# Communications in Computer and Information Science

238

Gong Zhiguo Xiangfeng Luo Junjie Chen Fu Lee Wang Jingsheng Lei (Eds.)

# Emerging Research in Web Information Systems and Mining

International Conference, WISM 2011 Taiyuan, China, September 23-25, 2011 Proceedings



### Volume Editors

Gong Zhiguo

University of Macau, China E-mail: fstzgg@umac.mo

Xiangfeng Luo

Shanghai University, China E-mail: luoxf@shu.edu.cn

Juniie Chen

Taiyuan University of Technology, China

E-mail: chenjj@tyut.edu.cn

Fu Lee Wang

Caritas Institute of Higher Education, Hong Kong, China

E-mail: pwang@cihe.edu.hk

Jingsheng Lei

Shanghai University of Electric Power, China

E-mail: jshlei@126.com

ISSN 1865-0929 e-ISSN 1865-0937 ISBN 978-3-642-24272-4 e-ISBN 978-3-642-24273-1 DOI 10.1007/978-3-642-24273-1 Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011936662

CR Subject Classification (1998): H.4, H.3, H.2, C.2.4, I.2.6, D.2

### © Springer-Verlag Berlin Heidelberg 2011

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

The use of general descriptive names, registered names, trademarks, 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.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

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

### Preface

The 2011 International Conference on Web Information Systems and Mining (WISM 2011) was held during September 23–25, 2011 in Taiyuan, China. WISM 2011 received 472 submissions from 20 countries and regions. After rigorous reviews, 112 high-quality papers were selected for publication in the WISM 2011 proceedings. The acceptance rate was 23%.

The aim of WISM 2011 was to bring together researchers working in many different areas of Web information systems and Web mining to foster the exchange of new ideas and promote international collaborations. In addition to the large number of submitted papers and invited sessions, there were several internationally well-known keynote speakers.

On behalf of the Organizing Committee, we thank Taiyuan University of Technology for its sponsorship and logistics support. We also thank the members of the Organizing Committee and the Program Committee for their hard work. We are very grateful to the keynote speakers, session chairs, reviewers, and student helpers. Last but not least, we thank all the authors and participants for their great contributions that made this conference possible.

September 2011

Gong Zhiguo Xiangfeng Luo Junjie Chen Fu Lee Wang Jingsheng Lei

## Organization

### Organizing Committee

General Co-chairs

Wendong Zhang Taiyuan University of Technology, China Qing Li City University of Hong Kong, Hong Kong

### Program Committee

Co-chairs

Gong Zhiguo University of Macau, Macau Xiangfeng Luo Shanghai University, China

Junjie Chen Taiyuan University of Technology, China

### Steering Committee Chair

Jingsheng Lei Shanghai University of Electric Power, China

### Local Arrangements Co-chairs

Fu Duan Taiyuan University of Technology, China Dengao Li Taiyuan University of Technology, China

### **Proceedings Co-chairs**

Fu Lee Wang Caritas Institute of Higher Education,

Hong Kong

Ting Jin Fudan University, China

### Sponsorship Chair

Zhiyu Zhou Zhejiang Sci-Tech University, China

### **Program Committee**

Ladjel Bellatreche ENSMA - Poitiers University, France

Sourav Bhowmick Nanyang Technological University, Singapore Stephane Bressan National University of Singapore, Singapore

Erik Buchmann University of Karlsruhe, Germany Jinli Cao La Trobe University Australia

Jian Cao Shanghai Jiao Tong University, China

Badrish Chandramouli Microsoft Research, USA
Akmal Chaudhri City University of London, UK
Qiming Chen Hewlett-Packard Laboratories, USA
Lei Chen Hong Kong University of Science and

Technology, China

Jinjun Chen Swinburne University of Technology, Australia
Hong Cheng The Chinese University of Hong Kong, China
Reynold Cheng Hong Kong Polytechnic University, China
Bin Cui Peking University, China

Bin Cui Peking University, China Alfredo Cuzzocrea University of Calabria, Italy Wanchun Dou Nanjing University, China

Xiaoyong Du Renmin University of China, China

Ling Feng Tsinghua University, China

Cheng Fu Nanyang Technological University, Singapore Gabriel Fung The University of Queensland, Australia

Byron Gao University of Wisconsin, USA Yunjun Gao Zhejiang University, China Bin Gao Microsoft Research, China Anandha Gopalan Imperial College, UK

