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Nota di contenuto	Invited Talks -- Mathematics Based on Learning -- Data Mining with Graphical Models -- On the Eigenspectrum of the Gram Matrix and Its Relationship to the Operator Eigenspectrum -- In Search of the Horowitz Factor: Interim Report on a Musical Discovery Project -- Learning Structure from Sequences, with Applications in a Digital Library -- Regular Papers -- Discovering Frequent Structured Patterns from String Databases: An Application to Biological Sequences -- Discovery in Hydrating Plaster Using Machine Learning Methods --

Revising Qualitative Models of Gene Regulation -- SEuS: Structure Extraction Using Summaries -- Discovering Best Variable-Length-Don’ t-Care Patterns -- A Study on the Effiect of Class Distribution Using Cost-Sensitive Learning -- Model Complexity and Algorithm Selection in Classification -- Experiments with Projection Learning -- Improved Dataset Characterisation for Meta-learning -- Racing Committees for Large Datasets -- From Ensemble Methods to Comprehensible Models -- Learning the Causal Structure of Overlapping Variable Sets -- Extraction of Logical Rules from Data by Means of Piecewise-Linear Neural Networks -- Structuring Neural Networks through Bidirectional Clustering of Weights -- Toward Drawing an Atlas of Hypothesis Classes: Approximating a Hypothesis via Another Hypothesis Model -- Datascape Survey Using the Cascade Model -- Learning Hierarchical Skills from Observation -- Poster Papers -- Image Analysis for Detecting Faulty Spots from Microarray Images -- Inferring Gene Regulatory Networks from Time-Ordered Gene Expression Data Using Differential Equations -- DNA-Tract Curvature Profile Reconstruction: A Fragment Flipping Algorithm -- Evolution Map: Modeling State Transition of Typhoon Image Sequences by Spatio-Temporal Clustering -- Structure-Sweetness Relationships of Aspartame Derivatives by GUHA -- A Hybrid Approach for Chinese Named Entity Recognition -- Extraction of Word Senses from Human Factors in Knowledge Discovery -- Event Pattern Discovery from the Stock Market Bulletin -- Email Categorization Using Fast Machine Learning Algorithms -- Discovery of Maximal Analogies between Stories -- Automatic Wrapper Generation for Multilingual Web Resources -- Combining Multiple K-Nearest Neighbor Classifiers for Text Classification by Reducts -- ARISTA Causal Knowledge Discovery from Texts -- Knowledge Discovery as Applied to Music: Will Music Web Retrieval Revolutionize Musicology? -- Process Mining: Discovering Direct Successors in Process Logs -- The Emergence of Artificial Creole by the EM Algorithm -- Generalized Musical Pattern Discovery by Analogy from Local Viewpoints -- Using Genetic Algorithms-Based Approach for Better Decision Trees: A Computational Study -- Handling Feature Ambiguity in Knowledge Discovery from Time Series -- A Compositional Framework for Mining Longest Ranges -- Post-processing Operators for Browsing Large Sets of Association Rules -- Mining Patterns from Structured Data by Beam-Wise Graph-Based Induction -- Feature Selection for Propositionalization -- Subspace Clustering Based on Compressibility -- The Extra-Theoretical Dimension of Discovery Extracting Knowledge by Abduction -- Discovery Process on the WWW: Analysis Based on a Theory of Scientific Discovery -- Invention vs. Discovery A Critical Discussion.

Sommario/riassunto

This volume contains the papers presented at the 5th International Conference on Discovery Science (DS 2002) held at the M¨ovenpick Hotel, Lub ¨ eck, G- many, November 24-26, 2002. The conference was supported by CorpoBase, DFKI GmbH, and JessenLenz. The conference was collocated with the 13th International Conference on - gorithmic Learning Theory (ALT 2002). Both conferences were held in parallel and shared ?ve invited talks as well as all social events. The combination of ALT 2002 and DS 2002 allowed for a comprehensive treatment of recent de- lopments in computational learning theory and machine learning - some of the cornerstones of discovery science. In response to the call for papers 76 submissions were received. The program committee selected 17 submissions as regular papers and 29 submissions as poster presentations of which 27 have been submitted for publication. This selection was based on clarity, signi'cance, and originality, as well as on relevance to the rapidly evolving ?eld of

discovery science.