Improving the Efficiency of Forward Checking Algorithm for Solving Constraint Satisfaction Problems

Authors: Yusef Farhang, M. R. Meybodi, A. R. Hatamlou

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ABSTRACT

There are various problems concerning artificial intelligence which can be stated in the form of constraint satisfaction problems (CSP). These problems are defined by a set of variables and a set of constraints in the range of selectable values for variables. Solution of this problem is a set of values for variables so that all constraints of the problem are satisfied. A part of Algorithms for CSP are forward algorithms. They are used to check consistency and constraint propagation. The most famous forward algorithm, is forward checking algorithm (FCA). In this article we are going to introduce FCA and suggest two algorithms to improve efficiency of forward.

AUTHORS

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REFERENCES

References are not available
Applying Embedded Hybrid ANFIS/Quantum-Tuned BPNN Prediction to Collision Warning System for Motor Vehicle Safety
Bao Rong Chang, Chung-Ping Young, Hsiu Fen Tsai, Jian-Jr Lin
Pages: 3-8

This study is to explore how to realize high-performance collision warning system (CWS), providing the precaution against traffic crash in transit. An embedded hybrid adaptive network-based fuzzy inference system (ANFIS) plus quantum-tuned back-propagation ...

A Sense Based Similarity Measure for Cross-Lingual Documents
Hsun-Hui Huang, Horng-Chang Yang, Yau-Hwang Kuo
Pages: 9-13

As cross-lingual information retrieval attracts increasing attention, tools that measure cross-lingual document similarity become desirable. Since the way that people convey thoughts at the abstract concept level makes little, if any, difference in the ...

An Intelligent Intrusion Dtection System Based on UPnP Technology for Smart Living
Mong-Fong Horng, Bo-Chao Chang, Bei-Hao Su
Pages: 14-18

In this paper, an intelligent intrusion detection system, based on UPnP technology for smart home is proposed. In the developed system, home users equipped with PDAs may locally and remotely receive the alert of home intrusion with captured subject image. ...

Image Fusion Based on Grey Polynomial Interpolation
Cheng-Hsiung Hsieh, Bei-Wen Chen, Chia-Wei Lan, Kuan-Chieh Hsieh
Pages: 19-22

In this paper, an image fusion approach based on grey polynomial interpolation (GPI) is presented to enhance the visual quality for a high contrast image. The objective of image fusion is to integrate different source images and to produce an image with ...

A Method of Camera Relationship Establishment Based on Temporal and Spatial Information of Video Clips
Hsien-Chou Liao, Cheng-Hsiung Hsieh, Yi-Ming Hsieh, Chih-En Wu
Pages: 23-26

Camera is widely used in daily life in recent years and causes our life towarding the ubiquitous camera environment. The analysis of camera videos offers the functions of detecting, classifying or identifying moving objects. The cooperation of multiple ...

An Intelligent Agent for Personalized E-Learning
Jin-Ling Lin, Ming-Hung Chen
Pages: 27-31

When people browse the learning materials on a web site, the sequence of content they browse might not have any particular relations. Therefore, the proposed research tries to build an intelligent agent for discovering a specific learner's interests ...

A Method of Pulmonary Nodules Detection with Support Vector Machines
Liu Lu, Liu Wanyu
Pages: 32-35

Lung cancer is one of the deadly and most common diseases in the world. Many methods have been proposed to avoid radiologists fail to diagnose small pulmonary nodules. Recently, support vector machines (SVMs) had received an increasing attention for ...

A New Algorithm for Power System Scheduling Problems
Huo-Ching Sun, Yann-Chang Huang, Kun-Yuan Huang
Pages: 36-40

This paper presents a parallel-refined simulated annealing (PRSA) approach for the generator maintenance scheduling (GMS) problem to maximize
Threads migration is performed in parallel programs in order to achieve communication minimization and efficient performance. Since the communication cost of the DSM system have to be measured through the calculation of type-sharing degree between threads, ...

In this paper we compared the performance of the Automatic Data Reduction System (ADRS) and principal component analysis (PCA) as a preprocessor to artificial neural networks (ANN). ADRS is based on a Bayesian probabilistic classifier that is used with ...

A lymph node (LN), which can resist virus and germs, is part of the lymphatic system that exists in the human body and every apparatus inside it. There are many kinds of pathological changes in LN. Metastatic is one of the important indexes to estimate ...

This paper proposes an adaptive template block for object tracking in typical block matching algorithms. The bounding box of moving object would have different scales while the object moves from near to far or from far to near. Therefore, the typical ...

In this paper, we propose a mean shift based particle swarm optimization (MS-PSO) algorithm to solve the image thresholding problem. PSO is an emerging evolutionary algorithm. However, the traditional PSO uses random number to move to the optimal position. ...

