<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>xxi</td>
</tr>
<tr>
<td>Architectures</td>
<td>1</td>
</tr>
<tr>
<td>Multiple-Labeled Instance Classifier in Functional Genomics</td>
<td>3</td>
</tr>
<tr>
<td>An Analysis of MCMC Sampling Methods for Estimating Weighted Sums in Winnow</td>
<td>15</td>
</tr>
<tr>
<td>The Algorithm of Synthesis of Logically Transparent Multilayer Neural Networks</td>
<td>21</td>
</tr>
<tr>
<td>Improving Kernel-Based Classifiers by Guided Dynamic Sample Selection</td>
<td>27</td>
</tr>
<tr>
<td>Parameterization of Scattered Surface Points Using a SOFM</td>
<td>33</td>
</tr>
<tr>
<td>An Adaptive Sampling Scheme for Genetic Algorithms on the Sampled OneMax Problem</td>
<td>39</td>
</tr>
<tr>
<td>Adaptation of Representation in GP</td>
<td>45</td>
</tr>
<tr>
<td>A Hybrid GA/PSO to Evolve Artificial Recurrent Neural Networks</td>
<td>51</td>
</tr>
<tr>
<td>Adaptive Learning Algorithms for Nernst Potential in Nerve Cell Membrane Ion Channels</td>
<td>57</td>
</tr>
<tr>
<td>Non-Linearly Separable Cluster Classification: An Application for a Pulse-Coded CMOS Neuron</td>
<td>63</td>
</tr>
<tr>
<td>Line Detection Using a Biologically-Motivated, Continuous-Time, Feedback System Based on the Visual Cortex: Part I</td>
<td>69</td>
</tr>
<tr>
<td>Line Detection Using a Biologically-Motivated, Continuous-Time, Feedback System Based on the Visual Cortex: Part II</td>
<td>75</td>
</tr>
<tr>
<td>The Architecture of a Wisdom Machine (WM)</td>
<td>81</td>
</tr>
<tr>
<td>More Neuromorphic Artificial Neural Networks for Modeling General Neural Control</td>
<td>95</td>
</tr>
<tr>
<td>Visualizing Speciation in Evolving Neural Networks</td>
<td>101</td>
</tr>
<tr>
<td>Cluster Validity and the Semi-Supervised Classification Problem</td>
<td>107</td>
</tr>
<tr>
<td>Using a CMAC Neural Network in Noisy Environments</td>
<td>113</td>
</tr>
<tr>
<td>A Benchmark for the Rate of Convergence in Neural Network Classification Algorithms</td>
<td>119</td>
</tr>
<tr>
<td>Interactive Evolution for Systematic Exploration of a Parameter Space</td>
<td>125</td>
</tr>
<tr>
<td>A Visualized Initial Weights Selecting for Multi-Layer Feedforward Networks</td>
<td>133</td>
</tr>
<tr>
<td>Glide Algorithm with Tunneling: A Fast, Reliably-Convergent Algorithm for Neural Network Training</td>
<td>139</td>
</tr>
<tr>
<td>Reconfigurable Computing Architecture based on Cellular Automata with a Fixed Rule</td>
<td>145</td>
</tr>
<tr>
<td>Classification of QRS Complexes Using a Mixture of Experts</td>
<td>151</td>
</tr>
<tr>
<td>Synthesis of a Complex Control System on the Basis of Neural Networks</td>
<td>157</td>
</tr>
<tr>
<td>On Virtues and Vices of Second-Order Measures of Quality for Binary Classification</td>
<td>163</td>
</tr>
<tr>
<td>Granular Sets and Granular Relations for Algebraic Knowledge Management</td>
<td>169</td>
</tr>
<tr>
<td>Distributed Evolutionary Programming Formulation of Support Vector Machines (SVMS) for Detecting and Classifying Organophosphate Nerve Agents</td>
<td>175</td>
</tr>
<tr>
<td>Robust Support Vector Regression and Applications</td>
<td>181</td>
</tr>
<tr>
<td>Exploiting Mobile Multi-Agent Systems for Multiclass Proximal Support Vector Classification</td>
<td>187</td>
</tr>
<tr>
<td>Self Organizing Map and Linear Support Vector Machine Decision Tree with Optimized Class Separability</td>
<td>193</td>
</tr>
<tr>
<td>Evolutionary Programming</td>
<td>199</td>
</tr>
<tr>
<td>Evolutionary Platform for Agent Learning</td>
<td>201</td>
</tr>
</tbody>
</table>
Incremental Broadcasting as a Strategy for Multi Agent Communication  p. 207
Group Formation of Emotion Agents  p. 213
The Effect of Irrelevant Features on AIRS, an Artificial Immune-Based Classifier  p. 219
Parallelizing an Immune-Inspired Algorithm for Efficient Pattern Recognition  p. 225
