

# **2013 IEEE 13th International Conference on Data Mining**

  

## **(ICDM 2013)**

**Dallas, Texas, USA  
7 - 10 December 2013**

**Pages 1-666**



**IEEE Catalog Number: CFP13278-POD  
ISBN: 978-1-4799-1328-2**

# **2013 IEEE 13th International Conference on Data Mining**

## **ICDM 2013**

### **Table of Contents**

<b>Message from the Conference Chairs .....</b>	xvi
<b>Message from the Program Co-Chairs .....</b>	xviii
<b>Conference Organizers .....</b>	xx
<b>Program Committee .....</b>	xxiii
<b>Keynotes .....</b>	xxxi
<b>Tutorials .....</b>	xxxvii
<b>List of Sponsors .....</b>	xl

---

### **Regular Papers**

Tree-Like Structure in Large Social and Information Networks .....	1
<i>Aaron B. Adcock, Blair D. Sullivan, and Michael W. Mahoney</i>	
Subgraph Enumeration in Dynamic Graphs .....	11
<i>Abhijin Adiga, Anil Kumar S. Vullikanti, and Dante Wiggins</i>	
A Masking Index for Quantifying Hidden Glitches .....	21
<i>Laure Berti-Équille, Ji Meng Loh, and Tamraparni Dasu</i>	
CSI: Charged System Influence Model for Human Behavior Prediction .....	31
<i>Yuanjun Bi, Weili Wu, and Yuqing Zhu</i>	
Context-Aware MIML Instance Annotation .....	41
<i>Forrest Briggs, Xiaoli Z. Fern, and Raviv Raich</i>	
Maximizing Expected Model Change for Active Learning in Regression .....	51
<i>Wenbin Cai, Ya Zhang, and Jun Zhou</i>	
The Pairwise Gaussian Random Field for High-Dimensional Data Imputation .....	61
<i>Zhuhua Cai, Christopher Jermaine, Zografoula Vagena, Dionysios Logothetis, and Luis L. Perez</i>	
Controlling Attribute Effect in Linear Regression .....	71
<i>Toon Calders, Asim Karim, Faisal Kamiran, Wasif Ali, and Xiangliang Zhang</i>	
Active Matrix Completion .....	81
<i>Shayok Chakraborty, Jiayu Zhou, Vineeth Balasubramanian, Sethuraman Panchanathan, Ian Davidson, and Jieping Ye</i>	

Modeling Temporal Adoptions Using Dynamic Matrix Factorization .....	91
<i>Freddy Chong Tat Chua, Richard J. Oentaryo, and Ee-Peng Lim</i>	
Modeling Preferences with Availability Constraints .....	101
<i>Bing Tian Dai and Hady W. Lauw</i>	
wRACOG: A Gibbs Sampling-Based Oversampling Technique .....	111
<i>Barnan Das, Narayanan C. Krishnan, and Diane J. Cook</i>	
Efficient Visualization of Large-Scale Data Tables through Reordering and Entropy Minimization .....	121
<i>Nemanja Djuric and Slobodan Vucetic</i>	
Local and Global Discriminative Learning for Unsupervised Feature Selection .....	131
<i>Liang Du, Zhiyong Shen, Xuan Li, Peng Zhou, and Yi-Dong Shen</i>	
Generative Maximum Entropy Learning for Multiclass Classification .....	141
<i>Ambedkar Dukkipati, Gaurav Pandey, Debarghya Ghoshdastidar, Paramita Koley, and D.M.V. Satya Sriram</i>	
A Parameter-Free Spatio-Temporal Pattern Mining Model to Catalog Global Ocean Dynamics .....	151
<i>James H. Faghmous, Matthew Le, Muhammed Uluyol, Vipin Kumar, and Snigdhansu Chatterjee</i>	
Transfer Learning across Networks for Collective Classification .....	161
<i>Meng Fang, Jie Yin, and Xingquan Zhu</i>	
Distributed Column Subset Selection on MapReduce .....	171
<i>Ahmed K. Farahat, Ahmed Elgohary, Ali Ghodsi, and Mohamed S. Kamel</i>	
Compression-Based Graph Mining Exploiting Structure Primitives .....	181
<i>Jing Feng, Xiao He, Nina Hubig, Christian Böhm, and Claudia Plant</i>	
Online Estimation of Discrete Densities .....	191
<i>Michael Geilke, Eibe Frank, Andreas Karwath, and Stefan Kramer</i>	
Extraction of Interpretable Multivariate Patterns for Early Diagnostics .....	201
<i>Mohamed F. Ghalwash, Vladan Radosavljevic, and Zoran Obradovic</i>	
Search Behavior Based Latent Semantic User Segmentation for Advertising Targeting .....	211
<i>Xueqing Gong, Xinyu Guo, Rong Zhang, Xiaofeng He, and Aoying Zhou</i>	
Mixed Membership Subspace Clustering .....	221
<i>Stephan Günnemann and Christos Faloutsos</i>	
Spectral Subspace Clustering for Graphs with Feature Vectors .....	231
<i>Stephan Günnemann, Ines Färber, Sebastian Raubach, and Thomas Seidl</i>	
Permutation-Based Sequential Pattern Hiding .....	241
<i>Robert Gwadera, Aris Gkoulalas-Divanis, and Grigorios Loukides</i>	
Utilizing URLs Position to Estimate Intrinsic Query-URL Relevance .....	251
<i>Xiaogang Han, Wenjun Zhou, Xing Jiang, Hengjie Song, Ming Zhong, and Toyoaki Nishida</i>	