Stephane Grumbach INRIA, France

Ming Hua Simon Fraser University, Canada Ela Hunt University of Strathclyde, UK Renato Iannella National ICT, Australia

Yan Jia National University of Defence Technology,

China

Yu-Kwong Ricky Colorado State University, USA

Yoon Joon Lee KAIST, Korea

Carson Leung The University of Manitoba, Canada

Lily Li CSIRO, Australia

Tao Li

Wenxin Liang

Florida International University, USA

Dalian University of Technology, China

Chao Liu Microsoft, USA
Qing Liu CSIRO, Australia

Jie Liu Chinese Academy of Sciences, China

JianXun Liu Hunan University of Science and Technology,

China

Peng Liu PLA University of Science and Technology,

China

Jiaheng Lu University of California, Irvine Weiyi Meng Binghamton University, USA Miyuki Nakano University of Tokyo, Japan

Wilfred Ng Hong Kong University of Science and

Technology, China

Junfeng Pan Google, USA

Zhiyong Peng Wuhan University, China

Xuan-Hieu Phan University of New South Wales (UNSW),

Australia

Tieyun Qian Wuhan University, China

Kaijun Ren National University of Defense Technology,

China

Dou Shen Microsoft, USA

Peter Stanchev Kettering University, USA

Xiaoping Su Chinese Academy of Sciences, China

Jie Tang Tsinghua University, China

Zhaohui Tang Microsoft, USA

Yicheng Tu University of South Florida, USA Junhu Wang Griffith University, Australia

Hua Wang University of Southern Queensland, Australia

Guoren Wang Northeastern University, USA

Lizhe Wang Research Center Karlsruhe, Germany

Jianshu Weng Singapore Management University, Singapore

Raymond Wong Hong Kong University of Science and

Technology, China

Jemma Wu CSIRO, Australia

Jitian Xiao Edith Cowan University, Australia

Junyi Xie Oracle Corp., USA

Wei Xiong National University of Defence Technology,

China

Hui Xiong Rutgers University, USA

Jun YanUniversity of Wollongong, AustraliaXiaochun YangNortheastern University, ChinaJian YangMacquarie University, AustraliaJian YinSun Yat-Sen University, China

Qing Zhang CSIRO, Australia

Shichao Zhang University of Technology, Australia Yanchang Zhao University of Technology, Australia

Sheng Zhong State University of New York at Buffalo, USA

Aoying Zhou East China Normal University, China Xingquan Zhu Florida Atlantic University, USA

# **Table of Contents**

Applications of Web Information Systems	
Simulation and Modeling for Centroid Algorithm Using OPNET in Wireless Sensor Networks	1
Hua Wang, Haiqing Cheng, and Huakui Wang	
An Interactive Modeling System Based on SIFT	11
Research on Service-Oriented and Component-Based Simulation Platform	19
Research on Automatic Recommender System Based on Data Mining  Qingzhang Chen, Qiaoyan Chen, Kai Wang, Zhongzhe Tang, and Yujie Pei	28
AVS Fast Motion Estimation Algorithm Based on C64x+ DSP	36
Intelligent Decision Support System for Exercise Prescription: Based on Rough Sets	44
The Study on the Methods of Identifying Ice Thickness in the Capacitive Sensor Measuring System	51
Research on User Defined Mapping Techniques Based on Geographic Information Center	59
Camera Calibration Based on the Template Paralleled to Image Plane  Enxiu Shi, Yumei Huang, Jiali Yang, and Jun Li	67
Granularity Detection in Images of Feeding or Discharging in Jaw Crusher Based on Network Edition Software ImageJ	74
The Embedded Web Player Based on Davinci Structure	81
The Design of Violating-Traffic Statistical Analysis Module	87