This paper presents object-based image retrieval using a novel method based on perceptual grouping. The perceptual grouping is obtained by detecting the line edge from a square block using the two consecutive primitive edge differences detector. Object ...

H.264 is the currently state-of-the-art video compression standard performing significant improvement in coding efficiency and quality compared to other existing standard, such as MPEG-4 and H.263. The standard adapts a lot of novel techniques, like ...

With the development of microelectronic technology, modern communication, network technology, network Surveillance technology is continuously improved. It related to the operation and management of devices in Solar Photovoltaic system. In the system, ...

A Fast Recursive Algorithm for Gradient-Based Global Motion Estimation in Sparsely Sampled Field
Yong-Ren Huang
Pages: 84-88
doi>10.1109/ISDA.2008.163

This paper proposes a new approach for global motion estimation using recursive algorithm in the sparsely sampled field, as well as we process parametric estimation in framework of one stage not in proposed pyramid structure. Firstly, we divide the image …

Fuzzy Possibility C-Mean Based on Complete Mahalanobis Distance and Separable Criterion
Hsiang-Chuan Liu, Der-Bang Wu, Jeng-Ming Yih, Shin-Wu Liu
Pages: 89-94
doi:10.1109/ISDA.2008.100
Available formats: Publisher Site

Two well known fuzzy partition clustering algorithms, FCM and FPCM are based on Euclidean distance function, which can only be used to detect spherical structural clusters. GK clustering algorithm and GG clustering algorithm, were developed to detect …

Illumination Invariant Color Model for Image Matching and Object Recognition
Hui-Fuang Ng, Yen-Wei Chu
Pages: 95-99
doi:10.1109/ISDA.2008.60
Available formats: Publisher Site

In this paper we present a new illumination invariant color model for image matching and object recognition. The color model is defined as the ratios of the color differences between neighboring pixels for each color component. Based on the dichromatic …

A Scene Images Classification Method Based on Local Binary Patterns and Nearest-Neighbor Classifier
Guang Han, Chunxia Zhao
Pages: 100-104
doi:10.1109/ISDA.2008.19
Available formats: Publisher Site

Classification of textures in scene images is very difficult due to the high variability of the data within and between images caused by effects such as non-homogeneity of the textures, changes in illumination, shadows, foreshortening and self-occlusion. …

Using Resampling for Optimizing Continuous Queries in Wireless Sensor Networks
San-Yih Hwang, Pin-Yu Liu, Chien-Hsiang Lee
Pages: 107-110
doi:10.1109/ISDA.2008.120
Available formats: Publisher Site

Sensor networks open up new opportunities to observe and interact with the physical world around us. Although there have been many advances in sensor network applications and technology, sensor networks still suffer from the major problems of limited …

Discovering Moving Clusters from Spatial-Temporal Databases
San-Yih Hwang, Chien-Ming Lee, Chien-Hsiang Lee
Pages: 111-114
doi:10.1109/ISDA.2008.121
Available formats: Publisher Site

Owing to the advances of computer and communication technologies, clustering analysis on moving objects has attracted increasing attention in recent years. An interesting pattern is to find the moving clusters that are composed of objects moving along …

Malicious Webpage Detection by Semantics-Aware Reasoning
Shih-Fen Lin, Yung-Tsung Hou, Chia-Mei Chen, Bingchiang Jeng, Chi-Sung Laih
Pages: 115-120
doi:10.1109/ISDA.2008.290
Available formats: Publisher Site

The recent evolutional development of dynamic HTML techniques empowers attackers a new and powerful tool to compromise machines. A malicious DHTML code disguises itself as a normal webpage. The malicious webpage infects the victim when a user browses …

The Design and Implementation of Zero-Copy for Linux
Liu Tianhua, Zhu Hongfeng, Chang Guirao, Zhou Chuansheng
Pages: 121-126
doi:10.1109/ISDA.2008.102
Available formats: Publisher Site

Zero-Copy has been a hot research topic for a long history, which is an underlying technology to support many applications, including multimedia retrieval, datamining, efficient data transferring, and so on. Zero-Copy means during message transmission, …

Research on Intelligent Systems Applied to Tourism Development Design
Wei Min
Pages: 127-132
doi:10.1109/ISDA.2008.81
Available formats: Publisher Site

In the information techniques century over the past decade, it is seen that the tourism is linked to intelligent systems is becoming more and more popular. This paper proposes a novel intelligent system for improving product of tourism enterprises for …

Heuristics for Dynamic Lot-Sizing with Plan Setup Cost in a Rolling Horizon Environment
Researches of dynamic lot-sizing problem in a rolling horizon environment have not considered plan setup cost occurring when a plan is issued. This research deals with the dynamic single-level lot-sizing problem with plan setup cost and proposes heuristics...

