

Communications in Computer and Information Science

1157

Commenced Publication in 2007

Founding and Former Series Editors:

Phoebe Chen, Alfredo Cuzzocrea, Xiaoyong Du, Orhun Kara, Ting Liu,
Krishna M. Sivalingam, Dominik Ślęzak, Takashi Washio, Xiaokang Yang,
and Junsong Yuan

Editorial Board Members

Simone Diniz Junqueira Barbosa 

*Pontifical Catholic University of Rio de Janeiro (PUC-Rio),
Rio de Janeiro, Brazil*

Joaquim Filipe 

Polytechnic Institute of Setúbal, Setúbal, Portugal

Ashish Ghosh

Indian Statistical Institute, Kolkata, India

Igor Kotenko 

*St. Petersburg Institute for Informatics and Automation of the Russian
Academy of Sciences, St. Petersburg, Russia*

Lizhu Zhou

Tsinghua University, Beijing, China

More information about this series at <http://www.springer.com/series/7899>

Xin Wang · Francesca A. Lisi ·
Guohui Xiao · Elena Botoeva (Eds.)

Semantic Technology

9th Joint International Conference, JIST 2019
Hangzhou, China, November 25–27, 2019
Revised Selected Papers

Editors

Xin Wang 
Tianjin University
Tianjin, China

Guohui Xiao 
Free University of Bozen-Bolzano
Bolzano, Italy

Francesca A. Lisi 
University of Bari Aldo Moro
Bari, Italy

Elena Botoeva 
Imperial College London
London, UK

ISSN 1865-0929

ISSN 1865-0937 (electronic)

Communications in Computer and Information Science

ISBN 978-981-15-3411-9

ISBN 978-981-15-3412-6 (eBook)

<https://doi.org/10.1007/978-981-15-3412-6>

© Springer Nature Singapore Pte Ltd. 2020

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd. The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Preface

This is the second volume of the proceedings of the 9th Joint International Semantic Technology Conference (JIST 2019) held during November 25–27, 2019, in Hangzhou, China. JIST is a joint event for regional Semantic related conferences. Since its launched in Hangzhou in 2011, it has become the premium Asian forum on Semantic Web, Knowledge Graph, Linked Data, and AI on the Web. In 2019, JIST returned to Hangzhou, and the mission was to bring together researchers in the Knowledge Graph and Semantic Technology research community and other related areas to present their innovative research results and novel applications. This year’s theme was “Open Web and Knowledge Graph.”

The proceedings of JIST 2019 are presented in two volumes: the first one in LNCS and the second one in CCIS. The conference attracted high-quality submissions and participants from all over the world. There were 70 submissions from 8 countries. The Program Committee (PC) consisted of 52 members from 13 countries. Each PC has been assigned four papers on average and each submission was reviewed by at least three PC members. The committee decided to accept 24 full papers (34.3%) in volume 1 (LNCS) and 22 other papers (31.4%) in volume 2 (CCIS). In addition to the paper presentations, the program of JIST 2019 also featured three tutorials, three keynotes, one special forum on Open Knowledge Graph, and poster presentations.

We are indebted to many people who made this event possible. As the organizers of JIST 2019, we would like to express our sincere thanks to the PC members and additional reviewers for their hard work in reviewing the papers. We would also like to thank the sponsors, support organizations, all the speakers, authors, and participants for their great contributions. Last but not least, we would like to thank Springer for their support in producing these proceedings.