Emergent Shortest Paths  p. 231
Follow the Leader Motion Strategy in Double-Octahedral Parallel Trusses  p. 237
The Role of Hypothesis Filtering in AIRS, an Artificial Immune Classifier  p. 243
A Novel Genetic Algorithm with King Strategy  p. 249
Multiprocessor Scheduling Algorithms Based on Cellular Automata Training  p. 255
Rate of Information Transfer in Graph Based Evolutionary Algorithms  p. 261
Combinatorial Optimization of Mutual Information Estimates Using Time-Delayed Input Coordinates  p. 267
L-Grammar Induction Using Genetic Algorithms  p. 273
Database-Driven Neural Networks and Evolutionary Computation  p. 279
A Hierarchical Genetic Algorithm Approach for Modular Neural Networks Evolution  p. 287
Search of Global Optima Evolution Strategies  p. 293
Visualizing Information Flow in Evolving Graph-Based Population  p. 299
Optimizing Traffic Control Problems with Micro-Genetic Algorithms  p. 305
Solution of a 2-D Inverse Heat Conduction Problem Using Evolutionary Data Segregation Techniques  p. 315
Evolvable Hardware Applied to Voice Recognition  p. 321
Genetic Algorithm Design Inspired by Organizational Theory: Pilot Study of Dependency Structure Matrix Driven Genetic Algorithm  p. 327
Genetic Algorithm Based Design and Implementation of Multiplierless Two-Dimensional Image Filters  p. 333
A Genetic Algorithm Search for Improved Halftone Masks  p. 341
A Tabu Search Based Approach to Robust State Estimation in Radial Power Distribution Systems  p. 347
A Proposal and Evaluation of a Parallelized Immune Co-Evolutionary Algorithm for Division-of-Labor Problems  p. 355
Triangular Permutation Scan Algorithm for Robot Tour Problem  p. 361
Chemical Reaction Model for Probabilistic and Evolutionary Computation  p. 367
Using the Evolution Strategies' Self-Adaptation Mechanism and Tournament Selection for Global Optimization  p. 373
On the Expected Convergence Time of a Genetic Algorithm with Minimum Parameters  p. 379
Planned Tournament Selection  p. 385
Optimizing Genetic Algorithms to Train Fully Connected, Fixed Feedforward Neural Networks  p. 391
A Study About Automatic Design of Intersection Model Using Cellular Automata  p. 397
Fuzzy Systems  p. 403
Possibility Reasoning with Uncertainty  p. 405
Asymmetric Kernel Fuzzy Cluster Loading  p. 411
Tuning of Fuzzy Inference Systems Through Unconstrained Optimization Techniques  p. 417
Development of Neurofuzzy Architecture for Solving the N-Queens Problem  p. 423
A New Approach for Fuzzy Inference in Intuitionistic Fuzzy Systems
Specifying the Subjective: Fuzzy Evaluation of System Features
A Fuzzy Finite-State Automation Definition that Unifies a Number of other Popular Computational Paradigms
A Hardware Model For Fuzzy Temporal Knowledge Representation
Fuzzy Correlation Coefficient Approximate Estimation
Mining the World Bank Data: The Fuzzy c-Means Clustering Approach
Dynamic Neuro-Fuzzy System for Prognosis in Rehabilitation
Framework of a Fuzzy Multiple Criteria Model for Facilities Planning
Intelligent Control of Nonlinear Dynamic System Using Immune Fuzzy Fusion
An Algorithm for Fractal Image Compression Using Fuzzy Logic
Application of Fuzzy Adaptive Networks in Manufacturing: Prediction of Material Removal Rate in Rotary Ultrasonic Machining
One Possible Membership Function Construction Model
Adaptive Control
Approximate Input/State Feedback Linearization for Multivariable Nonlinear Systems
Dynamic Simulation of Computed-Torque Controllers for a Wheeled Mobile Robot
Autonomous Navigation in Outdoor Environments
Evolutionary Acquisition of Behavior Using Robot Model Based on Spring-Mass System
Creative Control for Intelligent Autonomous Mobile Robots
Modal Analysis and Active Vibration Control of a Multi-Degree-Of-Freedom Structure
