# **Table of Contents**

# International Journal of Web Services Research

Volume 15 • Issue 2 • April-June-2018 • ISSN: 1545-7362 • eISSN: 1546-5004

An official publication of the Information Resources Management Association

#### **Editorial Preface**

#### v Service Composition and Business Application

Liang-Jie Zhang, Kingdee International Software Group, Shenzhen, China

### **Research Articles**

### 1 A Hybrid Meta-Heuristic Approach for QoS-Aware Cloud Service Composition

S. Bharath Bhushan, SITE, VIT University, Vellore, India Pradeep C. H. Reddy, VIT-AP University, Amaravati, India

#### 21 OrientSTS-Spatio Temporal Sequence Searching for Trip Planning

Chunjie Zhou, School of Information and Electrical Engineering, Ludong University, Yantai, China Pengfei Dai, Yantai Cloudoer Software Co., Ltd., Yantai, China Zhenxing Zhang, School of Information and Electrical Engineering, Ludong University, Yantai, China

### 47 SF-APP: A Secure Framework for Authentication and Privacy Preservation in Opportunistic Networks

Prashant Kumar, National Institute of Technology Hamirpur, India Naveen Chauhan, National Institute of Technology Hamirpur, India Narottam Chand, National Institute of Technology Hamirpur, India Lalit K. Awasthi, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, India

## 67 Bertrand Oligopoly Competition in Composite Web Service Network

Yu Wang, School of Management, University of Science and Technology of China, Hefei, Anhui, China Xinle Liang, School of Computer Science and Technology, University of Science and Technology of China, Hefei, Anhui, China

Rui Xu, School of Business, Hohai University, Nanjing, China

Chuang Liu, School of Management, University of Science and Technology of China, Hefei, Anhui, China Huaping Chen, School of Management, University of Science and Technology of China, Hefei, Anhui, China

### 89 Probabilistic Classifier for Fashion Image Grouping Using Multi-Layer Feature Extraction Model

Seema Wazarkar, National Institute of Technolgy Goa, Ponda, India Bettahally N. Keshavamurthy, National Institute of Technology Goa, Ponda, India Ahsan Hussain, National Institute of Technology Goa, Ponda, India

#### **COPYRIGHT**

The International Journal of Web Services Research (IJWSR) (ISSN 1545-7362; eISSN 1546-5004), Copyright © 2018 IGI Global. All rights, including translation into other languages reserved by the publisher. No part of this journal may be reproduced or used in any form or by any means without written permission from the publisher, except for noncommercial, educational use including classroom teaching purposes. Product or company names used in this journal are for identification purposes only. Inclusion of the names of the products or companies does not indicate a claim of ownership by IGI Global of the trademark or registered trademark. The views expressed in this journal are those of the authors but not necessarily of IGI Global.

The International Journal of Web Services Research is indexed or listed in the following: ABI/Inform; ACM Digital Library; Bacon's Media Directory; Burrelle's Media Directory; Cabell's Directories; Compendex (Elsevier Engineering Index); CSA Illumina; Current Contents®/Engineering, Computing, & Technology; DBLP; DEST Register of Refereed Journals; EBSCOhost's Library/Information Science & Technology Abstracts with FullTEXT; Gale Directory of Publications & Broadcast Media; GetCited; Google Scholar; INSPEC; JournalTOCs; Library & Information Science Abstracts (LISA); MediaFinder; Norwegian Social Science Data Services (NSD); PubList.com; SCOPUS; The Index of Information Systems Journals; The Standard Periodical Directory; Ulrich's Periodicals Directory; Web of Science; Web of Science Science Citation Index Expanded (SCIE)