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Nota di contenuto	Data Mining and Knowledge Engineering -- EXiT-B: A New Approach for Extracting Maximal Frequent Subtrees from XML Data -- Synthetic Environment Representational Semantics Using the Web Ontology Language -- New Rules for Hybrid Spatial Reasoning -- Using Pre-aggregation for Efficient Spatial Query Processing in Sensor

Environments -- Model Trees for Classification of Hybrid Data Types -- Finding Uninformative Features in Binary Data -- Knowledge Reduction of Rough Set Based on Partition -- Multiresolution Analysis of Connectivity -- Kernel Biased Discriminant Analysis Using Histogram Intersection Kernel for Content-Based Image Retrieval -- Unsupervised Image Segmentation Using Penalized Fuzzy Clustering Algorithm -- Multi-attributes Image Analysis for the Classification of Web Documents Using Unsupervised Technique -- Automatic Image Annotation Based on Topic-Based Smoothing -- A Focused Crawler with Document Segmentation -- An Intelligent Grading System Using Heterogeneous Linguistic Resources -- Probabilistic Data Generation for Deduplication and Data Linkage -- Mining Job Logs Using Incremental Attribute-Oriented Approach -- Dimensional Reduction of Large Image Datasets Using Non-linear Principal Components -- Classification by Instance-Based Learning Algorithm -- Analysis/Synthesis of Speech Signals Based on AbS/OLA Sinusoidal Modeling Using Elliptic Filter -- Robust Model Adaptation Using Mean and Variance Transformations in Linear Spectral Domain -- Using Support Vector Machine for Modeling of Pulsed GTAW Process -- Design of Simple Structure Neural Voltage Regulator for Power Systems -- EEG Source Localization for Two Dipoles in the Brain Using a Combined Method -- Intelligent Control of Micro Heat Exchanger with Locally Linear Identifier and Emotional Based Controller -- Identification of Anomalous SNMP Situations Using a Cooperative Connectionist Exploratory Projection Pursuit Model -- Learning Algorithms and Systems -- Neural Networks: A Replacement for Gaussian Processes? -- A Dynamic Merge-or-Split Learning Algorithm on Gaussian Mixture for Automated Model Selection -- Bayesian Radial Basis Function Neural Network -- An Empirical Study of Hoeffding Racing for Model Selection in k-Nearest Neighbor Classification -- Designing an Optimal Network Using the Cross-Entropy Method -- Generating Predicate Rules from Neural Networks -- Improving Ensembles with Classificational Cellular Automata -- A Gradient BYY Harmony Learning Algorithm on Mixture of Experts for Curve Detection -- A Novel Anomaly Detection Using Small Training Sets -- Induction of Linear Decision Trees with Real-Coded Genetic Algorithms and k-D Trees -- Intelligent Predictive Control of a 6-Dof Robotic Manipulator with Reliability Based Performance Improvement -- Sequential Search for Decremental Edition -- Bearing Similarity Measures for Self-organizing Feature Maps -- Efficient Spatial Clustering Algorithm Using Binary Tree -- Cluster Analysis of High-Dimensional Data: A Case Study -- Universal Clustering with Family of Power Loss Functions in Probabilistic Space -- Circular SOM for Temporal Characterisation of Modelled Gene Expressions -- Recursive Self-organizing Map as a Contractive Iterative Function System -- Differential Priors for Elastic Nets -- Graphics Hardware Implementation of the Parameter-Less Self-organising Map -- Weighted SOM-Face: Selecting Local Features for Recognition from Individual Face Image -- SOM-Based Novelty Detection Using Novel Data -- Multi-level Document Classifications with Self-organising Maps -- Bioinformatics -- Predictive Vaccinology: Optimisation of Predictions Using SupportVector Machine Classifiers -- Evolving Neural Networks for the Classification of Malignancy Associated Changes -- Matching Peptide Sequences with Mass Spectra -- Extraction by Example: Induction of Structural Rules for the Analysis of Molecular Sequence Data from Heterogeneous Sources -- A Multi-population ? 2 Test Approach to Informative Gene Selection -- Gene Selection of DNA Microarray Data Based on Regularization Networks -- Application of Mixture Models to Detect Differentially Expressed Genes

-- A Comparative Study of Two Novel Predictor Set Scoring Methods -- Deriving Matrix of Peptide-MHC Interactions in Diabetic Mouse by Genetic Algorithm -- SVM Based Prediction of Bacterial Transcription Start Sites -- Exploiting Sequence Dependencies in the Prediction of Peroxisomal Proteins -- Protein Fold Recognition Using Neural Networks and Support Vector Machines -- Agents and Complex Systems -- Support Tool for Multi-agent Development -- A Hybrid Agent Architecture for Modeling Autonomous Agents in SAGE -- Toward Transitive Dependence in MAS -- An Architecture for Multi-agent Based Self-adaptive System in Mobile Environment -- Autonomous and Dependable Recovery Scheme in UPnP Network Settings -- A Transitive Dependence Based Social Reasoning Mechanism for Coalition Formation -- A Multi-agent Based Context Aware Self-healing System -- Combining Influence Maps and Cellular Automata for Reactive Game Agents -- Patterns in Complex Systems Modeling -- Global Optimization Using Evolutionary Algorithm Based on Level Set Evolution and Latin Square -- Co-evolutionary Rule-Chaining Genetic Programming -- A Dynamic Migration Model for Self-adaptive Genetic Algorithms -- Financial Engineering -- A Multicriteria Sorting Procedure for Financial Classification Problems: The Case of Business Failure RiskAssessment -- Volatility Modelling of Multivariate Financial Time Series by Using ICA-GARCH Models -- Volatility Transmission Between Stock and Bond Markets: Evidence from US and Australia -- A Machine Learning Approach to Intraday Trading on Foreign Exchange Markets.

Sommario/riassunto

The ongoing success of the Intelligent Data Engineering and Automated Learning (IDEAL) conference series reflects the continuing need for intelligent - approaches to understanding relationships in the massive data sets which confront the modern researcher. From its origins in Hong Kong in 1998, this focus upon the nature of the data has been the unifying theme of the conference, allowing it to become a key forum for researchers to present novel approaches to data engineering and learning, and to provide a particularly valuable opportunity for cross-disciplinary exchange of ideas in emerging application areas. This breadth and continuing evolution may be seen in this year's programme, with sessions devoted to data mining and knowledge engineering, bioinformatics, agent technologies and financial engineering, together with the traditional focus on learning algorithms and systems. This volume in the Lecture Notes in Computer Science series contains accepted papers presented at IDEAL 2005, held in Brisbane, Australia, during July 6-8, 2005. The conference received 167 submissions from throughout the world, which were subsequently refereed by the Programme Committee and additional reviewers. The vast majority of submissions received three independent reviews, and for some borderline submissions an additional, fourth review was commissioned prior to the decision being made. In the end, 76 papers were judged to be of sufficient quality for acceptance and inclusion in the proceedings, with a smaller set of these articles to be considered for inclusion in planned special issues of a number of major journals - continuing a practice from recent IDEAL conferences. At the time of writing, this arrangement had been confirmed with the International Journal of Neural Systems, and discussions were well advanced with two other publications.