Lecture Notes in Computer Science 2412

Intelligent Data Engineering and Automated Learning - IDEAL 2002

Third International Conference, Manchester, UK, August 12-14 Proceedings

Bearbeitet von
Hujun Yin, Nigel Allinson, Richard Freeman, John Keane, Simon Hubbard

1. Auflage 2002. Taschenbuch. xvi, 600 S. Paperback
ISBN 978 3 540 44025 3
Format (B x L): 15,5 x 23,3 cm
Gewicht: 1890 g

Weitere Fachgebiete > EDV, Informatik > Datenbanken, Informationssicherheit, Geschäftssoftware > Zeichen- und Zahlendarstellungen

Zu Leseprobe

schnell und portofrei erhältlich bei

beck-shop.de

Die Online-Fachbuchhandlung beck-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.
# Table of Contents

## Data Mining

Mining Frequent Sequential Patterns under a Similarity Constraint ........ 1  
  *Matthieu Capelle, Cyrille Masson, Jean-François Boulicaut*

Pre-pruning Classification Trees to Reduce Overfitting in Noisy Domains ................................................. 7  
  *Max Bramer*

Data Mining for Fuzzy Decision Tree Structure with a Genetic Program .. 13  
  *James F. Smith III*

Co-evolutionary Data Mining to Discover Rules for Fuzzy Resource Management ........................................ 19  
  *James F. Smith III*

Discovering Temporal Rules from Temporally Ordered Data ................. 25  
  *Kamran Karimi, Howard J. Hamilton*

Automated Personalisation of Internet Users Using Self-Organising Maps .................................................... 31  
  *Yrjö Hiltunen, Mika Lappalainen*

Data Abstractions for Numerical Attributes in Data Mining ................ 35  
  *Masaaki Narita, Makoto Haraguchi, Yoshiaki Okubo*

Calculating Aggregates with Range-Encoded Bit-Sliced Index ............... 43  
  *Kashif Bhatta*

T3: A Classification Algorithm for Data Mining ........................ 50  
  *Christos Tjortjis, John Keane*

A Hierarchical Model to Support Kansei Mining Process .................... 56  
  *Tomofumi Hayashi, Akio Sato, Nadia Berthouze*

Evolving SQL Queries for Data Mining .............................. 62  
  *Majid Salim, Xin Yao*

Indexing and Mining of the Local Patterns in Sequence Database ........ 68  
  *Xiaoming Jin, Likun Wang, Yuchang Lu, Chungi Shi*
# Table of Contents

## Knowledge Engineering

A Knowledge Discovery by Fuzzy Rule Based Hopfield Network ............ 74  
*Thanakorn Sornkaew, Yasuo Yamashita*

Fusing Partially Inconsistent Expert and Learnt Knowledge in Uncertain Hierarchies ......................................................... 80  
*Jonathan Rossiter*

Organisational Information Management and Knowledge Discovery in Email within Mailing Lists ........................................ 87  
*Emanuela Moreale, Stuart Watt*

Design of Multi-drilling Gear Machines by Knowledge Processing and Machine Simulation .................................................. 93  
*G. Klene, A. Grauel, H.J. Convey, A.J. Hartley*

## Text and Document Processing

Classification of Email Queries by Topic: Approach Based on Hierarchically Structured Subject Domain .......... 99  
*Anna V. Zhdanova, Denis V. Shishkin*

A Knowledge-Based Information Extraction System for Semi-structured Labeled Documents .............................................. 105  
*Jaeyoung Yang, Heeuck Oh, Kyung-Goo Doh, Joongmin Choi*

Measuring Semantic Similarity Between Words Using Lexical Knowledge and Neural Networks .............................................. 111  
*Yuhua Li, Zuhair Bandar, David Mclean*

Extraction of Hidden Semantics from Web Pages .................................. 117  
*Vincenza Carchiolo, Alessandro Longheu, Michele Malgeri*

Self-Organising Maps for Hierarchical Tree View Document Clustering Using Contextual Information ...................................... 123  
*Richard Freeman, Hujun Yin*

Schema Discovery of the Semi-structured and Hierarchical Data .......... 129  
*Jianwen He*

