## Contents

**Formal Reasoning and Ontologies**

- Subset Spaces Modeling Knowledge-Competitive Agents.  
  *Bernhard Heinemann*  
  
- A Distance-Based Paraconsistent Semantics for DL-Lite  
  *Xiaowang Zhang, Kewen Wang, Zhe Wang, Yue Ma, and Guilin Qi*  
  
- Tractable Computation of Representative ABox Repairs in Description Logic Ontologies  
  *Jianfeng Du and Guilin Qi*  
  
- Restricted Four-Valued Logic for Default Reasoning  
  *Chen Chen and Zuoquan Lin*  
  
- A Divergence Measure between Mass Functions  
  *Jianbing Ma*  
  
- Fusion of Static and Temporal Information for Threat Evaluation in Sensor Networks  
  *Wenjun Ma, Weiru Liu, and Jun Hong*  
  
- Towards Extracting Ontology Excerpts  
  *Jieying Chen, Michel Ludwig, Yue Ma, and Dirk Walther*  
  
- Toward a Type-Theoretical Approach for an Ontologically-Based Detection of Underground Networks  
  *Meriem Hafsi, Richard Dapoigny, and Philippe Bolon*  
  
- A Situation-Aware Method Based on Ontology Analysis of the Semantic Social Network  
  *Wenbin Hu and Huan Wang*  
  
- Fm-QCA: A Novel Approach to Multi-value Qualitative Comparative Analysis  
  *Ke Wu, Shiping Tang, Geguang Pu, Min Wu, and Ting Su*  
  
- Rational Partial Choice Functions and Their Application to Belief Revision  
  *Jianbing Ma, Weiru Liu, and Didier Dubois*  
  
- The Double-level Default Description Logic $\mathcal{D3L}$  
  *Liangjun Zang, Weimin Wang, Bo Chen, and Cungen Cao*
Discovering Classes of Strongly Equivalent Logic Programs with Negation as Failure in the Head .......................................................... 147

Jianmin Ji

Knowledge Management and Concept Analysis

Mining Conceptual Knowledge from Network Traffic Data for Traffic Measurement Optimization ......................................................... 157

Petko Valtchev, Omar Mounaouar, Omar Cherkaoui, and Alexandar Dimitrov

Research on Fair Use of Digital Content in Social Network ................... 170

Yingyu Huo, Li Ma, and Yong Zhong

Preserving Multi-view Consistency in Diagrammatic Knowledge Representation ................................................................. 177

Dominik Bork, Robert Buchmann, and Dimitris Karagiannis

The Impact of Big Data and Knowledge Management on R&D Projects from Automotive Industry .............................................. 183

Horăţiu Constantin Palade, Sergiu Ştefan Nicolaescu, and Claudiu Vasile Kifor

Attractors in Web Based Educational Systems: A Conceptual Knowledge Processing Grounded Approach .................. 190

Sanda Dragoş, Diana Haliţă, and Christian Săcărea

Knowledge Discovery and Recognition Methods

Recognizing the Operating Hand from Touchscreen Traces on Smartphones . . . 199

Hansong Guo, He Huang, Zehao Sun, Liusheng Huang, Zhenyu Zhu, Shaowei Wang, Pengzhan Wang, Hongli Xu, and Hengchang Liu

iCHUM: An Efficient Algorithm for High Utility Mining in Incremental Databases ................................................................. 212

Hai-Tao Zheng and Zhuo Li

Interval-Index: A Scalable and Fast Approach for Reachability Queries in Large Graphs ................................................................. 224

Fangxu Li, Pingpeng Yuan, and Hai Jin

Accuracy-Preserving and Scalable Column-Based Low-Rank Matrix Approximation ................................................................. 236

Jiangang Wu and Shizhong Liao

Segment-Based Depth Estimation in Light Field Using Graph Cut ............ 248

Wenjie Shao, Hao Sheng, and Chao Li
String Similarity Join with Different Thresholds .......................... 260
   Chuitian Rong and Xiangling Zhang

Text Mining and Analysis

A Chinese Framework of Semantic Taxonomy and Description:
Preliminary Experimental Evaluation Using Web Information Extraction .... 275
   Liangjun Zang, Weimin Wang, Ya Wang, Fang Fang, Cong Cao,
   Xiaolong Wu, Qi Zhou, Ye Lu, Tingyu Li, and Cungen Cao

Tree Based Shape Similarity Measurement for Chinese Characters ........... 287
   Yanan Cao, Shi Wang, and Cungen Cao

A Hierarchical Pachinko Allocation Model for Social Sentiment Mining .... 299
   Li Liu, Zigang Huang, Yuxin Peng, and Ming Liu

Subtopic-Level Sentiment Analysis of Emergencies .......................... 312
   kunmei Wen, Zhijiang Liu, Shuai Xu, Ruixuan Li, Yuhua Li, Xiwu Gu,
   and Jie Zan