Parameter-Free Audio Motif Discovery in Large Data Archives .....	261
<i>Yuan Hao, Mohammad Shokoohi-Yekta, George Papageorgiou, and Eamonn Keogh</i>	
Kernel Density Metric Learning .....	271
<i>Yujie He, Wenlin Chen, Yixin Chen, and Yi Mao</i>	
Classification of Multi-dimensional Streaming Time Series by Weighting Each	
Classifier's Track Record .....	281
<i>Bing Hu, Yanping Chen, Jesin Zakaria, Liudmila Ulanova, and Eamonn Keogh</i>	
Identifying Transformative Scientific Research .....	291
<i>Yi-Hung Huang, Chun-Nan Hsu, and Kristina Lerman</i>	
Min-Max Hash for Jaccard Similarity .....	301
<i>Jianqiu Ji, Jianmin Li, Shuicheng Yan, Qi Tian, and Bo Zhang</i>	
GRIAS: An Entity-Relation Graph Based Framework for Discovering Entity Aliases .....	310
<i>Lili Jiang, Ping Luo, Jianyong Wang, Yuhong Xiong, Bingduan Lin, Min Wang, and Ning An</i>	
Focal-Test-Based Spatial Decision Tree Learning: A Summary of Results .....	320
<i>Zhe Jiang, Shashi Shekhar, Xun Zhou, Joseph Knight, and Jennifer Corcoran</i>	
Conformal Prediction Using Decision Trees .....	330
<i>Ulf Johansson, Henrik Boström, and Tuve Löfström</i>	
An Unsupervised Algorithm for Learning Blocking Schemes .....	340
<i>Mayank Kejriwal and Daniel P. Miranker</i>	
Semantic Frame-Based Document Representation for Comparable Corpora .....	350
<i>Hyungsul Kim, Xiang Ren, Yizhou Sun, Chi Wang, and Jiawei Han</i>	
Regularization Paths for Sparse Nonnegative Least Squares Problems	
with Applications to Life Cycle Assessment Tree Discovery .....	360
<i>Jingu Kim, Naren Ramakrishnan, Manish Marwah, Amip Shah, and Haesun Park</i>	
A High-Dimensional Set Top Box Ad Targeting Algorithm Including Experimental	
Comparisons to Traditional TV Algorithms .....	370
<i>Brendan Kitts, Dyang Au, and Brian Burdick</i>	
Efficient Algorithms for Selecting Features with Arbitrary Group Constraints	
via Group Lasso .....	379
<i>Deguang Kong and Chris Ding</i>	
BIG-ALIGN: Fast Bipartite Graph Alignment .....	389
<i>Danai Koutra, Hanghang Tong, and David Lubensky</i>	
Blocking Simple and Complex Contagion by Edge Removal .....	399
<i>Chris J. Kuhlman, Gaurav Tuli, Samarth Swarup, Madhav V. Marathe, and S.S. Ravi</i>	
Guiding Autonomous Agents to Better Behaviors through Human Advice .....	409
<i>Gautam Kunapuli, Phillip Odom, Jude W. Shavlik, and Sriraam Natarajan</i>	