December 2019

Xin Wang
Francesca A. Lisi
Guohui Xiao
Elena Botoeva

Organization

General Chairs

Huajun Chen
Diego Calvanese

Zhejiang University, China
Free University of Bozen-Bolzano, Italy

Program Chairs

Xin Wang
Francesca A. Lisi

Tianjin University, China
Università degli Studi di Bari, Italy

Special Session Track Chairs

Kewen Wang
HakLae Kim

Griffith University, Australia
Jungang University, South Korea

Local Organizing Chairs

Qingpin Zhang
Wen Zhang

Zhejiang University, China
Zhejiang University, China

Industrial Forum Chair

Haofen Wang

Leyan Tech., China

Poster and Demo Chairs

Kang Liu
Chutiporn Anutariya

CASIA, China
Asian Institute of Technology, Thailand

Workshop Chairs

Yuan-Fang Li
Xianpei Han

Monash University, Australia
ISCAS, China

Tutorial Chairs

Xiaowang Zhang
Jiaoyan Chen

Tianjin University, China
Oxford University, UK

Sponsorship Chair

Jinguang Gu

Wuhan Science and Technology University, China

Proceeding Chairs

Guohui Xiao
Elena Botoeva

Free University of Bozen-Bolzano, Italy
Imperial College of London, UK

Publicity Chairs

Meng Wang
Naoki Fukuta

Southeast University, China
Shizuoka University, Japan

Program Committee

Carlos Bobed
Fernando Bobillo
Huajun Chen
Wenliang Chen
Gong Cheng
Dejing Dou
Jianfeng Du
Alessandro Faraotti
Naoki Fukuta
Jinguang Gu
Xianpei Han
Wei Hu
Ryutaro Ichise
Takahiro Kawamura

everis and NTT Data, Spain
University of Zaragoza, Spain
Zhejiang University, China
Soochow University, China
Nanjing University, China
University of Oregon, USA
Guangdong University of Foreign Studies, China
IBM, Italy
Academic Institute Shizuoka University, Japan
Wuhan University of Science and Technology, China
ISCAS, China
Nanjing University, China
National Institute of Informatics, Japan
National Agriculture and Food Research Organization,
Japan
Bosch Center for Artificial Intelligence and University
of Oslo, Norway
University of Aberdeen, UK
Osaka Electro-Communication University, Japan
Academy of Mathematics and Systems Science, CAS,
China
Monash University, Australia
Tsinghua University, China
Università degli Studi di Bari, Italy
Institute of Automation, CAS, China
NCEPU, China
National and Kapodistrian University of Athens,
Greece
Japan Advanced Institute of Science and Technology,
Japan

Evgeny Kharlamov

Martin Kollingbaum
Kouji Kozaki
Weizhuo Li

Yuan-Fang Li
Juanzi Li
Francesca A. Lisi
Kang Liu
Yinglong Ma
Theofilos Mailis

Riichiro Mizoguchi

Trina Myers	James Cook University, Australia
Jeff Z. Pan	University of Aberdeen, UK
Guilin Qi	Southeast University, China
Guozheng Rao	Tianjin University, China
Edelweis Rohrer	Universidad de la Republica, Uruguay
Tong Ruan	ECUST, China
Floriano Scioscia	Politecnico di Bari, Italy
Wei Shen	Nankai University, China
Jun Shen	University of Wollongong, Australia
Umberto Straccia	ISTI-CNR, Italy
Thepchai Supnithi	NECTEC, Thailand
Hideaki Takeda	National Institute of Informatics, Japan
Kerry Taylor	The Australian National University, Australia, and University of Surrey, UK
Xin Wang	Tianjin University, China
Meng Wang	Southeast University, China
Zhe Wang	Griffith University, Australia
Haofen Wang	Shanghai Leyan Technologies Co., Ltd., China
Shenghui Wang	OCRC Research, USA
Zhichun Wang	Beijing Normal University, China
Tianxing Wu	Nanyang Technological University, Singapore
Gang Wu	Northeastern University, China
Guohui Xiao	Free University of Bozen-Bolzano, Italy
Bin Xu	DCST, Tsinghua University, China
Xiang Zhang	Southeast University, China
Xiaowang Zhang	Tianjin University, China
Amal Zouaq	University of Ottawa, Canada

Additional Reviewers

Tonglee Chung	Yulin Shen
Shumin Deng	Sylvia Wang
Michel Gagnon	Kemas Wiharja
Yuhao He	Kang Xu
Zixian Huang	Lingling Zhang
Natthawut Kertkeidkachorn	Wen Zhang
Bao Zhu Liu	Leyuan Zhao
Juan Li	Qianru Zhou
Shutian Ma	Xiaoduo Zhou
Shirong Shen	

