

1. Record Nr.	UNINA9910484033803321
Titolo	Hybrid Artificial Intelligent Systems, Part I : 5th International Conference, HAIS 2010, San Sebastian, Spain, June 23-25, 2010. Proceedings / / edited by Manuel Grana Romay, M. Teresa Garcia Sebastian
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2010
ISBN	1-280-38731-9 9786613565235 3-642-13769-5
Edizione	[1st ed. 2010.]
Descrizione fisica	1 online resource (XXXIV, 606 p. 227 illus.)
Collana	Lecture Notes in Artificial Intelligence, , 2945-9141 ; ; 6076
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Disciplina	006.3
Soggetti	Artificial intelligence Computer programming Algorithms Application software Computer science Database management Artificial Intelligence Programming Techniques Computer and Information Systems Applications Theory of Computation Database Management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Y-Means: An Autonomous Clustering Algorithm -- A Survey and Analysis of Frameworks and Framework Issues for Information Fusion Applications -- A Regular Tetrahedron Formation Strategy for Swarm Robots in Three-Dimensional Environment -- Markovian Ants in a Queuing System -- A Parametric Method Applied to Phase Recovery

from a Fringe Pattern Based on a Particle Swarm Optimization -- Automatic PSO-Based Deformable Structures Markerless Tracking in Laparoscopic Cholecystectomy -- A Framework for Optimization of Genetic Programming Evolved Classifier Expressions Using Particle Swarm Optimization -- Developing an Intelligent Parking Management Application Based on Multi-agent Systems and Semantic Web Technologies -- Linked Multicomponent Robotic Systems: Basic Assessment of Linking Element Dynamical Effect -- Social Simulation for Aml Systems Engineering -- Automatic Behavior Pattern Classification for Social Robots -- Healthcare Information Fusion Using Context-Aware Agents -- Multivariate Discretization for Associative Classification in a Sparse Data Application Domain -- Recognition of Turkish Vowels by Probabilistic Neural Networks Using Yule-Walker AR Method -- A Dynamic Bayesian Network Based Structural Learning towards Automated Handwritten Digit Recognition -- A Dual Network Adaptive Learning Algorithm for Supervised Neural Network with Contour Preserving Classification for Soft Real Time Applications -- The Abnormal vs. Normal ECG Classification Based on Key Features and Statistical Learning -- Classification of Wood Pulp Fibre Cross-Sectional Shapes -- A Hybrid Cluster-Lift Method for the Analysis of Research Activities -- Protein Fold Recognition with Combined SVM-RDA Classifier -- Data Processing on Database Management Systems with Fuzzy Query -- A Hybrid Approach for Process Mining: Using From-to Chart Arranged by Genetic Algorithms -- Continuous Pattern Mining Using the FCPGrowth Algorithm in Trajectory Data Warehouses -- Hybrid Approach for Language Identification Oriented to Multilingual Speech Recognition in the Basque Context -- An Approach of Bio-inspired Hybrid Model for Financial Markets -- Interactive and Stereoscopic Hybrid 3D Viewer of Radar Data with Gesture Recognition -- Recognition of Manual Actions Using Vector Quantization and Dynamic Time Warping -- Protecting Web Services against DoS Attacks: A Case-Based Reasoning Approach -- Ranked Tag Recommendation Systems Based on Logistic Regression -- A Hybrid Robotic Control System Using Neuroblastoma Cultures -- Image Segmentation with a Hybrid Ensemble of One-Class Support Vector Machines -- Power Prediction in Smart Grids with Evolutionary Local Kernel Regression -- Automatic Quality Inspection of Percussion Cap Mass Production by Means of 3D Machine Vision and Machine Learning Techniques -- Speaker Verification and Identification Using Principal Component Analysis Based on Global Eigenvector Matrix -- Hybrid Approach for Automatic Evaluation of Emotion Elicitation Oriented to People with Intellectual Disabilities -- Fusion of Fuzzy Spatial Relations -- Reducing Artifacts in TMS-Evoked EEG -- Model Driven Image Segmentation Using a Genetic Algorithm for Structured Data -- Stamping Line Optimization Using Genetic Algorithms and Virtual 3D Line Simulation -- Evolutionary Industrial Physical Model Generation -- Evolving Neural Networks with Maximum AUC for Imbalanced Data Classification -- A Neuro-genetic Control Scheme Application for Industrial R 3 Workspaces -- Memetic Feature Selection: Benchmarking Hybridization Schemata -- A Hybrid Cellular Genetic Algorithm for Multi-objective Crew Scheduling Problem.-GENNET-Toolbox: An Evolving Genetic Algorithm for Neural Network Training -- An Evolutionary Feature-Based Visual Attention Model Applied to Face Recognition -- Efficient Plant Supervision Strategy Using NN Based Techniques -- FDI and Accommodation Using NN Based Techniques -- A Hybrid ACO Approach to the Matrix Bandwidth Minimization Problem -- Machine-Learning Based Co-adaptive Calibration: A Perspective to Fight BCI Illiteracy -- Analysing the Low Quality of the Data in Lighting Control