TL-PLSA: Transfer Learning between Domains with Different Classes .....	419
<i>Anastasia Krithara and Georgios Paliouras</i>	
Learning, Analyzing and Predicting Object Roles on Dynamic Networks .....	428
<i>Kang Li, Suxin Guo, Nan Du, Jing Gao, and Aidong Zhang</i>	
Tag-Weighted Dirichlet Allocation .....	438
<i>Shuangyu Li, Guan Huang, Ruiyang Tan, and Rong Pan</i>	
Mining Probabilistic Frequent Spatio-Temporal Sequential Patterns with Gap	
Constraints from Uncertain Databases .....	448
<i>Yuxuan Li, James Bailey, Lars Kulik, and Jian Pei</i>	
Mining Following Relationships in Movement Data .....	458
<i>Zhenhui Li, Fei Wu, and Margaret C. Crofoot</i>	
Linear Computation for Independent Social Influence .....	468
<i>Qi Liu, Biao Xiang, Lei Zhang, Enhong Chen, Chang Tan, and Ji Chen</i>	
Learning Imbalanced Multi-class Data with Optimal Dichotomy Weights .....	478
<i>Xu-Ying Liu, Qian-Qian Li, and Zhi-Hua Zhou</i>	
Mining Statistically Significant Sequential Patterns .....	488
<i>Cécile Low-Kam, Chedy Raïssi, Mehdi Kaytoue, and Jian Pei</i>	
Mining Summaries of Propagations .....	498
<i>Lucrezia Macchia, Francesco Bonchi, Francesco Gullo, and Luca Chiarandini</i>	
Active Density-Based Clustering .....	508
<i>Son T. Mai, Xiao He, Nina Hubig, Claudia Plant, and Christian Böhm</i>	
Explaining Outliers by Subspace Separability .....	518
<i>Barbora Micenková, Raymond T. Ng, Xuan-Hong Dang, and Ira Assent</i>	
Quantification Trees .....	528
<i>Letizia Milli, Anna Monreale, Giulio Rossetti, Fosca Giannotti, Dino Pedreschi, and Fabrizio Sebastiani</i>	
Mining Evolving Network Processes .....	537
<i>Misael Mongiovì, Petko Bogdanov, and Ambuj K. Singh</i>	
Enumeration of Time Series Motifs of All Lengths .....	547
<i>Abdullah Mueen</i>	
Dominance Programming for Itemset Mining .....	557
<i>Benjamin Negrevergne, Anton Dries, Tias Guns, and Siegfried Nijssen</i>	
Least Cost Influence in Multiplex Social Networks: Model Representation and Analysis .....	567
<i>Dung T. Nguyen, Huiyuan Zhang, Soham Das, My T. Thai, and Thang N. Dinh</i>	
Bayesian Discovery of Multiple Bayesian Networks via Transfer Learning .....	577
<i>Diane Oyen and Terran Lane</i>	