The Development of a Creativity-Enhancing Model for Innovative Design Concepts
Zhiqiang Zhu, Sev Nagalingam, Hung-Yao Hsu
Pages: 139-144
doi>10.1109/ISDA.2008.63
Available formats: Publisher Site

Creativity is highly treasured and pursued in most domains of society; persistent needs for aiming to enhance creative behaviours emerge and exist. To meet this demand, a Creativity Enhancing (CE) model has been proposed in this paper. As human beings...expand

An Agent Based Rough Classifier for Data Mining
Azuraliza Abu Bakar, Zulaiha Ali Othman, Abdul Razak Hamdan, Rozianiwati Yusof, Ruhaizan Ismail
Pages: 145-151
doi>10.1109/ISDA.2008.20
Available formats: Publisher Site

This paper proposes a new agent based approach in rough set classification theory. Rough set is one of data mining techniques for classification. It generates rules from large database and it has mechanism to handle noise and uncertainty in data. However,...expand

Equivalence between Weight Decay Learning and Explicit Regularization to Improve Fault Tolerance of RBF
John Sum, Wun-He Luo, Yung-Fa Huang, You-Ting Jheng
Pages: 152-157
doi>10.1109/ISDA.2008.146
Available formats: Publisher Site

Although weight decay learning has been proposed to improve generalization ability of a neural network, many simulated studies have demonstrated that it is able to improve fault tolerance. To explain the underlying reason, this paper presents an analytical...expand

Low Complexity Search Method for G.723.1 MP-MLQ Algorithm
R. S. Lin, Y. C. Chen, F. K. Chen
Pages: 158-161
doi>10.1109/ISDA.2008.203
Available formats: Publisher Site

The Multi-pulse Maximum Likelihood Quantization (MP-MLQ) algorithm with high complexity and high quality in its analysis-by-synthesis optimization has been used by many speech coding standards. To re-duce the computational complexity of MP-MLQ in ITU-T...expand

Prediction of Protein Subcellular Localizations
Chin-Sheng Yu, Jenn-Kang Hwang
Pages: 165-170
doi>10.1109/ISDA.2008.306
Available formats: Publisher Site

The support vector machine (SVM) method based on n-peptide composition (Yu et al, Proteins: Struct. Funct. Genet. 2003:50:531-536) is used to predict the subcellular localizations of proteins. For an unbiased assessment of the results, we apply...expand

Advanced Plasmonic Biosensing Devices and Automation Systems for Disease Diagnostic and Drug Screening Applications
Nan-Fu Chiu, Tzuu-Shaang Wey, Chun Yu, Tzu-Chien Hsiao, Chii-Wann Lin
Pages: 171-176
doi>10.1109/ISDA.2008.39
Available formats: Publisher Site

Bio-plasmonics is proposed for the research and development of novel devices, which use biomolecules as a part of the plasmon oscillation system to actively interact with nano/micro structure. We have reported a novel design of Surface Plasmon Resonance...expand

Research on the Reciprocity of Transceiver in the Smart Antenna Application
Fu Haiyang, Gao Peng, Ding Haibo
Pages: 177-182
do...
Both simulated annealing (SA) and the genetic algorithms (GA) are stochastic and derivative-free optimization techniques. SA operates on one solution at a time, while the GA maintains a large population of solutions, which are optimized simultaneously.

Intelligent Emotion Decision System for Autonomous Agents
Xia Mao, Haiyan Bao, Zheng Li
Pages: 189-194
doi:10.1109/ISDA.2008.56
Available formats: Publisher Site

This paper proposes an intelligent emotion decision system (IEDS). Since the existing emotion models take little account of the influence of spontaneous emotional transition, the importance of social status and the diversity of emotional expressive pattern, ...

Using Multi-attribute Utility Theory to Rank and Select Co-branding Partners
Wei-Lun Chang
Pages: 195-200
doi:10.1109/ISDA.2008.220
Available formats: Publisher Site

As many companies seek growth through the extension of new markets, co-branding strategy provides an avenue to provide signals of quality and image as successful brands. In the last decade, co-branding and other cooperative brand activities have seen ...

User Behavior Analysis in Masquerade Detection Using Principal Component Analysis
Han-Ching Wu, Shou-Hsuan Stephen Huang
Pages: 201-206
doi:10.1109/ISDA.2008.243
Available formats: Publisher Site

Network attackers usually compromise legitimate user account to gain access to host computer. To detect and prevent this kind of attacks, it is typical to build Anomaly Intrusion Detection System (AIDS) to distinguish a legitimate user from an intruder, ...

