Table of Contents - Part II

Privacy and Security

AUDIO: An Integrity <u>Audi</u> ting Framework of Outlier-Mining-as-a-Service Systems	1
Ruilin Liu, Hui (Wendy) Wang, Anna Monreale, Dino Pedreschi, Fosca Giannotti, and Wenge Guo	-
Differentially Private Projected Histograms: Construction and Use for Prediction	19
Fairness-Aware Classifier with Prejudice Remover Regularizer	35
Rankings and Recommendations	
A Live Comparison of Methods for Personalized Article Recommendation at Forbes.com	51
Fast ALS-Based Tensor Factorization for Context-Aware Recommendation from Implicit Feedback	67
Probability Estimation for Multi-class Classification Based on Label Ranking	83
Reinforcement Learning and Planning	
Adaptive Planning for Markov Decision Processes with Uncertain Transition Models via Incremental Feature Dependency Discovery N. Kemal Ure, Alborz Geramifard, Girish Chowdhary, and Jonathan P. How	99
APRIL: Active Preference Learning-Based Reinforcement Learning Riad Akrour, Marc Schoenauer, and Michèle Sebag	116
Autonomous Data-Driven Decision-Making in Smart Electricity Markets	132
Markus Peters, Wolfgang Ketter, Maytal Saar-Tsechansky, and John Collins	132



Bayesian Nonparametric Inverse Reinforcement Learning	148
Bootstrapping Monte Carlo Tree Search with an Imperfect Heuristic Truong-Huy Dinh Nguyen, Wee-Sun Lee, and Tze-Yun Leong	164
Fast Reinforcement Learning with Large Action Sets Using Error-Correcting Output Codes for MDP Factorization	180
Learning Policies for Battery Usage Optimization in Electric Vehicles Stefano Ermon, Yexiang Xue, Carla Gomes, and Bart Selman	195
Policy Iteration Based on a Larned Transition Model	211
Structured Apprenticeship Learning	227
Rule Mining and Subgroup Discovery	
A Bayesian Approach for Classification Rule Mining in Quantitative Databases Dominique Gay and Marc Boullé	243
A Bayesian Scoring Technique for Mining Predictive and Non-Spurious Rules	260
Generic Pattern Trees for Exhaustive Exceptional Model Mining Florian Lemmerich, Martin Becker, and Martin Atzmueller	277
Semi-Supervised and Transductive Learning	
Bidirectional Semi-supervised Learning with Graphs	293
Coupled Bayesian Sets Algorithm for Semi-supervised Learning and Information Extraction	307
Graph-Based Transduction with Confidence	323
Maximum Consistency Preferential Random Walks	339

Table of Contents - Part II	XVII
Semi-supervised Multi-label Classification: A Simultaneous Large-Margin, Subspace Learning Approach	355
Sensor Data	
MDL-Based Analysis of Time Series at Multiple Time-Scales	371
Separable Approximate Optimization of Support Vector Machines for Distributed Sensing	387
Unsupervised Inference of Auditory Attention from Biosensors	403
Sequence and String Mining	
A Family of Feed-Forward Models for Protein Sequence Classification Sam Blasiak, Huzefa Rangwala, and Kathryn B. Laskey	419
General Algorithms for Mining Closed Flexible Patterns under Various Equivalence Relations	435
Size Matters: Finding the Most Informative Set of Window Lengths Jefrey Lijffijt, Panagiotis Papapetrou, and Kai Puolamäki	451
Social Network Mining	
Discovering Links among Social Networks	467
Efficient Bi-objective Team Formation in Social Networks	483
Feature-Enhanced Probabilistic Models for Diffusion Network	400
Inference	499
Influence Spread in Large-Scale Social Networks – A Belief Propagation	515
Approach	919