Forecasting Spatiotemporal Impact of Traffic Incidents on Road Networks .....	587
<i>Bei Pan, Ugur Demiryurek, Cyrus Shahabi, and Chetan Gupta</i>	
Scaling Log-Linear Analysis to High-Dimensional Data .....	597
<i>Francois Petitjean, Geoffrey I. Webb, and Ann E. Nicholson</i>	
Fast Pairwise Query Selection for Large-Scale Active Learning to Rank .....	607
<i>Buyue Qian, Xiang Wang, Jun Wang, Hongfei Li, Nan Cao, Weifeng Zhi, and Ian Davidson</i>	
Power to the Points: Validating Data Memberships in Clusterings .....	617
<i>Parasaran Raman and Suresh Venkatasubramanian</i>	
Weighted-Object Ensemble Clustering .....	627
<i>Yazhou Ren, Carlotta Domeniconi, Guoji Zhang, and Guoxian Yu</i>	
Mining User Lifecycles from Online Community Platforms and their Application to Churn Prediction .....	637
<i>Matthew Rowe</i>	
Statistical Selection of Congruent Subspaces for Mining Attributed Graphs .....	647
<i>Patricia Iglesias Sánchez, Emmanuel Müller, Fabian Laforet, Fabian Keller, and Klemens Böhm</i>	
Classifying Spam Emails Using Text and Readability Features .....	657
<i>Rushdi Shams and Robert E. Mercer</i>	
Most-Surely vs. Least-Surely Uncertain .....	667
<i>Manali Sharma and Mustafa Bilgic</i>	
On Pattern Preserving Graph Generation .....	677
<i>Hong-Han Shuai, De-Nian Yang, Philip S. Yu, Chih-Ya Shen, and Ming-Syan Chen</i>	
Time Series Classification Using Compression Distance of Recurrence Plots .....	687
<i>Diego F. Silva, Vinícius M.A. De Souza, and Gustavo E.A.P.A. Batista</i>	
Dynamic Pattern Detection with Temporal Consistency and Connectivity Constraints .....	697
<i>Skyler Speakman, Yating Zhang, and Daniel B. Neill</i>	
Noise-Resistant Bicluster Recognition .....	707
<i>Huan Sun, Gengxin Miao, and Xifeng Yan</i>	
Itemsets for Real-Valued Datasets .....	717
<i>Nikolaj Tatti</i>	
Collective Response Spike Prediction for Mutually Interacting Consumers .....	727
<i>Rikiya Takahashi, Hideyuki Mizuta, Naoki Abe, Ruby L. Kennedy, Vincent J. Jeffs, Ravi Shah, and Robert H. Crites</i>	
Price Information Patterns in Web Search Advertising: An Empirical Case Study on Accommodation Industry .....	737
<i>Guanting Tang, Yupin Yang, and Jian Pei</i>	
Discovering Non-redundant Overlapping Biclusters on Gene Expression Data .....	747
<i>Duy Tin Truong, Roberto Battiti, and Mauro Brunato</i>	

Cox Regression with Correlation Based Regularization for Electronic Health Records .....	757
<i>Bhanukiran Vinzamuri and Chandan K. Reddy</i>	
Constructing Topical Hierarchies in Heterogeneous Information Networks .....	767
<i>Chi Wang, Marina Danilevsky, Jialu Liu, Nihit Desai, Heng Ji, and Jiawei Han</i>	
Binary Time-Series Query Framework for Efficient Quantitative Trait Association Study .....	777
<i>Hongfei Wang and Xiang Zhang</i>	
Communication-Efficient Distributed Multiple Reference Pattern Matching for M2M Systems .....	787
<i>Jui-Pin Wang, Yu-Chen Lu, Mi-Yen Yeh, Shou-De Lin, and Phillip B. Gibbons</i>	
Sparse K-Means with the $\ell_q$ ( $0 \leq q < 1$ ) Constraint for High-Dimensional Data Clustering .....	797
<i>Yu Wang, Xiangyu Chang, Rongjian Li, and Zongben Xu</i>	
A Comparative Analysis of Ensemble Classifiers: Case Studies in Genomics .....	807
<i>Sean Whalen and Gaurav Pandey</i>	
Stochastic Blockmodel with Cluster Overlap, Relevance Selection, and Similarity-Based Smoothing .....	817
<i>Joyce Jiyoung Whang, Piyush Rai, and Inderjit S. Dhillon</i>	
Multi-instance Multi-graph Dual Embedding Learning .....	827
<i>Jia Wu, Xingquan Zhu, Chengqi Zhang, and Zhihua Cai</i>	
TopicSketch: Real-Time Bursty Topic Detection from Twitter .....	837
<i>Wei Xie, Feida Zhu, Jing Jiang, Ee-Peng Lim, and Ke Wang</i>	
Efficient Learning on Point Sets .....	847
<i>Liang Xiong, Barnabás Póczos, and Jeff Schneider</i>	
Markov Blanket Feature Selection with Non-faithful Data Distributions .....	857
<i>Kui Yu, Xindong Wu, Zan Zhang, Yang Mu, Hao Wang, and Wei Ding</i>	
An Efficient Approach to Updating Closeness Centrality and Average Path Length in Dynamic Networks .....	867
<i>Chia-Chen Yen, Mi-Yen Yeh, and Ming-Syan Chen</i>	
Reconstructing Individual Mobility from Smart Card Transactions: A Space Alignment Approach .....	877
<i>Nicholas Jing Yuan, Yingzi Wang, Fuzheng Zhang, Xing Xie, and Guangzhong Sun</i>	
Feature Transformation with Class Conditional Decorrelation .....	887
<i>Xu-Yao Zhang, Kaizhu Huang, and Cheng-Lin Liu</i>	
Efficient Learning for Models with DAG-Structured Parameter Constraints .....	897
<i>Leon Wenliang Zhong and James T. Kwok</i>	
UBLF: An Upper Bound Based Approach to Discover Influential Nodes in Social Networks .....	907
<i>Chuan Zhou, Peng Zhang, Jing Guo, Xingquan Zhu, and Li Guo</i>	