Nonlinear Faults Isolation and Multivariate Process Monitoring - Based on Neural Networks Method
The Parametrization of all Stabilizing Controllers for Time-Delay Systems
A Design Method for Robust Repetitive Control Systems
A Neural Control Method for Impedance Matching of Antenna Systems
Artificial Intelligence for the Control of Underwater Vehicles
Fuzzy-Neuro System for Bridge Health Monitoring
A Design Method for PI Control for Minimum Phase Systems
Pattern Recognition
Modeling Foveal Human Image Processing for Enhanced Contrast and Edge Detection of Images Used in Artificial Vision Systems
Robust Facial Expression Recognition System with Face Detection Using Convolutional Neural Networks
Hierarchical Search and Browsing of Face Image Databases
A Novel Multi-Point Luminescent Coated Ultra Violet Fibre Sensor Utilising Pattern Recognition
Goal Directed Visual Search Based On Color Cues: Co-operative Effects of Top-Down & Bottom-Up Visual Attention
An Investigation of the Effects of Correlation in Classifier Fusion
Image Reconstruction From Part of Subband Images
A Statistical Neural Network Model for Object Detection
Shape Morphing Using Spherical SOFMs p. 637
Signature Recognition and Verification with ANN Using Moment Invariant Method p. 643
Recognition of the Outlines of an Image by Using ANN p. 651
Local Feedback in the Evolution of Complementary Feature Subsets p. 657
Pattern Matching in Collections of Java Bytecode: Maximising Reuse Potential p. 663
Radiographic Image Estimation for Two Material Assemblies by Using Neural Networks p. 669

Prediction p. 675
Tornado Detection With Kernel-Based Methods p. 677
Spatial Characterization of Rainfall Patterns for Use in a Classification System p. 683
Neural Network and Statistics-Based Systems for Predictions in Coastal Studies p. 689
Lidar Detection of Underwater Objects Using Neural Networks with Linear Prediction and Fourier Transform for Feature Extraction p. 695
Inflow Forecasting of the Dam by the Neural Network p. 701
A Temporal Pattern Approach for Predicting Weekly Financial Time Series p. 707
New Methods to Optimize Stock Price Prediction With Neural Networks p. 713
A Practical Artificial Intelligence-Based Predictor for Real Time Stock Index Forecasting Problem p. 719
A Hybrid Option Pricing Model Using a Neural Network for Forecasting Volatility p. 725
New Methods to Test Elastic Market Efficiency Theory With Neural Network p. 731
Short Term Forecasting with Support Vector Machines and Application to Stock Price Prediction p. 737
Short-term Stock Forecasting Based on a Neural Network Model Incorporating Fuzzy Logic and Fibonacci Ratios p. 743
Forecasting Fatigue Allowances Using Neural Networks p. 749
Predicting Strength of High Performance Concrete Using Artificial Neural Network p. 755
Data Mining and Decision Support Systems p. 761
Dynamic Determinants for Decision-Making in Smart Engineering Systems p. 763
Generic Bi-Layered Net Model of Conservation and Information Processes p. 769
Knowledge-Based Smart Protocol for Biometric Authentication p. 775
A Data Reduction Technique for Web Mining Applications p. 781
Discrete-Event Simulation Models with JAVA/JDBC/RMI p. 787
Multi-Attribute Learning Mechanism for Customer Satisfaction Assessment p. 793
Neural Networks in Embedded Linux p. 801
Web Structure Reorganization for Adaptive Navigation through Conceptual Clustering p. 807

Smart Engineering Systems p. 813
An Application of Clustering and Cluster Validity Measures to Epidemiology Data p. 815
Detection of Multiple Sclerosis Using Neural Network Ensembles p. 821
Approximate Reasoning in Traditional Chinese Medical Diagnosis and Treatment for the Abnormal Rhythm of Heart-Beats p. 827
Experiments Using an Adaptive Network-Based Fuzzy Inference System (ANFIS) for the Diagnosis of Breast Cancer p. 835