RSTIndex: Indexing and Retrieving Web Document Using Computational and Linguistic Techniques ........................................ 135  
*Farhi Marir, Kamel Houam*

A Case-Based Recognition of Semantic Structures in HTML Documents (An Automated Transformation from HTML to XML) .............. 141  
*Masayuki Umehara, Koji Iwanuma, Hidetomo Nabeshima*
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expeditious XML Processing</td>
<td>148</td>
</tr>
<tr>
<td><em>Kelvin Yeow, R. Nigel Horspool, Michael R. Levy</em></td>
<td></td>
</tr>
<tr>
<td>Document Clustering Using the 1 + 1 Dimensional Self-Organising Map</td>
<td>154</td>
</tr>
<tr>
<td><em>Ben Russell, Hujun Yin, Nigel M. Allinson</em></td>
<td></td>
</tr>
<tr>
<td>Natural Language Processing for Expertise Modelling in E-mail</td>
<td>161</td>
</tr>
<tr>
<td><em>Sanghee Kim, Wendy Hall, Andy Keane</em></td>
<td></td>
</tr>
<tr>
<td><strong>Internet Applications</strong></td>
<td></td>
</tr>
<tr>
<td>A Branch and Bound Algorithm for Minimum Cost Network</td>
<td>167</td>
</tr>
<tr>
<td><em>Jun Han, Graham McMahon, Stephen Sugden</em></td>
<td></td>
</tr>
<tr>
<td>Study of the Regularity of the Users’ Internet Accesses</td>
<td>173</td>
</tr>
<tr>
<td><em>Nicolas Durand, Luigi Lancieri</em></td>
<td></td>
</tr>
<tr>
<td>An Intelligent Mobile Commerce System with Dynamic Contents</td>
<td>179</td>
</tr>
<tr>
<td><em>Sera Jang, Eunseok Lee</em></td>
<td></td>
</tr>
<tr>
<td>Focused Crawling Using Fictitious Play</td>
<td>186</td>
</tr>
<tr>
<td><em>Ville K¨on¨onen</em></td>
<td></td>
</tr>
<tr>
<td>A User Adaptive Mobile Commerce System with a Middlet Application</td>
<td>193</td>
</tr>
<tr>
<td><em>Eunseok Lee, Sera Jang</em></td>
<td></td>
</tr>
<tr>
<td>Weight-Vector Based Approach for Product Recommendation in E-commerce</td>
<td>200</td>
</tr>
<tr>
<td><em>Bhanu Prasad</em></td>
<td></td>
</tr>
<tr>
<td>The Development of an XML-Based Data Warehouse System</td>
<td>206</td>
</tr>
<tr>
<td><em>Shi-Ming Huang, Chan-Hao Su</em></td>
<td></td>
</tr>
<tr>
<td>Identifying Data Sources for Data Warehouses</td>
<td>213</td>
</tr>
<tr>
<td><em>Christian Koncilia, Heinz Pozewaunig</em></td>
<td></td>
</tr>
<tr>
<td><strong>Agent Technologies</strong></td>
<td></td>
</tr>
<tr>
<td>Coordinating Learning Agents via Utility Assignment</td>
<td>219</td>
</tr>
<tr>
<td><em>Steven Lynden, Omer F. Rana</em></td>
<td></td>
</tr>
<tr>
<td>AGILE: An Agent-Assisted Infrastructure to Support Learning Environments</td>
<td>225</td>
</tr>
<tr>
<td><em>Nicoletta Dessi</em></td>
<td></td>
</tr>
<tr>
<td>Multi-agent Fuzzy Logic Resource Manager</td>
<td>231</td>
</tr>
<tr>
<td><em>James F. Smith III</em></td>
<td></td>
</tr>
</tbody>
</table>
## Table of Contents

### Transactional Multiple Agents
- **An Information Model for a Merchant Trust Agent in Electronic Commerce**
  - Xinfeng Ye, John Keane, Guoqing Zhang
  - Pages: 243

### MASIVE: A Case Study in Multiagent Systems
- **MASIVE: A Case Study in Multiagent Systems**
  - Mohd Khairudin Kasiran, Farid Meziane
  - Pages: 249

### Learning Multi-agent Strategies in Multi-stage Collaborative Games
- **Learning Multi-agent Strategies in Multi-stage Collaborative Games**
  - W. Andy Wright
  - Pages: 255

