

Springer Proceedings in Complexity

For further volumes:
<http://www.springer.com/series/11637>

Lorna Uden · Leon S. L. Wang
Tzung-Pei Hong · Hsin-Chang Yang
I-Hsien Ting
Editors

The 3rd International Workshop on Intelligent Data Analysis and Management

 Springer

Editors

Lorna Uden
School of Computing
Staffordshire University
Stafford
UK

Hsin-Chang Yang
National University of Kaohsiung
Kaohsiung
Taiwan, R.O.C.

Leon S. L. Wang
College of Management
National University of Kaohsiung
Kaohsiung
Taiwan, R.O.C.

I-Hsien Ting
Department of Information Management
National University of Kaohsiung
Kaohsiung
Taiwan, R.O.C.

Tzung-Pei Hong
Department of Computer Science and
Information Engineering
National University of Kaohsiung
Kaohsiung
Taiwan, R.O.C.

ISSN 2213-8684

ISSN 2213-8692 (electronic)

ISBN 978-94-007-7292-2

ISBN 978-94-007-7293-9 (eBook)

DOI 10.1007/978-94-007-7293-9

Springer Dordrecht Heidelberg New York London

Library of Congress Control Number: 2013944207

© Springer Science+Business Media Dordrecht 2013

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. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law. 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.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

Data analysis is a process of inspecting, cleaning, transforming, and modeling data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Data management is the development, execution and supervision of plans, policies, programs and practices that control, protect, deliver, and enhance the value of data and information assets. Data analysis and data management both have multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains. Intelligent Data Analysis and Management (IDAM) examines issues related to the research and applications of Artificial Intelligence techniques in data analysis and management across a variety of disciplines. It is an interdisciplinary research field involving academic researchers in information technologies, computer science, public policy, bioinformatics, medical informatics, and social and behavior studies, etc. The techniques studied include (but are not limited to): Data visualization, data pre-processing, data engineering, database mining techniques, tools and applications, evolutionary algorithms, machine learning, neural nets, fuzzy logic, statistical pattern recognition, knowledge filtering, and post-processing, etc.

On June 8, 2012 the IDAM was first held in College of Management, National University of Kaohsiung and the second IDAM was held on May 17, 2013. The third IDAM gathers people from previously disparate communities to provide a stimulating forum for exchange of ideas and results. We invite academic researchers (in information technologies, computer science, business and organizational studies, and social studies), as well as information technology companies, industry consultants, and practitioners in the fields involved.

The IDAM proceedings consist of 15 papers covering different aspects of Intelligent Data Analysis and Management. Authors of the papers come from many different countries such as Australia, India, Korea, Singapore, and Taiwan.

We would like to thank our authors, reviewers, and program committee for their contributions and the National University of Kaohsiung for hosting the conference.

Without their efforts, there would be no conference or proceedings.

