

Ajith Abraham
Mario Köppen
Editors

Hybrid Information Systems

With 237 Figures
and 99 Tables

Physica-Verlag

A Springer-Verlag Company

Contents

Neural Networks and Applications

A Full Explanation Facility for a MLP Network that Classifies Low-Back-Pain Patients and for Predicting its Reliability <i>M.L. Vaughn, S.J. Cavill, S.J. Taylor, M.A. Foy and A J.B. Fogg</i>	1
Use of Multi-category Proximal SVM for Data Set Reduction <i>S.V.N. Vishwanathan and M.N. Murty</i>	19
Neural Techniques in Logo Recognition <i>V. Joshi, L.C. Jain, U. Seiffert, K. Zyga, R. Price and F. Leisch</i>	25
Motion Detection Using Cellular Neural Network <i>S. Belkasim and O. Basir</i>	33
Speech Separation Based on Higher Order Statistics Using Recurrent Neural Networks <i>Y. Li and D.M.W. Powers</i>	45
Speaker Recognition Using Radial Basis Function Neural Networks <i>D. Jianping and R. Venkateswarlu</i>	57
A Multifaceted Investigation into Speech Reading <i>T.W. Lewis and D.M.W. Powers</i>	65
Global Optimisation of Neural Networks Using a Deterministic Hybrid Approach <i>G. Beliakov and A. Abraham</i>	79
AppART: An ART Hybrid Stable Learning Neural Network for Universal Function Approximation <i>L. Marti, A. Policriti and L. Garcia</i>	93
Monitoring System Security Using Neural Networks and Support Vector Machines <i>S. Mukkamala, G. Janoski and A. Sung</i>	121
A Hybrid Detection and Classification System for Human Motion Analysis <i>K. Tabb, N. Davey, R. Adams and S. George</i>	139

Integrated Technique with Neurocomputing for Temporal Video Segmentation <i>G. Sorwar, L. Dooley and M. Murshed</i>	159
Matching Data Mining Algorithm Suitability to Data Characteristics Using a Self-Organizing Map <i>K.A. Smith, F. Woo, V. Ciesielski and R. Ibrahim</i>	169
Perceptual Grouping of Contours via Gated Diffusion of Boundary Signals <i>Z. Nedic, P. Lozo and L.C. Jain</i>	181
Fuzzy Logic and Applications	
Fusion of Fuzzy System and Conventional Technique to Evaluate Weather and Terrain Effects on the Vehicle Operations <i>A. Pradhan, L.C. Jain, A. Filippidis and F. Leisch</i>	195
Soft Computing for Developing Short Term Load Forecasting Models in Czech Republic <i>M.R. Khan, A. Abraham and Č. Ondrůšek</i>	207
An Induction Algorithm with Selection Significance Based on a Fuzzy Derivative <i>M.A. Mamedov and J. Yearwood</i>	223
Adaptive Database Learning in Decision Support Systems Using Evolutionary Fuzzy Systems: A Generic Framework <i>C. Tran, L.C. Jain and A. Abraham</i>	237
Histogram-Based Fuzzy Clustering and its Comparison to Fuzzy C-Means Clustering in One-Dimensional Data <i>A. Chong, T.D. Gedeon and K.W. Wong</i>	253
Optimizing Linear Programming Technique Using Fuzzy Logic <i>S. Petrovic-Lazarevic and A. Abraham</i>	269
Semantics for Fuzzy Disjunctive Programs with Weak Similarity <i>D. Guller</i>	285
An Integration of Fuzzy and Two-Valued Logics on Natural Language Semantics <i>T. Maeda, I. Hayashi, M. Umamo and L.C. Jain</i>	301
Fuzzy Hyperplanes in the Hypothesis Space <i>M. Eineborg</i>	313