### Emergent Specialization in Swarm Systems
- **Emergent Specialization in Swarm Systems**
  - Ling Li, Alcherio Martinoli, Yaser S. Abu-Mostafa
  - Pages: 261

### Distributed Mobile Communication Base Station Diagnosis and Monitoring Using Multi-agents
- **Distributed Mobile Communication Base Station Diagnosis and Monitoring Using Multi-agents**
  - J.Q. Feng, D.P. Buse, Q.H. Wu, J. Fitch
  - Pages: 267

### ABBA - Agent Based Beaver Application - Busy Beaver in Swarm
- **ABBA - Agent Based Beaver Application - Busy Beaver in Swarm**
  - Alessandro Perrone, Gianluigi Ferraris
  - Pages: 273

### Centralised and Distributed Organisational Control
- **Centralised and Distributed Organisational Control**
  - J.M.E. Gabbai, W. Andy Wright, Nigel M. Allinson
  - Pages: 279

### Special Session on Autonomous Mining
- **Mining Dependence Structures from Statistical Learning Perspective**
  - Lei Xu
  - Pages: 285

#### k*-Means — A Generalized k-Means Clustering Algorithm with Unknown Cluster Number
- **k*-Means — A Generalized k-Means Clustering Algorithm with Unknown Cluster Number**
  - Yiu-ming Cheung
  - Pages: 307

### Financial Engineering
- **Intraday FX Trading: An Evolutionary Reinforcement Learning Approach**
  - M.A.H. Dempster, Y.S. Romaki
  - Pages: 347
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Up-Trend Detection Using an Auto-Associative Neural Network: KOSPI 200 Futures</td>
<td>359</td>
</tr>
<tr>
<td>Jinwoo Baek, Sungzoon Cho</td>
<td></td>
</tr>
<tr>
<td>Stock Price and Index Forecasting by Arbitrage Pricing</td>
<td>366</td>
</tr>
<tr>
<td>Theory-Based Gaussian TFA Learning</td>
<td></td>
</tr>
<tr>
<td>Kai Chun Chiu, Lei Xu</td>
<td></td>
</tr>
<tr>
<td>A Comparative Study on Three MAP Factor Estimate Approaches for NFA</td>
<td>372</td>
</tr>
<tr>
<td>Zhiyong Liu, Lei Xu</td>
<td></td>
</tr>
<tr>
<td>A Neural Classifier with Fraud Density Map for Effective Credit</td>
<td>378</td>
</tr>
<tr>
<td>Card Fraud Detection</td>
<td></td>
</tr>
<tr>
<td>Min-Jung Kim, Taek-Soo Kim</td>
<td></td>
</tr>
<tr>
<td>A Comparison of Two Techniques for Next-Day Electricity</td>
<td>384</td>
</tr>
<tr>
<td>Price Forecasting</td>
<td></td>
</tr>
<tr>
<td>Alicia Troncoso Lora, Jesús Riquelme Santos, José Riquelme Santos,</td>
<td></td>
</tr>
<tr>
<td>Antonio Gómez Expósito, José Luís Martínez Ramos</td>
<td></td>
</tr>
<tr>
<td>Support Vector Machine Regression for Volatile Stock Market Prediction</td>
<td>391</td>
</tr>
<tr>
<td>Haiqin Yang, Laiwan Chan, Irwin King</td>
<td></td>
</tr>
<tr>
<td>Complexity Pursuit for Financial Prediction</td>
<td>397</td>
</tr>
<tr>
<td>Ying Han, Colin Fyfe</td>
<td></td>
</tr>
<tr>
<td>Artificial Intelligence in Portfolio Management</td>
<td>403</td>
</tr>
<tr>
<td>Man-Chung Chan, Chi-Cheong Wong, W.F. Tse, Bernard K.-S. Cheung,</td>
<td></td>
</tr>
<tr>
<td>Gordon Y.-N. Tang</td>
<td></td>
</tr>
<tr>
<td>The Multilevel Classification Problem and a Monotonicity Hint</td>
<td>410</td>
</tr>
<tr>
<td>Malik Magdon-Ismail, Hung-Ching (Justin) Chen, Yaser S. Abu-Mostafa</td>
<td></td>
</tr>
<tr>
<td>Adaptive Filtering for GARCH Models</td>
<td>416</td>
</tr>
<tr>
<td>Paul E. Lynch, Nigel M. Allinson</td>
<td></td>
</tr>
<tr>
<td>Bio-Informatics</td>
<td></td>
</tr>
<tr>
<td>Application of Self-Organising Maps in Automated Chemical Shift</td>
<td>423</td>
</tr>
<tr>
<td>Correction of In Vivo $^1$H MR Spectra</td>
<td></td>
</tr>
<tr>
<td>Juhani Pulkkinen, Mika Lappalainen, Anna-Maija Hakkinen, Nina Lundbom, Risto A. Kauppinen, Yrjö Hiltunen</td>
<td></td>
</tr>
<tr>
<td>Supervised Learning of Term Similarities</td>
<td>429</td>
</tr>
<tr>
<td>Irena Spasić, Goran Nenadić, Kostas Manios, Sophia Ananiadou</td>
<td></td>
</tr>
</tbody>
</table>
# Table of Contents