Divide-and-Conquer Anchoring for Near-Separable Nonnegative Matrix Factorization and Completion in High Dimensions .....	917
---	-----

*Tianyi Zhou, Wei Bian, and Dacheng Tao*

A Novel Relational Learning-to-Rank Approach for Topic-Focused Multi-document Summarization .....	927
--	-----

*Yadong Zhu, Yanyan Lan, Jiafeng Guo, Pan Du, and Xueqi Cheng*

## Short Papers

Cartification: A Neighborhood Preserving Transformation for Mining High Dimensional Data .....	937
---	-----

*Emin Aksehirli, Bart Goethals, Emmanuel Müller, and Jilles Vreeken*

Improved Electricity Load Forecasting via Kernel Spectral Clustering of Smart Meters .....	943
--	-----

*Carlos Alzate and Mathieu Sinn*

Large-Scale Elastic Net Regularized Linear Classification SVMs and Logistic Regression .....	949
---	-----

*P. Balamurugan*

Influence-Based Network-Oblivious Community Detection .....	955
---	-----

*Nicola Barbieri, Francesco Bonchi, and Giuseppe Manco*

Beyond Boolean Matrix Decompositions: Toward Factor Analysis and Dimensionality Reduction of Ordinal Data .....	961
--	-----

*Radim Belohlavek and Marketa Krmelova*

Validating Network Value of Influencers by Means of Explanations .....	967
--	-----

*Glenn S. Bevilacqua, Shealen Clare, Amit Goyal, and Laks V.S. Lakshmanan*

External Evaluation of Topic Models: A Graph Mining Approach .....	973
--	-----

*Hau Chan and Leman Akoglu*

Multimedia LEGO: Learning Structured Model by Probabilistic Logic Ontology Tree .....	979
---	-----

*Shiyu Chang, Guo-Jun Qi, Jinhui Tang, Qi Tian, Yong Rui, and Thomas S. Huang*

Discriminatively Enhanced Topic Models .....	985
--	-----

*Snigdha Chaturvedi, Hal Daumé III, and Taesun Moon*

PerturBoost: Practical Confidential Classifier Learning in the Cloud .....	991
--	-----

*Keke Chen and Shumin Guo*

A Feature-Enhanced Ranking-Based Classifier for Multimodal Data and Heterogeneous Information Networks .....	997
---	-----

*Scott Deean Chen, Ying-Yu Chen, Jiawei Han, and Pierre Moulin*

Nonlinear Causal Discovery for High Dimensional Data: A Kernelized Trace Method .....	1003
---	------

*Zhitang Chen, Kun Zhang, and Laiwan Chan*

Discriminative Link Prediction Using Local Links, Node Features and Community Structure .....	1009
--	------