Evolutionary Computation and Other Heuristics

A Genetic Algorithm for Optimizing Throughput in Non-broadcast WDM Optical Networks <i>H. Podnar and J. Skorin-Kapov</i>	323
Solving Trigonometric Identities with Tree Adjunct Grammar Guided Genetic Programming <i>N.X. Hoai</i>	339
Integrated Evolutionary Algorithms <i>P. Osmera and J. Roupec</i>	353
Evolving Natural Language Parser with Genetic Programming <i>G. Dulewicz and O. Unold</i>	361
A Linear Genetic Programming Approach for Modeling Electricity Demand Prediction in Victoria <i>M. Bhattacharya, A. Abraham and B. Nath</i>	379
Flexible Generator Maintenance Scheduling in a Practical System Using Fuzzy Logic and Genetic Algorithm <i>D. Srinivasan and I.M. Malik</i>	395
Information Space Optimization with Real-Coded Genetic Algorithm for Inductive Learning <i>R. Orihara, T. Murakami, N. Sueda and S. Sakurai</i>	415
A Comparison of GRASP and an Exact Method for Solving a Production and Delivery Scheduling Problem <i>J.M. García, K.A. Smith, S. Lozano and F. Guerrero</i>	431
Intelligent Agents and Applications	
MEBRL: Memory Evolution Based Reinforcement Learning Algorithm of MAS <i>L. Chang and J. Yang</i>	449
Agent Representation and Communication in CBR-Tutor <i>R.L. Reyes and R.C. Sison</i>	459
Agent-based Software Engineering and Agent Mediations <i>C.F. Nourani</i>	469
Virtual AI Classroom: A Proposal <i>F.N. Alpaslan and L.C. Jain</i>	485

An Argumentation-Based Multi-Agent System for eTourism Dialogue <i>J. Avery, J. Yearwood and A. Stranieri</i>	497
Modeling a Distributed Knowledge Management for Cooperative Agents <i>N. Etani</i>	513
Bayesian Methods / Rough Sets and Applications	
Linear Discriminant Text Classification in High Dimension <i>A. Kornai and J.M. Richards</i>	527
A Bayesian Track-before-Detect Algorithm for IR Point Target Detection <i>R.C. Warren</i>	539
Application of Bayesian Controllers to Dynamic Systems <i>R. Deventer, J. Denzler and H. Niemann</i>	555
An Algorithm for Automatic Generation of a Case Base from a Database Using Similarity-Based Rough Approximation <i>L. Geng and C.W. Chan</i>	571
A Family of Algorithms for Implementing the Main Concepts of the Rough Set Theory <i>M. do Carmo, Nicoletti and J. Quinteiro Uchôa</i>	583
Intelligent Data Mining and Information Analysis	
Value of Information Analysis in Dynamic Influence Diagrams <i>S. Xu and K.-L. Poh</i>	597
An Automated Report Generation Tool for the Data Understanding Phase <i>J. Vesanto and J. Hollmén</i>	611
Determining the Validity of Clustering for Data Fusion <i>K.A. Smith, S. Chuan and P. van der Putten</i>	627
The Performance of Small Support Spatial and Temporal Filters for Dim Point Target Detection in Infrared Image Sequences <i>R.C. Warren</i>	637
Using Petri Nets for Modeling Branch Control of Pipeline Processors <i>J.-F. Tu and L.-H. Wang</i>	653
Extended Vector Annotated Logic Program and its Applications to Robot Action Control and Automated Safety Verification <i>K. Nakamatsu, J.M. Abe and A. Suzuki</i>	665

Hybrid Intelligent Systems Applications: Reviews and Frameworks

Overview of Markov Chain Monte Carlo for Statistical Inference and its Application <i>T. Bo and C.T. Chai</i>	681
Insurance Applications of Soft Computing Technologies <i>A.F. Shapiro</i>	695
Teaming Human and Machine: A Conceptual Framework <i>P. Urlings and L.C. Jain</i>	711
Dynamics and Thinking of Social Systems <i>V.I. Svetlichny</i>	723
Author Index	733