## BIKMAS: A Knowledge Engineering System for Bioinformatics

Victoria López-Alonso, Lucia Moreno, Guillermo López-Campos, Victor Maojo, Fernando Martín-Sanchez

Unsupervised Feature Extraction of *in vivo* Magnetic Resonance Spectra of Brain Tumours Using Independent Component Analysis

C. Ladroue, A.R. Tate, F.A. Howe, J.R. Griffiths

## Learning Systems

Classification Learning by Decomposition of Numerical Datasets

Grace J. Hwang, Chun-Chan Tang

Combining Feature Selection with Feature Weighting for k-NN Classifier

Yongguang Bao, Xiaoyong Du, Naohiro Ishii

Pattern Selection for Support Vector Classifiers

Hyunjung Shin, Sungzoon Cho

Graphical Features Selection Method

Yuan-chin Ivan Chang, Haoran Hsu, Lin-Yi Chou

Fuzzy-Neural Inference in Decision Trees

Keeley Crockett, Zuhair Bandar, James O’Shea

Decision Tree Based Clustering

Dongsuk Yook

Usage of New Information Estimations for Induction of Fuzzy Decision Trees

Vitaly G. Levashenko, Elena N. Zaitseva

A Dynamic Method for Discretization of Continuous Attributes

Grace J. Hwang, Fumin Li

A New Neural Implementation of Exploratory Projection Pursuit

Colin Fyfe, Emilio Corchado

A General Framework for a Principled Hierarchical Visualization of Multivariate Data

Ata Kabán, Peter Tiño, Mark Girolami
Chinese Character Recognition - Comparison of Classification
Methodologies .................................................... 524
   Sameer Singh, Adnan Amin, K.C. Sum

Lempel-Ziv Coding in Reinforcement Learning .................. 531
   Kazunori Iwata, Naohiro Ishii

Pattern Recognition

Efficient Face Extraction Using Skin-Color Model and a
Neural Network .................................................. 538
   Jong-Bae Kim, Chae-Hyun Moon, Hang-Joon Kim

Feature Weights Determining of Pattern Classification by Using a
Rough Genetic Algorithm with Fuzzy Similarity Measure ......... 544
   Shan Ding, Naohiro Ishii

Recursive Form of the Discrete Fourier Transform for
Two-Dimensional Signals ....................................... 551
   Zümray Dokur, Tamer Ölmez

Viseme Recognition Experiment Using Context Dependent Hidden
Markov Models .................................................... 557
   Soonkyu Lee, Dongsuk Yook

Stave Extraction for Printed Music Scores ....................... 562
   Hidetoshi Miyao

Scaling-Up Model-Based Clustering Algorithm by Working on
Clustering Features .............................................. 569
   Huidong Jin, Kwang-Suk Leung, Man-Leung Wong

A New Approach to Hierarchically Retrieve MPEG Video ........... 576
   Yang Liu, Huanqiang Zhang, Zhimei Wu

Alpha-Beta Search Revisited .................................... 582
   Paul Parkins, John A. Keane

Quantifying Relevance of Input Features ........................ 588
   Wenjia Wang

Author Index ..................................................... 595