The Visible Research of 6DOF Ballistic Trajectory Base on VRML Technology	93
Applications of Web Mining	
Research on Modeling Microblog Posts Scale Based on Nonhomogeneous Poisson Process	99
A Density Granularity Grid Clustering Algorithm Based on Data Stream	113
Li-fang Wang and Xie Han	
An Automated Grading Model Integrated LSA and Text Clustering Together for English Text	121
Huang Guimin, Cao Guoyuan, Zhou Ya, Qin Kuangyu, and Zhang Yan	
Design of Learning Ontology Framework Based Text	130
Energy Management Contract Period Design  Herui Cui, Ruyu Zhang, and Zhaowei Xuan	137
Empirical Analysis on the Economy - Energy - Environment System of Hebei Province	144
E-Government and E-Commerce	
Study on the Credit Evaluation Model of C2C E-Commerce Websites $Li\ Shengqi$	150
The Evolution of Consumer Trust and Satisfaction in Mobile Electronic Commerce	158
Impediments to E-Commerce Adoption as Perceived by Businesses $\dots$ $Xibao\ Zhang$	166
Geographic Information Systems	
The Design and Implementation of Earthquake Service System in Sichuan Province	171

Table of Contents	XIII
The Preliminary Study on 3D Terrain Visualization	178
The Methods and Applications for Geospatial Database Updating Based on Feature Extraction and Change Detection from Remote Sensing Imagery	185
Information Security	
Research on Software Buffer Overflow Flaw Model and Test Technology	192
Research and Realization of Security Model Based on Web Services Shujun Pei and Deyun Chen	203
Design and Implementation of the Uniform Identity Authentication System Based on LDAP	211
3DES Implementation Based on FPGA	218
A New Log Audit Model to Improve the Effectiveness of Network Security Research	225
An Improved Traitors Tracing Scheme against Convex Combination Attack  Ya-Li Qi	233
Model of Trusted Dynamic Measurement Based on System Calls Rui Hao, Xinguang Peng, and Lei Xiu	238
Intelligent Networked Systems	
MSF-Based Automatic Emotional Computing for Speech Signal  Yuqiang Qin and Xueying Zhang	242
Research on Social Trust of Internet Services	248
The Mobile Intelligent Network Platform for Pre-processing Based on Layered Architecture	255

Management Information Systems	
The Design and Implementation of a Mobile Educational Administration System Based on WAP	261
•	
The Framework of Nuclear Management Information System	269
Research on Online Public Opinions Analysis Based on Ontology for Network Community	275
Multi-agent Systems	
Research on Auto-regressive Load Balancing Model Based on	
Multi-agents	281
Design and Implementation of Intelligent Monitoring and Diagnosis System Based on WSN and MAS	290
Design of Dual-Shared DRAM Controller Based on Switch Yifeng Li, Bo Zhang, Xiaoxia Han, and Gang Zhang	298
Semantic Web and Ontologies	
The Formal Definitions of Semantic Web Services and Reasoning  Duan Yuexing	303
Semantic Video Retrieval System Based on Ant Colony Algorithm and	
Relevant Feedback	312
A Semantic-Based Mobile Publishing Framework with Copyright	
Protection	320
Web Information Processing	
Evaluating Quality of Chinese Product Reviews Based on Fuzzy	
Logic	328
An Efficient Algorithm of Association Information Mining on Web Pages with Dynamic Scripts	334

Table of Contents	XV
Construction of the International S&T Resources Monitoring System Yun Liu, Xiao-Li Wang, Wen-Ping Wang, Xuan-Ting Ye, and Wei Fan	343
Web Information Retrieval	
A Component Clustering Index Tree Based on Semantic	356
Application of Shuffled Frog-Leaping Algorithm in Web's Text Cluster Technology	363
Web Intelligence	
Speed Up Graph Drawing for Social Network Visualization	369
ORMF: An Ontology-Based Requirements Management Framework for Networked Software	377
A Ranking Model Based on Credit for Social News Website	385
Web Interfaces and Applications	
Study on ODMRP Protocols and Its Application	391
Design and Realization of the Cloud Data Backup System Based on HDFS	396
Dong Guo, Yong Du, Qiang Li, and Liang Hu	000
The Process Modeling of Collaborative Manufacturing Program Business Based on UML	404
The Framework of the Kernel Technology of Hibernate	412
Web Services and E-Learning	
Web Service Selection Based on Utility of Weighted Qos Attributes Yanran Zhang and Minglun Ren	417

### XVI Table of Contents

A New Architecture of Geospatial Information Service for Cloud Computing	426
The Personalized E-Learning System Based on Portal Technology Xu Cui and Shaotao Zhang	433
Web Usage Mining	
A Novel Approach to Cluster Web Traversal Patterns Based on Edit Distance	440
Evaluation of Web Search Engines	448
Author Index	455