Development of an Agent-Based Distributed Multi-axis Surface Milling Machining Service System
Yung-Chou Kao, Mau-Sheng Chen
Pages: 207-212
doi:10.1109/ISDA.2008.175
Available formats: Publisher Site

The development of an agent-based distributed Multi-axis surface machining system is described in this paper. The proposed system has successfully applied software agent-based technology in constructing a distributed freeform surface multi-axis machining ...

Neural Network Integration Fusion Model and Application
Xiaodan Zhang, Zhendong Niu
Pages: 213-215
doi:10.1109/ISDA.2008.331
Available formats: Publisher Site

A new fusion model is proposed, which is the combination of BP neural networks and Rough Set algorithm, to solve the problems of low precision rate in Aircraft engine fault diagnosis by traditional methods. The method realizes feature level fusion of ...

Thinned ECOC Decomposition for Gene Expression Based Cancer Classification
Nima Hatami
Pages: 216-221
doi:10.1109/ISDA.2008.308
Available formats: Publisher Site

Cancer classification using gene expression data has the great importance in bioinformatics and is known to contain the keys for addressing the fundamental problems relating to cancer diagnosis and drug discovery. Error correcting output coding (ECOC) ...

Multilingual Information Retrieval Using GHSOM
Hsin-Chang Yang, Chung-Hong Lee
Pages: 225-228
doi:10.1109/ISDA.2008.265
Available formats: Publisher Site

The Web pages nowadays were written in various languages including English, Chinese, Spanish, etc. There are increasing needs in searching Web pages of different languages using single query. This task is called multilingual information retrieval (MLIR). ...

An Intelligent PPQA Web Services for CMMI Assessment
Mei-Hui Wang, Chang-Shing Lee
Pages: 229-234
doi:10.1109/ISDA.2008.90
Available formats: Publisher Site

In this paper, an intelligent Process and Product Quality Assurance (PPQA) web services for Capability Maturity Model Integration (CMMI) assessment is proposed. The intelligent web services are implemented by following the specific goals of PPQA process ...

A DEA/AHP Approach to Efficiency Investigation for Taiwan's Retailing Industry via Financial Data Analysis
Yafen Tseng, Shu-Chen Kao, Tsai-Zang Lee, Chien-Hsing Wu
Pages: 235-239
doi:10.1109/ISDA.2008.106
A combined data analysis technique of Analytical Hierarchical Process (AHP) and Data Envelopment Analysis (DEA) is employed in this paper to examine performance and to rank importance of inputs/outputs for Taiwan's retailing industry. Financial data ...

Improving the Efficiency of Forward Checking Algorithm for Solving Constraint Satisfaction Problems
Yusef Farhang, M. R. Meybodi, A. R. Hatamlou
Pages: 240-245
doi>10.1109/ISDA.2008.272

Available formats: Publisher Site

There are various problems concerning artificial intelligence which can be stated in the form of constraint satisfaction problems (CSP). These problems are defined by a set of variables and a set of constraints in the range of selectable values for variables. ...

Fuzzy Clustering by Differential Evolution
Yucheng Kao, Jin-Cherng Lin, Shin-Chia Huang
Pages: 246-250
doi>10.1109/ISDA.2008.270

Available formats: Publisher Site

A fuzzy clustering algorithm based on differential evolution (FCDE) is presented in this paper in order to overcome the disadvantages of traditional fuzzy c-means algorithm (FCM). FCM is sensitive to initialization so that its search is easy to fall ...

Intelligent Aging Estimation Method for Lead-Acid Battery
Yu-Hua Sun, Hung-Liaeh Jou, Jinn-Chang Wu
Pages: 251-256
doi>10.1109/ISDA.2008.17

Available formats: Publisher Site

Abstract - In this paper, an intelligent aging estimation method based on Sample Entropy (SampEn) is proposed for the lead-acid batteries serially connected in a string. This method can prevent the potential battery failure and guarantee the battery availability. ...

A Two-Stage Approach for AAM Fitting
Mingcai Zhou, Yangsheng Wang, Xiaoyan Wang, Xuetao Feng
Pages: 257-261
doi>10.1109/ISDA.2008.77

Available formats: Publisher Site

The Active Appearance Model (AAM) is a powerful generative method for modeling and registering deformable objects. The Project-Out Inverse Compositional (POIC) method is one of the most common methods for AAM fitting and is also the fastest known method ...

Analysis and Estimation of Micro-Doppler Effect in Passive Positioning System
Cai Miaohong, He Feng, Wu Leman
Pages: 262-265
doi>10.1109/ISDA.2008.7

Available formats: Publisher Site

The micro-Doppler effect on a passive positioning system, introduced by motion of a mobile terminal in multipath fading environment, was investigated and its parameters were estimated. First micro-Doppler model under multipath propagation was presented. ...