Kaohsiung, Taiwan, September 2013

Lorna Uden
Leon S. L. Wang
Tzung-Pei Hong
Hsin-Chang Yang
I-Hsien Ting

Organizations

Conference Chair

Prof. Lorna Uden—Staffordshire University, UK

Program Chairs

Prof. Leon S. L. Wang—National University of Kaohsiung, Taiwan

Prof. Tzung-Pei Hong—National University of Kaohsiung, Taiwan

Local Chairs

Prof. Hsin-Chang Yang—National University of Kaohsiung, Taiwan

Prof. I-Hsien Ting—National University of Kaohsiung, Taiwan

Organization Committee

Prof. Chian-Hsueng Chao—National University of Kaohsiung, Taiwan

Prof. Han-Wei Hsiao—National University of Kaohsiung, Taiwan

Prof. Ying-Feng Kuo—National University of Kaohsiung, Taiwan

Prof. Hsing-Tzu Lin—National University of Kaohsiung, Taiwan

Prof. Yu-Hui Tao—National University of Kaohsiung, Taiwan

Prof. Kai Wang—National University of Kaohsiung, Taiwan

Prof. Chen-Hsing Wu—National University of Kaohsiung, Taiwan

Prof. Shu-Cheng Yang—National University of Kaohsiung, Taiwan

Ms. Ming-Jun Chen—National University of Kaohsiung, Taiwan

Program Committee

- Prof. Ajith Abraham—Machine Intelligence Research Labs, USA
Prof. Daminda Alahakoon—Monash University, Australia
Prof. Chien-Chung Chan—University of Akron, USA
Prof. Bo-Rong Chang—National University of Kaohsiung, Taiwan
Prof. Ping-Tsai Chung—Long Island University, USA
Prof. Seng-Cho Chou—National Taiwan University, Taiwan
Prof. Saman Halgamuge—University of Melbourne, Australia
Prof. Liang-Cheng James Huang—Academia Sinica, Taiwan
Prof. Han-Wei Hsiao—National University of Kaohsiung, Taiwan
Prof. Hui-Yin Hsu—New York Institute of Technology, USA
Prof. Yada Katsutoshi—Kansei University, Japan
Prof. Tsau-Young Lin—San Jose State University, USA
Prof. Wen-Yang Lin—National University of Kaohsiung, Taiwan
Prof. Pawan Lingras—Saint Marys University, Canada
Prof. Victor Lu—St. John's University, USA
Prof. Javier Bajo Perez—Polytechnic University of Salamanca, Spain
Prof. James Tan—SIM University, Singapore
Prof. Ted Teng—Stony Brook University, USA
Prof. Shusaku Tsumoto—Shimane University, Japan
Prof. Da-Jin Wang—Montclair State University, USA
Prof. Chen-Shu Wang—National Taipei University of Technology, Taiwan
Prof. Shiang-Kwei Wang—New York Institute of Technology, USA
Prof. Jierui (Jerry) Xie—Oracle, USA
Prof. Hsin-Chang Yang—National University of Kaohsiung, Taiwan
Prof. Qiangfu Zhao—University of Aizu, Japan
Prof. Haibin Zhu—Nipissing University, Canada
Prof. Mihai Horia Zaharia—Gheorghe Asachi Technical University, Romania

Contents

1	An Information Quality (InfoQ) Framework for Ex-Ante and Ex-Post Evaluation of Empirical Studies.	1
	Galit Shmueli and Ron Kenett	
2	Memory-Aware Mining of Indirect Associations Over Data Streams.	15
	Wen-Yang Lin, Shun-Fa Yang and Tzung-Pei Hong	
3	Graph-Based Batch Mode Active Learning	27
	Cheong Hee Park	
4	One Pass Outlier Detection for Streaming Categorical Data.	35
	Swee Chuan Tan, Si Hao Yip and Ashfaqr Rahman	
5	Measuring of QoE for Cloud Applications.	43
	Yu-Hui Tao, Yu-Lung Wu, Chi-Jui Chang and Chi-Wen Chang	
6	Mining Weighted Partial Periodic Patterns	47
	Kung-Jiuan Yang, Tzung-Pei Hong, Yuh-Min Chen and Guo-Cheng Lan	
7	Edge Selection for Degree Anonymization on K Shortest Paths	55
	Shyue-Liang Wang, Ching-Chuan Shih, I-Hsien Ting and Tzung-Pei Hong	
8	K-Neighborhood Shortest Path Privacy in the Cloud	65
	Shyue-Liang Wang, Jia-Wei Chen, I-Hsien Ting and Tzung-Pei Hong	
9	The Framework of Information Processing Network for Supply Chain Innovation in Big Data Era	77
	Chian-Hsueng Chao	

10 Website Navigation Recommendation Based on Reinforcement Learning Technique	87
Yin-Ling Tang, I-Hsien Ting and Shyue-Liang Wang	
11 An Approach for Hate Groups Detection in Facebook	101
I-Hsien Ting, Hsing-Miao Chi, Jyun-Sing Wu and Shyue-Liang Wang	
12 Toward Crowdsourcing Data Mining	107
Hsin-Chang Yang and Chung-Hong Lee	
13 Wireless Security Analysis Using WarDrive Investigation in Kaohsiung Areas	111
Hanwei Hsiao, Tienhe Chang and ChihChe Chang	
14 Guanxi Buying in the Social Media Environment	123
Cathy S. Lin and Shin Yan Lu	
15 Introspection of Unauthorized Sharing on Social Networking Sites	129
Cathy S. Lin and Ting-Yi Lin	