Systems -- Type-1 Non-singleton Type-2 Takagi-Sugeno-Kang Fuzzy Logic Systems Using the Hybrid Mechanism Composed by a Kalman Type Filter and Back Propagation Methods -- An Hybrid Architecture Integrating Forward Rules with Fuzzy Ontological Reasoning -- Selecting Regions of Interest in SPECT Images Using Wilcoxon Test for the Diagnosis of Alzheimer's Disease -- Effective Diagnosis of Alzheimer's Disease by Means of Association Rules -- Exploratory Matrix Factorization for PET Image Analysis -- NMF-Based Analysis of SPECT Brain Images for the Diagnosis of Alzheimer's Disease -- Partial Least Squares for Feature Extraction of SPECT Images -- Sensor Fusion Adaptive Filtering for Position Monitoring in Intense Activities -- Prediction of Bladder Cancer Recurrences Using Artificial Neural Networks -- Hybrid Decision Support System for Endovascular Aortic Aneurysm Repair Follow-Up -- On the Design of a CADs for Shoulder Pain Pathology -- Exploring Symmetry to Assist Alzheimer's Disease Diagnosis -- Thrombus Volume Change Visualization after Endovascular Abdominal Aortic Aneurysm Repair -- Randomness and Fuzziness in Bayes Multistage Classifier -- Multiple Classifier System with Radial Basis Weight Function -- Mixture of Random Prototype-Based Local Experts -- Graph-Based Model-Selection Framework for Large Ensembles -- Rough Set-Based Analysis of Characteristic Features for ANN Classifier -- Boosting Algorithm with Sequence-Loss Cost Function for Structured Prediction -- Application of Mixture of Experts to Construct Real Estate Appraisal Models -- Designing Fusers on the Basis of Discriminants -- Evolutionary and Neural Methods of Training.

Sommario/riassunto

th The 5 International Conference on Hybrid Artificial Intelligence Systems (HAIS 2010) has become a unique, established and broad interdisciplinary forum for researchers and practitioners who are involved in developing and applying symbolic and sub-symbolic techniques aimed at the construction of highly robust and reliable problem-solving techniques, and bringing the most relevant achievements in this field. Overcoming the rigid encasing imposed by the arising orthodoxy in the field of artificial intelligence, which has led to the partition of researchers into so-called areas or fields, interest in hybrid intelligent systems is growing because they give freedom to design innovative solutions to the ever-increasing complexities of real-world problems. Noise and uncertainty call for probabilistic (often Bayesian) methods, while the huge amount of data in some cases asks for fast heuristic (in the sense of suboptimal and ad-hoc) algorithms able to give answers in acceptable time frames. High dimensionality demands linear and non-linear dimensionality reduction and feature extraction algorithms, while the imprecision and vagueness call for fuzzy reasoning and linguistic variable formalization. Nothing impedes real-life problems to mix difficulties, presenting huge quantities of noisy, vague and high-dimensional data; therefore, the design of solutions must be able to resort to any tool of the trade to attack the problem. Combining diverse paradigms poses challenging problems of computational and methodological interfacing of several previously incompatible approaches. This is, thus, the setting of HAIS conference series, and its increasing success is the proof of the vitality of this exciting field.