Location Affiliation Networks: Bonding Social and Spatial	
Information	531
On Approximation of Real-World Influence Spread	548
Opinion Formation by Voter Model with Temporal Decay Dynamics Masahiro Kimura, Kazumi Saito, Kouzou Ohara, and Hiroshi Motoda	568
Viral Marketing for Product Cross-Sell through Social Networks	583
Which Topic Will You Follow?	591
Spatial and Geographical Data Mining	
Inferring Geographic Coincidence in Ephemeral Social Networks	613
Pedestrian Quantity Estimation with Trajectory Patterns	629
Socioscope: Spatio-temporal Signal Recovery from Social Media Jun-Ming Xu, Aniruddha Bhargava, Robert Nowak, and Xiaojin Zhu	644
Statistical Methods and Evaluation	
A Framework for Evaluating the Smoothness of Data-Mining Results Gaurav Misra, Behzad Golshan, and Evimaria Terzi	660
Active Evaluation of Ranking Functions Based on Graded Relevance Christoph Sawade, Steffen Bickel, Timo von Oertzen, Tobias Scheffer, and Niels Landwehr	676
Time Series and Temporal Data Mining	
Community Trend Outlier Detection Using Soft Temporal Pattern	000
Mining	692
Data Structures for Detecting Rare Variations in Time Series	709

Table of Contents - Part II	XIX
Invariant Time-Series Classification	725
Learning Bi-clustered Vector Autoregressive Models	741
Transfer Learning	
Discriminative Factor Alignment across Heterogeneous Feature Space Fangwei Hu, Tianqi Chen, Nathan N. Liu, Qiang Yang, and Yong Yu	757
Learning to Perceive Two-Dimensional Displays Using Probabilistic Grammars	773
Transfer Spectral Clustering	789
System Demonstrations Track	
An Aspect-Lexicon Creation and Evaluation Tool for Sentiment Analysis Researchers	804
Association Rule Mining Following the Web Search Paradigm	808
ASV Monitor: Creating Comparability of Machine Learning Methods for Content Analysis	812
ClowdFlows: A Cloud Based Scientific Workflow Platform	816
Extracting Trajectories through an Efficient and Unifying Spatio-temporal Pattern Mining System	820
Knowledge Discovery through Symbolic Regression with HeuristicLab	824

XX Table of Contents - Part II

OutRules: A Framework for Outlier Descriptions in Multiple Context Spaces	828
Emmanuel Müller, Fabian Keller, Sebastian Blanc, and Klemens Böhm	020
Scientific Workflow Management with ADAMS Peter Reutemann and Joaquin Vanschoren	833
TopicExplorer: Exploring Document Collections with Topic Models Alexander Hinneburg, Rico Preiss, and René Schröder	838
VIKAMINE – Open-Source: Subgroup Discovery, Pattern Mining, and Analytics	842
Nectar Track	
Learning Submodular Functions	846
Matrix Factorization as Search	850
Metal Binding in Proteins: Machine Learning Complements X-Ray Absorption Spectroscopy	854
Modelling Input Varying Correlations between Multiple Responses Andrew Gordon Wilson and Zoubin Ghahramani	858
Author Index	863

Table of Contents – Part I

Invited Talks	
Machine Learning for Robotics	1
Declarative Modeling for Machine Learning and Data Mining Luc De $Raedt$	2
Machine Learning Methods for Music Discovery and Recommendation	4
Solving Problems with Visual Analytics: Challenges and Applications $\textit{Daniel Keim}$	5
Analyzing Text and Social Network Data with Probabilistic Models Padhraic Smyth	7
Association Rules and Frequent Patterns	
Discovering Descriptive Tile Trees: By Mining Optimal Geometric Subtiles	(
Efficient Discovery of Association Rules and Frequent Itemsets through Sampling with Tight Performance Guarantees	25
Smoothing Categorical Data Arno Siebes and René Kersten	42
Bayesian Learning and Graphical Models	
An Experimental Comparison of Hybrid Algorithms for Bayesian Network Structure Learning	58
Bayesian Network Classifiers with Reduced Precision Parameters Sebastian Tschiatschek, Peter Reinprecht, Manfred Mücke, and Franz Pernkopf	74
Combining Subjective Probabilities and Data in Training Markov Logic Networks	90

