Introduction

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Biographical notes: Jian Cao received his PhD from Nanjing University of Science and Technology in 2000. He is currently a tenured a Professor with Department of Computer Science and Engineering at Shanghai Jiaotong University (SJTU), China. His research interests include intelligent data analytics, service computing and network computing. He has published over 200 papers in referred conference and journals such as *SIGKDD*, *IJCAI*, *AAAI*, *VLDB*, *WWW*, *INFOCOM*, *TMC*, *TOIS*, *TPDS* and *TKDD*. He undertook more than ten projects funded by National High Technology Research and Development Plan and National Natural Science Foundation of China. His research projects are also widely founded by many industry partners including Ctrip, Morgan Stanley, Docomo, Samsung, and Shanghai International Port Group, to name but a few. His research has won eight provisional Science and Technology Progress Awards.

Guobing Zou received his PhD in Computer Science from Tongji University, Shanghai, China in 2012. He is currently an Associate Professor and Dean of the Department of Computer Science and Technology, Shanghai University, China. He has worked as a Visiting Scholar in the Department of Computer Science and Engineering at Washington University in St. Louis from 2009 to 2011, USA. His research interests focus on services computing, edge computing, data mining, intelligent algorithms and recommender systems. He has published more than 70 papers on premier international journals and conferences, such as IEEE TSC, JWSR, IEEE ICWS, ICSOC and IEEE SCC. He is a member of Technical Committee of Services Computing, China Computer Federation (CCF TCSC).

This special issue consists of seven research works selected from the accepted papers of the 11th International Conference on Service Science (ICSS 2018), which was held at Shanghai University, Shanghai, China from May 11 to 13, 2018.

Service computing has become a cross-discipline that covers the science and technology of bridging 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 attracted a lot of submissions and each one was peer-reviewed by three reviewers. Among the accepted papers, seven high quality research works were recommended to this special issue.

The seven papers cover diverse research issues, including service composition and selection, service recommendation (two papers), elderly care service, abstraction scopes identification service, big data application service, and BPEL process service.

In 'An approach for composite service selection based on the records of request/matching', the authors proposed a service process selection method for effective service composition, which is driven by historical successful service request/matching solutions. In 'An approach to the mobile social services recommendation algorithm based on association rules mining', the authors exploited the association rules by introducing the mobile users' location information to the collaborative filtering recommendation process. The filtered rules are integrated into the similarity matrix for mobile social services recommendation.

In 'CKGECS: a Chinese knowledge graph for elderly care service', the authors proposed a new knowledge processing and fusion method to construct the Chinese knowledge graph for elderly care service. In 'An approach for identifying the abstraction scopes of business process Petri nets system using binary search tree', the authors proposed a search-tree-based abstraction scope identification method for a business process model, which is founded on the basis of behavioural relation theory of Petri nets and the depth-first search ideas.

In 'Provisioning big data applications as services on containerised cloud: a microservices-based approach', the authors proposed a method for dynamically provisioning big data applications as services on containerised cloud, by optimising the whole lifecycle of big data applications in a holistic manner with the adoption of microservices methodologies. In 'Detect and analyse the concurrent flaws of the BPEL process in a VPN-based approach', the authors proposed a new modelling method for BPEL process by using a novel Petri net named variable Petri net (VPN). Several analysis methods are proposed to verify the concurrent flaws and an automated transformation and analysis tool is developed.

In 'Resource-constrained O2O service recommended strategy research', the authors proposed a group of O2O service recommendation strategies from the prospect of supply and demand matching. The adaptive adjustment mechanism based on current supply and demand conditions is conductive to improve the effectiveness of O2O service recommendation so as to increase profit of the merchant and improve user experience.

In conclusion, the goal of this special issue is to explore the emerging challenges, technologies and trends into positive efforts in AI services. We hope that the novel research contributions of the papers in this special issue will provide interesting insights for further advancements in the fusion of service science and artificial intelligence.