*Abir De, Niloy Ganguly, and Soumen Chakrabarti*

Most Clusters Can Be Retrieved with Short Disjunctive Queries .....	1019
<i>Vinay Deolalikar</i>	
Integrity Verification of Outsourced Frequent Itemset Mining with Deterministic Guarantee .....	1025
<i>Boxiang Dong, Ruilin Liu, and Wendy Hui Wang</i>	
Progression Analysis of Community Strengths in Dynamic Networks .....	1031
<i>Nan Du, Jing Gao, and Aidong Zhang</i>	
Walk 'n' Merge: A Scalable Algorithm for Boolean Tensor Factorization .....	1037
<i>Dóra Erdős and Pauli Miettinen</i>	
Online Active Learning with Imbalanced Classes .....	1043
<i>Zahra Ferdowsi, Rayid Ghani, and Raffaella Settimi</i>	
Efficient Invariant Search for Distributed Information Systems .....	1049
<i>Yong Ge, Guofei Jiang, and Yuan Ge</i>	
Coupled Heterogeneous Association Rule Mining (CHARM): Application Toward Inference of Modulatory Climate Relationships .....	1055
<i>Doel L. Gonzalez II, Saurabh V. Pendse, Kanchana Padmanabhan, Michael P. Angus, Isaac K. Tetteh, Shashank Srinivas, Andrea Villanes, Fredrick Semazzi, Vipin Kumar, and Nagiza F. Samatova</i>	
Leveraging Supervised Label Dependency Propagation for Multi-label Learning .....	1061
<i>Bin Fu, Guandong Xu, Zhihai Wang, and Longbing Cao</i>	
A Mobility Simulation Framework Of Humans With Group Behavior Modeling .....	1067
<i>Anshul Gupta, Aurosish Mishra, S.G. Vadlamudi, P.P. Chakrabarti, Sudeshna Sarkar, Tridib Mukherjee, and Nathan Gnanasambandam</i>	
Spatio-Temporal Topic Modeling in Mobile Social Media for Location Recommendation .....	1073
<i>Bo Hu, Mohsen Jamali, and Martin Ester</i>	
Active Query Driven by Uncertainty and Diversity for Incremental Multi-label Learning .....	1079
<i>Sheng-Jun Huang and Zhi-Hua Zhou</i>	
Accelerating Active Learning with Transfer Learning .....	1085
<i>David Kale and Yan Liu</i>	
Statistical Inference of Protein "LEGO Bricks" .....	1091
<i>Arun S. Konagurthu, Lloyd Allison, David Abramson, Peter J. Stuckey, and Arthur M. Lesk</i>	
A Probabilistic Behavior Model for Discovering Unrecognized Knowledge .....	1097
<i>Takeshi Kurashima, Tomoharu Iwata, Noriko Takaya, and Hiroshi Sawada</i>	
Prominent Features of Rumor Propagation in Online Social Media .....	1103
<i>Sejeong Kwon, Meeyoung Cha, Kyomin Jung, Wei Chen, and Yajun Wang</i>	
Group Feature Selection with Streaming Features .....	1109
<i>Haiguang Li, Xindong Wu, Zhao Li, and Wei Ding</i>	

Bayesian Multi-Task Relationship Learning with Link Structure .....	1115
<i>Yingming Li, Ming Yang, Zhongang Qi, and Zhongfei (Mark) Zhang</i>	
Quantitative Prediction of Glaucomatous Visual Field Loss from Few Measurements .....	1121
<i>Zenghan Liang, Ryota Tomioka, Hiroshi Murata, Ryo Asaoka, and Kenji Yamanishi</i>	
On the Feature Discovery for App Usage Prediction in Smartphones .....	1127
<i>Zhung-Xun Liao, Shou-Chung Li, Wen-Chih Peng, Philip S. Yu, and Te-Chuan Liu</i>	
How Many Zombies Around You? .....	1133
<i>Hongfu Liu, Yuchao Zhang, Hao Lin, Junjie Wu, Zhiang Wu, and Xu Zhang</i>	
Hibernating Process: Modelling Mobile Calls at Multiple Scales .....	1139
<i>Siyuan Liu, Lei Li, and Rammaya Krishnan</i>	
On Good and Fair Paper-Reviewer Assignment .....	1145
<i>Cheng Long, Raymond Chi-Wing Wong, Yu Peng, and Liangliang Ye</i>	
Community Detection in Networks with Node Attributes .....	1151
<i>Jaewon Yang, Julian McAuley, and Jure Leskovec</i>	
Multitask Learning with Feature Selection for Groups of Related Tasks .....	1157
<i>Meenakshi Mishra and Jun Huan</i>	
Network Hypothesis Testing Using Mixed Kronecker Product Graph Models .....	1163
<i>Sebastian Moreno and Jennifer Neville</i>	
Graph Partitioning Change Detection Using Tree-Based Clustering .....	1169
<i>Sho-Ichi Sato and Kenji Yamanishi</i>	
SAX-VSM: Interpretable Time Series Classification Using SAX and Vector Space Model .....	1175
<i>Pavel Senin and Sergey Malinchik</i>	
Clustering on Multiple Incomplete Datasets via Collective Kernel Learning .....	1181
<i>Weixiang Shao, Xiaoxiao Shi, and Philip S. Yu</i>	
MLI: An API for Distributed Machine Learning .....	1187
<i>Evan R. Sparks, Ameet Talwalkar, Virginia Smith, Jey Kottalam, Xinghao Pan, Joseph Gonzalez, Michael J. Franklin, Michael I. Jordan, and Tim Kraska</i>	
Co-ClusterD: A Distributed Framework for Data Co-Clustering with Sequential Updates .....	1193
<i>Sen Su, Xiang Cheng, Lixin Gao, and Jiangtao Yin</i>	
Non-negative Multiple Tensor Factorization .....	1199
<i>Koh Takeuchi, Ryota Tomioka, Katsuhiko Ishiguro, Akisato Kimura, and Hiroshi Sawada</i>	
Multiclass Semi-Supervised Boosting Using Similarity Learning .....	1205
<i>Jafar Tanha, Mohammad Javad Saberian, and Maarten van Someren</i>	
Mining Dependent Frequent Serial Episodes from Uncertain Sequence Data .....	1211
<i>Li Wan, Ling Chen, and Chengqi Zhang</i>	