Summarizing Product Aspects from Massive Online Review with Word
   Representation .............................................................. 318
   Kai Ye, Liangqiang Li, Mengzuo Guo, Yu Qian, and Hua Yuan

Building a High Performance End-to-End Explicit Discourse Parser
   for Practical Application ................................................. 324
   Jianxiang Wang and Man Lan

Graph-Based Query-Focused Multi-document Summarization
   Using Improved Affinity Graph ......................................... 336
   Po Hu, Jiacong He, and Yong Zhang

Hashtag Biased Ranking for Keyword Extraction from Microblog Posts .... 348
   Lin Li, Chang Su, Yueqing Sun, Shengwu Xiong, and Guandong Xu

Semi-supervised Microblog Clustering Method via Dual Constraints ......... 360
   Huiyang Ma, Meihuizi Jia, Weizhong Zhao, and Xianghong Lin

Exploiting Capacity-Constrained k-Means Clustering for Aspect-Phrase
   Grouping ............................................................. 370
   Shufeng Xiong and Donghong Ji

A Model for Discovering Unpopular Research Interests ...................... 382
   Shanshan Feng, Jian Cao, Yuwen Chen, and Jing Qi
Improving Transfer Learning in Cross Lingual Opinion Analysis Through Negative Transfer Detection .......................... 394
  Lin Gui, Qin Lu, Ruifeng Xu, Qikang Wei, and Yuhui Cao

Mining User’s Location Intention from Mobile Search Log ............. 407
  Yifan Sun, Xin Li, Lin Li, Qi Liu, Enhong Chen, and Haiping Ma

Course Similarity Calculation Using Efficient Manifold Ranking .......... 421
  Bingjie Zhao and Xueqing Li

Recommendation Algorithms and Systems

Multi-faceted Distrust Aware Recommendation .......................... 435
  Yaoyao Zheng, Yuanxin Ouyang, Wenge Rong, and Zhang Xiong

Distributed Recommendation Algorithm Based on Matrix Decomposition on MapReduce Framework ...................... 447
  Sen Wu, Dan Lu, Yannan Du, and Xiaodong Feng

Crafting a Time-Aware Point-of-Interest Recommendation via Pairwise Interaction Tensor Factorization .......................... 458
  Xinqiang Zhao, Xin Li, Lejian Liao, Dandan Song, and William K. Cheung

Novel Approaches for Shop Recommendation in Large Shopping Mall Scenario: From Matrix Factorization to Tensor Decomposition .......... 471
  Yue Ding, Dong Wang, and Xin Xin

A Microblog Recommendation Algorithm Based on Multi-tag Correlation . . . 483
  Huifang Ma, Meihuizi Jia, Meng Xie, and Xianghong Lin

Personalized Recommendation System Based on Support Vector Machine and Particle Swarm Optimization .......................... 489
  Xibin Wang, Junhao Wen, Fengji Luo, Wei Zhou, and Haijun Ren

Machine Learning Algorithms

Transfer Learning in Large-Scale Short Text Analysis .................. 499
  Yan Chu, Zhengkui Wang, Man Chen, Linlin Xia, Fengmei Wei, and Mengnan Cai

Learning the Influence Probabilities Based on Multipolar Factors in Social Network ........................................... 512
  Weibo Wang, Zhaohui Peng, Ziyan Liu, Tianchen Zhu, and Xiaoguang Hong
Contents

Topic Network: Topic Model with Deep Learning for Image Classification
   Zhiyong Pan, Yang Liu, Guojun Liu, Maozu Guo, and Yang Li

Fast Multi-label Learning via Hashing
   Haifeng Hu, Yong Sun, and Jiansheng Wu

Building Program Vector Representations for Deep Learning
   Hao Peng, Lili Mou, Ge Li, Yuxuan Liu, Lu Zhang, and Zhi Jin

The Use of k-Means Algorithm to Improve Kernel Method via Instance
   Selection
   Lulu Wang

Detection Methods and Analysis

An Effective Hybrid Fraud Detection Method
   Chenfei Sun, Qingsong Li, Lizhen Cui, Zhongmin Yan, Hui Li, and Wei Wei

A Fuzzy Inspired Approach to Seismic Anomaly Detection
   Vyron Christodoulou, Yaxin Bi, and Guoze Zhao

Two-Phased Event Causality Acquisition: Coupling the Boundary
   Identification and Argument Identification Approaches
   Yanan Cao, Cungen Cao, Jingzun Zhang, and Wenjia Niu

Change Detection Using \( L_0 \) Smoothing and Superpixel Techniques
   Xiaoliang Shi, Yingying Xu, Guixu Zhang, and Chaomin Shen

Rare Category Detection Forest
   Haiqin Weng, Zhenguang Liu, Kevin Chiew, and Qinming He

Incremental Distributed Weighted Class Discriminant Analysis
   on Interval-Valued Emitter Parameters
   Xin Xu, Wei Wang, Jiaheng Lu, and Jin Chen

