# Table of Contents

## International Journal of Web Services Research

**Volume 18 • Issue 1 • January-March-2021 • ISSN: 1545-7362 • eISSN: 1546-5004**

### Editorial Preface

**v**  
**Web Services Enabled Blockchain**  
Liang-Jie Zhang, Kingdee International Software Group Co. Ltd., China

### Research Articles

1. **A Web Application-Based Secured Image Retrieval System With an IoT-Cloud Network**  
   Shikha Bhardwaj, Deenbandhu Chhotu Ram University of Science and Technology, India & University Institute of Engineering and Technology, Kurukshetra University, Haryana, India  
   Gitanjali Pandove, Deenbandhu Chhotu Ram University of Science and Technology, Haryana, India  
   Pawan Kumar Dahiya, Deenbandhu Chhotu Ram University of Science and Technology, Haryana, India

21. **A Novel Reinforcement-Learning-Based Approach to Workflow Scheduling Upon Infrastructure-as-a-Service Clouds**  
Peng Chen, Xihua University, China  
Yunni Xia, Chongqing University, China  
Chun Yu, Xihua University, China

34. **Clustering Mashups by Integrating Structural and Semantic Similarities Using Fuzzy AHP**  
Weifeng Pan, School of Computer Science and Information Engineering, Zhejiang Gongshang University, China  
Xinxin Xu, School of Computer Science and Information Engineering, Zhejiang Gongshang University, China  
Hua Ming, School of Engineering and Computer Science, Oakland University, USA  
Carl K. Chang, Department of Computer Science, Iowa State University, USA

58. **Blockchain-Empowered Big Data Sharing for Internet of Things**  
Ting Cai, Sun Yat-sen University, China  
Yuxin Wu, Guangdong Baiyun University, China  
Hui Lin, Sun Yat-sen University, China  
Yu Cai, Chongqing University of Posts and Telecom, China

### Open Access Article

70. **Investigation on Blockchain Technology for Web Service Composition: A Case Study**  
Sridevi S., PSG College of Technology, India  
Karpagam G. R., PSG College of Technology, India  
Vinoth Kumar B., PSG College of Technology, India  
Uma Maheswari J., PSG College of Technology, India

## COPYRIGHT

The *International Journal of Web Services Research (IJWSR)* (ISSN 1545-7362; eISSN 1546-5004), Copyright © 2021 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; Burrell’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; UGC-CARE List (India); Ulrich’s Periodicals Directory; Web of Science; Web of Science Science Citation Index Expanded (SCIE)