Efficient and Scalable Information Geometry Metric Learning .....	1217
<i>Wei Wang, Bao-Gang Hu, and Zengfu Wang</i>	
Exploring Patient Risk Groups with Incomplete Knowledge .....	1223
<i>Xiang Wang, Fei Wang, Jun Wang, Buyue Qian, and Jianying Hu</i>	
Classification-Based Clustering Evaluation .....	1229
<i>John S. Whissell and Charles L.A. Clarke</i>	
Efficient Online Sequence Prediction with Side Information .....	1235
<i>Han Xiao and Claudia Eckert</i>	
Multilabel Consensus Classification .....	1241
<i>Sihong Xie, Xiangnan Kong, Jing Gao, Wei Fan, and Philip S. Yu</i>	
Sampling Heterogeneous Networks .....	1247
<i>Cheng-Lun Yang, Perng-Hwa Kung, Cheng-Te Li, Chun-An Chen, and Shou-De Lin</i>	
A Model for Discovering Correlations of Ubiquitous Things .....	1253
<i>Lina Yao, Quan Z. Sheng, Byron J. Gao, Anne H.H. Ngu, and Xue Li</i>	
Efficiently Mining Top-K High Utility Sequential Patterns .....	1259
<i>Junfu Yin, Zhigang Zheng, Longbing Cao, Yin Song, and Wei Wei</i>	
Efficient Proper Length Time Series Motif Discovery .....	1265
<i>Sorraphai Yingcharoonthawornchai, Haemwaan Sivaraks, Thanawin Rakthanmanon, and Chotirat Ann Ratanamahatana</i>	
On Anomalous Hotspot Discovery in Graph Streams .....	1271
<i>Weiren Yu, Charu C. Aggarwal, Shuai Ma, and Haixun Wang</i>	
From Social User Activities to People Affiliation .....	1277
<i>Guangxiang Zeng, Ping Luo, Enhong Chen, and Min Wang</i>	
Transfer Learning across Cancers on DNA Copy Number Variation Analysis .....	1283
<i>Huanan Zhang, Ze Tian, and Rui Kuang</i>	
Predicting Social Links for New Users across Aligned Heterogeneous Social Networks .....	1289
<i>Jiawei Zhang, Xiangnan Kong, and Philip S. Yu</i>	
Combating Sub-Clusters Effect in Imbalanced Classification .....	1295
<i>Yang Zhao and Abhishek K. Shrivastava</i>	
Influence and Profit: Two Sides of the Coin .....	1301
<i>Yuqing Zhu, Zaixin Lu, Yuanjun Bi, Weili Wu, Yiwei Jiang, and Deying Li</i>	
Constrained Clustering: Effective Constraint Propagation with Imperfect Oracles .....	1307
<i>Xiatian Zhu, Chen Change Loy, and Shaogang Gong</i>	
Influence Maximization in Dynamic Social Networks .....	1313
<i>Honglei Zhuang, Yihan Sun, Jie Tang, Jialin Zhang, and Xiaoming Sun</i>	
Adaptive Model Tree for Streaming Data .....	1319
<i>Anca M. Zimmer, Michael Kurze, and Thomas Seidl</i>	

Structural-Context Similarities for Uncertain Graphs .....	1325
<i>Zhaonian Zou and Jianzhong Li</i>	

## **Author Index**