Sequential Quadratic Programming Based on IPM for Constrained Nonlinear Programming
Ximing Liang, Hassan A. Bashir, Shanchun Li
Pages: 266-271
doi>10.1109/ISDA.2008.162

Available formats: Publisher Site

The field of constrained nonlinear programming (NLP) has been principally challenging to various gradient based optimization techniques. The Sequential quadratic programming algorithm (SQP) that uses active set strategy in solving quadratic programming ...

Notes on the Distinction of Gaussian and Cauchy Mutations
Kuo-Tsong Lan, Chun-Hsiung Lan
Pages: 272-277
doi>10.1109/ISDA.2008.237

Available formats: Publisher Site

In evolutionary computation, Gaussian and Cauchy mutations are two popular mutation techniques and completely discussed in this study. It is known that Cauchy mutation has the better ability of escaping local optima, and Gaussian mutation is excellent ...

Web Usage Mining Based on Clustering of Browsing Features
Chu-Hui Lee, Yu-Hsiang Fu
Pages: 281-286
doi>10.1109/ISDA.2008.185

Available formats: Publisher Site

Predicting of user’s browsing behavior is an important technology of E-commerce application. The prediction results can be used for personalization, building proper web site, improving marketing strategy, promotion, product supply, getting marketing ...

Content-Based Image Retrieval Based on Vector Quantization and Affine Invariant Region
The content-based image retrieval (CBIR) is the most acceptable and often used image retrieval method, because it can be used to manage image database efficiently and effectively. The CBIR methods usually retrieve the images by image features. In this paper, a novel CBIR method is proposed. This method is based on the concept of feature similarity. The feature similarity is measured by the distance between the features of the query image and the features of the images in the database. The images with the smallest similarity distance are retrieved as the top results.

Privacy Preserving Data Mining (PPDM) has become a popular topic in the research community. How to strike a balance between privacy protection and knowledge discovery in the sharing process is an important issue. This study focuses on Privacy Preserving DP, a data mining technique that is designed to protect privacy while allowing data to be used for knowledge discovery. The PPDM technique is based on differential privacy, a technique that adds noise to the data to protect individual privacy. The PPDM technique is applied to a real-world data set to demonstrate its effectiveness.

Smart card-based applications have been widely used in e-commerce for years. Therefore, many authentication schemes have been proposed to improve security over insecure networks. In 2006, Wang and Li pointed out that Yoon et al.'s remote user authentication scheme is not secure. In this paper, a new authentication scheme is proposed that is secure against Yoon et al.'s attack. The scheme is based on the idea of using a secure channel between the smart card and the server to exchange information.

This paper presents wavelet analysis and statistical techniques for assessing the insulation condition of power cables. A specific fault is made and placed on the terminal joint of a 25 kV power cable, and the deterioration phenomena is accelerated by exposure to moisture. The results show that the proposed techniques are effective for assessing the insulation condition of power cables.

Text is an important modality for human-computer interaction, so studying the relationship between natural language and affective information as well as assessing the underpinned affective qualities of natural language has been the focus of research. In this paper, a new approach is proposed for analyzing and classifying text data based on affective features. The approach is based on the use of sentiment analysis techniques to extract affective information from text data. The results show that the proposed approach is effective for analyzing and classifying text data based on affective features.

The purpose of this paper is based on Radial Basis Function Neural Network (RBFN) to develop a Self-Constructing Least Wilcoxon-Generalized RBFN Fuzzy Inference System (LW-GRBFNFIS) and applied to nonlinear function approximation and chaotic time series classification.

Adaptive Resonance Theory Network II (ART2) is a neural network concerning unsupervised learning. It has been shown that ART2 is suitable for clustering problems that require on-line learning of large-scale and evolving databases. However, if applied to real-time, expansibility, flexibility and reliability requirements of the vehicle power supply multi-module monitoring, CAN is used as a system communication mode for constructing monitoring network to monitor power inverter module.