Contents

Building a Large-Scale Knowledge Graph for Elementary Education in China	1
<i>Wei Zheng, Zhichun Wang, Mingchen Sun, Yanrong Wu, and Kaiman Li</i>	
A Temporal Semantic Search System for Traditional Chinese Medicine Based on Temporal Knowledge Graphs	13
<i>Chengbiao Yang, Weizhuo Li, Xiaoping Zhang, Runshun Zhang, and Guilin Qi</i>	
Testing of Various Approaches for Semiautomatic Parish Records Word Standardization	21
<i>Jaroslav Rozman, David Hřibek, and František Zbořil</i>	
Concept Similarity Under the Agent's Preferences for the Description Logic <i>ALCH</i>	34
<i>Teeradaj Racharak, Watanee Jearanaiwongkul, and Chutiporn Anutariya</i>	
Data Quality for Deep Learning of Judgment Documents: An Empirical Study	43
<i>Jiawei Liu, Dong Wang, Zhenzhen Wang, and Zhenyu Chen</i>	
Aligning Sentences Between Comparable Texts of Different Styles	51
<i>Xiwen Chen, Mengxue Zhang, and Kenny Qili Zhu</i>	
An In-depth Analysis of Graph Neural Networks for Semi-supervised Learning	65
<i>Yuyan Chen, Sen Hu, and Lei Zou</i>	
XTransE: Explainable Knowledge Graph Embedding for Link Prediction with Lifestyles in e-Commerce	78
<i>Wen Zhang, Shumin Deng, Han Wang, Qiang Chen, Wei Zhang, and Huajun Chen</i>	
Feasibility Study: Rule Generation for Ontology-Based Decision-Making Systems	88
<i>Juha Hovi and Ryutaro Ichise</i>	
Attention-Based Direct Interaction Model for Knowledge Graph Embedding	100
<i>Bo Zhou, Yubo Chen, Kang Liu, and Jun Zhao</i>	

Discovering Hypernymy Relationships in Chinese Traffic Legal Texts.	109
<i>Peng Gao, Xiang Zhang, and Guilin Qi</i>	
Multi-task Learning for Attribute Extraction from Unstructured Electronic Medical Records	117
<i>Ming Du, Minmin Pang, and Bo Xu</i>	
Uncertain Ontology-Aware Knowledge Graph Embeddings	129
<i>Khaoula Boutouhami, Jiatao Zhang, Guilin Qi, and Huan Gao</i>	
Investigating Schema Definitions Using RDFS and OWL 2 for RDF Databases in Life Sciences	137
<i>Atsuko Yamaguchi, Tatsuya Kushida, Yasunori Yamamoto, and Kouji Kozaki</i>	
RQE: Rule-Driven Query Expansion to Solve Empty Answers in SPARQL. . . .	145
<i>Xinze Lyu and Wei Hu</i>	
Aspect-Level Sentiment Analysis of Online Product Reviews Based on Multi-features	161
<i>Binhui Wang, Ruiqi Wang, Shujun Liu, Yanyu Chai, and Shusong Xing</i>	
A Seq2seq-Based Approach to Question Answering over Knowledge Bases . . .	170
<i>Linjuan Wu, Peiyun Wu, and Xiaowang Zhang</i>	
Building Knowledge Graph Across Different Subdomains Using Interlinking Ontology for Biomedical Concepts.	182
<i>Kouji Kozaki, Tatsuya Kushida, Yasunori Yamamoto, and Toshihisa Takagi</i>	
WPQA: A Gaming Support System Based on Machine Learning and Knowledge Graph.	191
<i>Luwei Wang, Yan Tang, and Jie Liu</i>	
Combining Concept Graph with Improved Neural Networks for Chinese Short Text Classification	205
<i>Jialu Liao, Fanke Sun, and Jinguang Gu</i>	
Construction of Chinese Pediatric Medical Knowledge Graph.	213
<i>Yu Song, Linkun Cai, Kunli Zhang, Hongying Zan, Tao Liu, and Xiaohui Ren</i>	
EasyKG: An End-to-End Knowledge Graph Construction System	221
<i>Yantao Jia, Dong Liu, Zhicheng Sheng, Letian Feng, Yi Liu, and Shuo Guo</i>	
Author Index	229