Score-Based Bayesian Skill Learning	106
Classification	
A Note on Extending Generalization Bounds for Binary Large-Margin Classifiers to Multiple Classes	122
Extension of the Rocchio Classification Method to Multi-modal Categorization of Documents in Social Media	130
Label-Noise Robust Logistic Regression and Its Applications	143
Sentiment Classification with Supervised Sequence Embedding Dmitriy Bespalov, Yanjun Qi, Bing Bai, and Ali Shokoufandeh	159
The Bitvector Machine: A Fast and Robust Machine Learning Algorithm for Non-linear Problems	175
Dimensionality Reduction, Feature Selection and Extraction	
Embedding Monte Carlo Search of Features in Tree-Based Ensemble Methods	191
Hypergraph Spectra for Semi-supervised Feature Selection Zhihong Zhang, Edwin R. Hancock, and Xiao Bai	207
Learning Neighborhoods for Metric Learning	223
Massively Parallel Feature Selection: An Approach Based on Variance Preservation	237
PCA, Eigenvector Localization and Clustering for Side-Channel Attacks on Cryptographic Hardware Devices	253

Distance-Based Methods and Kernels	
Classifying Stem Cell Differentiation Images by Information Distance Xianglilan Zhang, Hongnan Wang, Tony J. Collins, Zhigang Luo, and Ming Li	269
Distance Metric Learning Revisited	283
Geodesic Analysis on the Gaussian RKHS Hypersphere	299
Ensemble Methods	
Boosting Nearest Neighbors for the Efficient Estimation of Posteriors Roberto D'Ambrosio, Richard Nock, Wafa Bel Haj Ali, Frank Nielsen, and Michel Barlaud	314
Diversity Regularized Ensemble Pruning	330
Ensembles on Random Patches	346
Graph and Tree Mining	
An Efficiently Computable Support Measure for Frequent Subgraph Pattern Mining	362
Efficient Graph Kernels by Randomization	378
Graph Mining for Object Tracking in Videos	394
Hypergraph Learning with Hyperedge Expansion	410
Nearly Exact Mining of Frequent Trees in Large Networks	426
Reachability Analysis and Modeling of Dynamic Event Networks Kathu Macronol and Ambui Singh	442

Large-Scale, Distributed and Parallel Mining and Learning

CC-MR – Finding Connected Components in Huge Graphs with MapReduce	458
Thomas Seidl, Brigitte Boden, and Sergej Fries	
Fast Near Neighbor Search in High-Dimensional Binary Data	474
Fully Sparse Topic Models	490
Learning Compact Class Codes for Fast Inference in Large Multi Class Classification	506
ParCube: Sparse Parallelizable Tensor Decompositions	521
Stochastic Coordinate Descent Methods for Regularized Smooth and Nonsmooth Losses	537
Sublinear Algorithms for Penalized Logistic Regression in Massive Datasets	553
Multi-Relational Mining and Learning	
Author Name Disambiguation Using a New Categorical Distribution Similarity	569
Lifted Online Training of Relational Models with Stochastic Gradient Methods	585
Scalable Relation Prediction Exploiting Both Intrarelational Correlation and Contextual Information	601
Relational Differential Prediction	617

BDUOL: Double Updating Online Learning on a Fixed Budget

Peilin Zhao and Steven C.H. Hoi

810

XXVI Table of Contents - Part I

Handling Time Changing Data with Adaptive Very Fast Decision Rules	827
Improved Counter Based Algorithms for Frequent Pairs Mining in Transactional Data Streams	843
Mirror Descent for Metric Learning: A Unified Approach	859
Author Index	875