Fuzzy Fusion Method for Combining Small Number of Classifiers in Hyperspectral Image Classification

In order to meet the real-time, expansibility, flexibility and reliability requirements of the vehicle power supply multi-module monitoring, CAN is used as a system communication mode for constructing monitoring network to monitor power inverter module.
A Multi-agent Based Architecture for an Assistive User Interface of Intelligent Home Environment Control
Chi-Hsien Liao, Wei-Sheng Hung, Ming-Che Hsieh, Chung-Min Wu, Chin-Hsing Luo
Pages: 335-338
doi>10.1109/ISDA.2008.320
Available formats: Publisher Site

This study proposes a multi-agent based architecture to support the intelligent home environment (IHE) control with an assistive user interface. The architecture is composed of six different agents (including assistive user interface, broke, appliance ... expand

Spoken Dialogue Agent Interface Requirements Modeling Based on PASSI Methodology
Ming-Che Hsieh, Wei-Sheng Hung, Shin-Shing Shin, Shiu-Wen Lin, Tsan-Hsun Huang
Pages: 339-342
doi>10.1109/ISDA.2008.342
Available formats: Publisher Site

This study presents a spoken dialogue agent interface requirements modeling approach based on PASSI methodology with the support of PTK CASE tool. Our approach is composed of three models, including the dialogue agent requirements, the dialogue agent ... expand

An Intelligent Brain Computer Interface of Visual Evoked Potential EEG
Shih-Chung Chen, Shih-Chang Hsieh, Chih-Kuo Liang
Pages: 343-346
doi>10.1109/ISDA.2008.339
Available formats: Publisher Site

The goal of our research is to design an EEG BCI (Brain Computer Interface) system and develop techniques for helping the serious disabled with spine/central nerve injury, motor neuron disease or without upper limb/foot. In our research, the brain wave ... expand

A Multi-agent Based Testbed for Agent Interface Evaluation
Chung-Min Wu, Ming-Che Hsieh, Chin-Hsing Luo
Pages: 347-350
doi>10.1109/ISDA.2008.343
Available formats: Publisher Site

This study proposes a conceptual model of testbed to support multimodal interaction evaluation throughout the agent-based user interfaces development. Taking into account the Neimo system's requirements, the conceptual model consists of human test subject, ... expand

CCSDS Advanced Orbiting Systems, Data Links Protocol: Study on Virtual Channels Scheduling Algorithm
Qingli Liu, Chengsheng Pan, Guoren Wang, Wei Liu
Pages: 351-355
doi>10.1109/ISDA.2008.158
Available formats: Publisher Site

With the development of space communication systems, the transferred data have varied from traditional asynchronous data to mixed data of synchronous and asynchronous data. Synchronous data, such as video and audio, need to be transmitted in high real-time ... expand

Application of Neural Network Techniques on Nonlinear Channel Equalization for 16-QAM Modulation Systems
Chun-Yi Lu, Wan-de Weng
Pages: 356-361
doi>10.1109/ISDA.2008.12
Available formats: Publisher Site

The design of a Chebyshev functional link artificial neural networks (CFLANN) based channel equalizer in digital communication systems is discussed in this paper. The design has been successfully applied to digital communication systems in which 16-QAM ... expand

Using Chi-Square Automatic Interaction Detector to Solve the Polysemy Problems in a Chinese to Taiwanese TTS System
Yih-Jeng Lin, Ming-Shing Yu, Chin-Yu Lin
Pages: 362-367
doi>10.1109/ISDA.2008.78
Available formats: Publisher Site

We use chi-square automatic interaction detector (CHAID) to solve the polysemy problems in a Chinese to Taiwanese TTS system in this paper. Polysemy means there are words with more than one meaning or pronunciation, such as "我們"(we), "不"(no), ... expand

Intelligent Focus+Context Volume Visualization
Cheng-Kai Chen, Russell Thomason, Kwan-Lis Ma
Pages: 368-374
doi>10.1109/ISDA.2008.232
Available formats: Publisher Site

Although graphics processing unit (GPU) acceleration makes possible interactive volume rendering, successful volume visualization relies on the ability to quickly and correctly classify the volume into different materials or features. Among various classification ... expand

An Exploratory Study on Malay Processing Tool for Acquisition of Taxonomy Using FCA
Mohd Zakree Ahmad Nazri, Siti Mariyam Shamsudin, Azuraliza Abu Bakar
Pages: 375-380
In an effort to develop a tool for automatic ontology building from Malay text based on Formal Concept Analysis, an effective natural language processing (NLP) tool as the pre-processing components is needed. The goal of the study is to investigate whether using MPE with Bayesian Network for sub-optimization to Entropy-Based Methodology ... expand

Many researchers show that the properties of Bayesian network and information theory such as entropy between dichotomous concepts and test items generalize some common intuitions about item comparison, and provide principled foundational to design item-selection ... expand

This paper proposes a new fuzzy appraisal of securities operating performance model (FASOP). According to the available literatures, performance appraisal of securities brokerage are commonly acquired through questionnaires with sampling, processed by ... expand

In this paper, we use the interval-valued fuzzy sets to derive linear programming in the fuzzy sense from crisp multiple objective programming. For many practical problems, if we just used the general fuzzy sets, it may not be quite well to describe ... expand

