics and industries for intellectual exchanges, research cooperation, education and professional development. ICSS 2018 attracted a lot of submissions and each of them was peer-reviewed by at least three reviewers. Among these accepted papers, high quality research works were recommended to the special issue of *IJITM*.

The eight papers cover diverse research issues, including service collaboration prediction, cloud service (two papers), log automaton, caching strategy, intelligent domain sentiment lexicon construction and learning, context-dependent word embedding learning, and point of interest recommendation.

In ‘Predicting service collaboration for users based on data variation patterns’, the authors proposed a novel deep recurrent neural network that runs in a centralised service to predict future services collaboration and their generated data. It can deal with the issue of coordinating different services based on data correlation.

In ‘Comprehensive evaluation of cloud services based on fuzzy grey method’, the authors proposed a novel trust comprehensive evaluation method for cloud services and user satisfaction for the better selection of suitable providers based on grey relational analysis, which provides a solution to comprehensively evaluation of reliability and performance of cloud providers and services in dynamic environment with uncertainty.

In ‘Log automaton under conditions of infrequent behaviour mining’, the authors proposed a log automaton method by retaining the effective infrequent log to optimise the model, which fully considers the important role of infrequent behaviours in business process management.

In ‘A caching strategy based on dynamic popularity for named data networking’, the authors proposed a dynamic popularity caching strategy called DPCA based on additive increase multiplicative decrease for named data networking, which handles the limitation and effectiveness of cache capacity in routers.

In ‘A construction and self-learning method for intelligent domain sentiment lexicon’, the authors proposed a novel method of building intelligent sentiment lexicon based on LDA and word clustering, which promotes the applications of sentiment prediction service.

In ‘Learning context-dependent word embeddings based on dependency parsing’, the authors proposed a novel dependency-based continuous bag-of-words (DCBOW) model. It integrates the dependency relationships between words and sentences into the context by weights, which increases the abundance of word context information and enhances the semantics of word embeddings for text processing tasks.

In ‘A recommendation algorithm for point of interest using time-based collaborative filtering’, the authors proposed a time-based collaborative filtering algorithm for recommending point of interest according to the similarity between users combining the global similarity during a long period and local similarity within a short time interval. It considers the signification of time factor for point of interest recommendation in location-based social networks.

In ‘A dynamic programming-based approach for cloud instance type selection and optimisation’, the authors proposed a dynamic programming-based approach for users to select the optimal combination of cloud instance type from potentially large quantity of cloud instance types in the public cloud market.

In conclusion, the goal of this special issue is to explore the emerging information technology and management activities into positive efforts in web services. We hope that the novel research contribution of the papers in this special issue will provide interesting insights for further advancements in the fusion of Service Science and Information Technology.