Classification and Clustering

Privacy-Preserving Naive Bayes Classification
   Mengdi Huai, Liusheng Huang, Wei Yang, Lu Li, and Mingyu Qi

PSFK: A Student Performance Prediction Scheme for First-Encounter
   Knowledge in ITS
   Yonghao Song, Yan Jin, Xiaohui Zheng, Haiyan Han, Yunqin Zhong,
   and Xiaofang Zhao
CSRA: An Efficient Resource Allocation Algorithm in MapReduce
Considering Data Skewness .................................................. 651
Ling Qi, Zhuo Tang, Yunchuan Qin, and Yu Ye

Imbalanced Web Spam Classification Using Self-labeled Techniques
and Multi-classifier Models ................................................... 663
Xiaonan Fang, Yanyan Tan, Xiyuan Zheng, Huaxiang Zhang,
and Shuang Zhou

 Ensemble of SVM Classifiers with Different Representations for Societal
Risk Classification ................................................................. 669
Jindong Chen and Xijin Tang

Mobile Data Analytics and Knowledge Management
Discovering User’s Background Information from Mobile Phone Data. ...... 679
Rong Xie, Yang Yue, and Yuchen Wang

Unsupervised Race Walking Recognition Using Smartphone
Accelerometers ................................................................. 691
Ye Wei, Li Liu, Jun Zhong, Yonggang Lu, and Letian Sun

Subspace Clustering on Mobile Data for Discovering Circle of Friends ...... 703
Tao Wu, Yujie Fan, Zhiling Hong, and Lifei Chen

Land Cover Classification Based on Adaptive Interval-Valued Type-2
Fuzzy Clustering Analysis ..................................................... 712
Hui He, Xianchuan Yu, and Dan Hu

GPS-Based Location Recommendation Using a Belief Network Model ...... 721
Kunlei Zhu, Jiajin Huang, and Ning Zhong

A Partitioning Algorithm for Solving Capacitated Arc Routing Problem in
Ways of Ranking First Cutting Second ...................................... 732
Wei Zhang, Lining Xing, Ting Xi, Lei He, and Jinyuan Liu

UBS: A Novel News Recommendation System Based on User Behavior
Sequence ................................................................. 738
Haoye Dong, Jia Zhu, Yong Tang, Chuanhua Xu, Rui Ding,
and Lingxiao Chen

A Shilling Attack Detection Method Based on SVM and Target Item
Analysis in Collaborative Filtering Recommender Systems .................. 751
Wei Zhou, Junhao Wen, Min Gao, Ling Liu, Haini Cai, and Xibin Wang

Robust Dynamic Background Model with Adaptive Region Based on T2FS
and GMM ................................................................. 764
Yun Guo, Yi Ji, Jutao Zhang, Shengrong Gong, and Chunping Liu
Deriving an Effective Hypergraph Model for Point of Interest 771
  Meng Qi, Xin Li, Lejian Liao, Dandan Song, and William K. Cheung

ProbLog Program Based Ontology Matching 778
  Yuanyuan Wang

Bioinformatics and Computational Biology 787

Person Re-identification via Learning Visual Similarity on Corresponding
Patch Pairs 787
  Hao Sheng, Yan Huang, Yanwei Zheng, Jiahui Chen, and Zhang Xiong

Person Re-identification by Unsupervised Color Spatial Pyramid Matching . . . 799
  Yan Huang, Hao Sheng, Yang Liu, Yanwei Zheng, and Zhang Xiong

Prediction of Single Nucleotide Mutation Patterns in Microsatellites . . . . . . 811
  Jun Tan, Cheng Ouyang, and Jun Yu

Developing a Novel Method Based on Orthogonal Polynomial Equation to
Approximate the Solution of Agent Based Model for the Immune System
Simulation 819
  Xuming Tong, Meijing Kong, Edwin Tawanda Mudzingwa, and Le Zhang

fMRI Visual Image Reconstruction Using Sparse Logistic Regression with
a Tunable Regularization Parameter 825
  Hao Wu, Jiayi Wang, Badong Chen, and Nanning Zheng

Evidence Theory and Its Application 833

A Temporal-Compress and Shorter SIFT Research on Web Videos . . . . . 833
  Yingying Zhu, Chuanhua Jiang, Xiaoyan Huang, Zhijiao Xiao, and Shenghua Zhong

Belief Revision over Infinite Propositional Language . . . . . 844
  Hua Meng, Yayan Yuan, Jielei Chu, and Hongjun Wang

Author Index 855
Knowledge Science, Engineering and Management
8th International Conference, KSEM 2015, Chongqing, China, October 28-30, 2015, Proceedings
Zhang, S.; Wirsing, M.; Zhang, Z. (Eds.)
2015, XXVII, 858 p. 249 illus. in color., Softcover
ISBN: 978-3-319-25158-5