The objective of the text categorization problem examined in this paper corresponds to automatically distribute the legislative bills to the committees at the Federal District Legislative Assembly in Brasília, Brazil. For this study the replacement ... expand

In the area of information retrieval, the dimension of document vectors plays an important role. We may need to find a few words or concepts, which characterize the document based on its contents, to overcome the problem of the 'curse of dimensionality', ... expand

This paper describes the implementation of an intelligent application layer gateway for the traditional training simulator to connect with other simulators using the High Level Architecture (HLA). The HLA is the latest open distributed interactive simulation ... expand

Fuzzy Logic on Representation of Knowledge Structure and Measure of Similarity with Application on Mathematics Concepts for Pupils
Yuan-Hong Lin, He-Kai Chen, Wen-Liang Hung
Pages: 427-431
doi:10.1109/ISDA.2008.195
Available formats: Publisher Site

The purpose of this study is to investigate the knowledge structure representation based on fuzzy theory. With response data and item-concept matrix, the psychometric model item response theory (IRT) is used to calibrate latent trait and fuzzy logic...

The Influence of Order on a Large Bag of Words
Charles B. Prado, Felipe M. G. Franca, Ramon Diacovo, Priscila M. V. Lima
Pages: 432-436
doi:10.1109/ISDA.2008.299
Available formats: Publisher Site

Text classification has been mostly performed through implicit semantic correlation techniques, such as latent semantic analysis. This approach however, has proved insufficient for situations where there are short texts to be classified into one or more...

Improving VG-BAM WNN Multi-label Text Categorization via Label Correlation
Alberto F. De Souza, Claudine Badue, Bruno Zanetti Melotti, Felipe T. Pedroni, Fernando Libio L. Almeida
Pages: 437-442
doi:10.1109/ISDA.2008.298
Available formats: Publisher Site

In multi-label text databases one or more labels, or categories, can be assigned to a single document. In many such databases there can be correlation on the assignment of subsets of the set of categories. This can be exploited to improve machine learning...

An Incremental FUSP-Tree Maintenance Algorithm
Chun-Wei Lin, Tsung-Pei Hong, Wen-Hsiang Lu, Wen-Yang Lin
Pages: 445-449
doi:10.1109/ISDA.2008.126
Available formats: Publisher Site

In this paper, we attempt to handle the maintenance of sequential patterns. New transactions may come from both the new customers and old customers. A fast updated sequential pattern tree (called FUSP-tree) structure is proposed to make the tree update...

An Evolution-Based Dynamic Scheduling Algorithm in Grid Computing Environment
Kun-Ming Yu, Cheng-Kwan Chen
Pages: 450-455
doi:10.1109/ISDA.2008.153
Available formats: Publisher Site

Grid computing can integrate computational resources from different networks or regional areas into a high performance computational platform and be used to solve complex computing-intensive problems efficiently. Scheduling problem is an important issue...

A Data Grid File Replication Maintenance Strategy Using Bayesian Networks
Chao-Tung Yang, Chien-Jung Huang, Ting-Chih Hsiao
Pages: 456-461
doi:10.1109/ISDA.2008.357
Available formats: Publisher Site

Data grids are a very important and useful technique for solving problems created by the large amounts of data scientific experiments and simulations produce. Data replication, a technique much discussed by data grid researchers in past years, creates...

A Fast Elastic Net Method for Traveling Salesman Problem
Junyan Yi, Weixing Bi, Gang Yang, Zheng Tang
Pages: 462-467
doi:10.1109/ISDA.2008.52
Available formats: Publisher Site

In this paper, we proposed a fast method for improving the Elastic Net to solve the traveling salesman problem. A dynamic parameter strategy is introduced into the Elastic Net, which increases the ability of searching for the cities and helps the network...

A Dynamic Weighting Scheme for Providing Fair Communication Service to Nomadic Agents
SangWoo Rhee, Kyu-Yeong Jeon, Sung Keun Song, Hyung Su Lee, Hee Yang Yoon
Pages: 468-473
doi:10.1109/ISDA.2008.296
Available formats: Publisher Site

In multi-agent system the goal is achieved by the collaboration of the agents. The communication between the agents over the existing network infrastructure is typically 'best effort', and as a result, the agents might receive different QoS. In this...

Bounded PSO Vmax Function in Neural Network Learning
Y. S. Lee, S. M. Shamsuddin, H. N. Hamed
Pages: 474-479
doi:10.1109/ISDA.2008.156
Available formats: Publisher Site
Typically, Back propagation (BP) algorithm is the most widespread technique in Artificial Neural Network (ANN learning). However, major disadvantages of BP are due to its convergence rate sluggishness and always being trapped at the local minima. Consequently, …

Solution of Fuzzy Relational Equation by Real-Valued GA
Leh Luch
Pages: 480-484
doi>10.1109/ISDA.2008.297
Available formats: Publisher Site

Solving fuzzy relational equation (F.R.E) is a very important research topic because many practical problems end up with F.R.E. Most theoretical results on F.R.E. strongly rely on an assumption that the family of exact solutions is nonempty. However, …

Applying Experimental Statistical Method for the Preparation of Nanometric-Sized LiNi0.8Co0.2O2 Powders as a Cathode Material for Lithium Batteries
Ching-Shieh Hsieh, Hsin-Ya Huang, Nui-Ling Fang, Wein-Duo Yang
Pages: 485-488
doi>10.1109/ISDA.2008.212
Available formats: Publisher Site

Nanometric-sized LiNi0.8Co0.2O2 powders were obtained from the resins synthesized by the polymerization of citric acid and cellulose. The powder calcined at 600 oC exhibited a pure high temperature phase of LiNi0.8Co0.2O2. The surface response method …

An Approach of Chunk Parsing and Entity Relation Extracting to Chinese Based on Conditional Random Fields Model
Jun-hua Wou, Jine Zhou
Pages: 489-494
doi>10.1109/ISDA.2008.225
Available formats: Publisher Site

Conditional random fields (CRFs) model is the valid probabilistic model to segment and label sequence data [1]. Comparing with other statistical models, such as HMM, MEHMM, CRFs process the data sequence in terms of the context of data. Chunk analysis …

Earthquake Shelter Location Evaluation Considering Road Structure
Yung-Lung Lee, Hiroaki Ishii, Cheng-An Tai
Pages: 495-499
doi>10.1109/ISDA.2008.204
Available formats: Publisher Site

This study aims to propose a simple calculation method considering road network factors and summarized into 6 indexes for evaluation. Shin-hua Township in Tainan County is selected for case study. Firstly factor analysis is used for the key factors affecting …

Finding the Complete Set of Minimal Solutions for Fuzzy Max-Archimedean t-Norm Relational Equations
Jun-Lin Lin
Pages: 501-506
doi>10.1109/ISDA.2008.80
Available formats: Publisher Site

This study considers the problem of generating all minimal solutions of a system of fuzzy relational equations (FREs) with max-Archimedean t-norm composition. It defines the binding matrix of a system of FREs, and then shows that an irredundant covering …

An Authentication Scheme in Peer-to-Peer Based Live Stream Sharing Management Systems
Shiuh-Jeng Wang, Yuh-Ren Tsai, Pin-You Chen
Pages: 507-512
doi>10.1109/ISDA.2008.132
Available formats: Publisher Site

Peer-to-peer based live stream sharing platform is a novel technique for distributing visual data. Because of developments in computer equipment and network service, viewers can watch shows via the Internet rather than through the conventional broadcasted …

Interactive Mining of Frequent Patterns in a Data Stream of Time-Fading Models
Ming-Yen Liu, Sue-Chen Hsueth, Chung-Yi Wang
Pages: 513-518
doi>10.1109/ISDA.2008.178
Available formats: Publisher Site

Mining frequent itemsets in data streams is an emergent research topic. Previous approaches generally assume a fixed minimum support threshold on mining patterns in the stream. However, allowing users to interactively specify minimum supports is more …

Hierarchical P2P Networking and Two-Level Compression Scheme for Multi-agent System Supporting Context-Aware Applications
Joon Hwang Kim, Jeong Hun Chu, Seungwook Hao, Chang Won Park, Hee Yong Youn
Pages: 519-524
doi>10.1109/ISDA.2008.332
Available formats: Publisher Site

Ubiquitous computing requires an intelligent environment where the users do not need to be involved in the operation. The agent technology allows effective implementation of ubiquitous system, while agent platform provides efficient and stable interaction …

Segmentation of Brain Internal Structures Automatically Using Non-rigid Registration with Simultaneous Intensity and Geometric Match
Xiangbo Lin, Tianshuang Qiu, Su Ruan, Frederic Morain-Nicolier
Pages: 525-530
Segmentation of the brain internal structures is an important and a challenging task due to their small size, partial volume effects, and anatomical variability. In this paper we propose a method that segments automatically the deep brain internal structures.

Detection of the Cardiovascular Diseases by Using a Linearly Modeling System with the PSO-Based Classification Scheme
Meng-Cheng Shen, Heng-Chou Chen, Chih-Hui Chen
Pages: 531-536
doi:10.1109/ISDA.2008.240
Available formats: Publisher Site

In general, the detection of cardiovascular disease is performed by ECG, Electrocardiogram, to dynamically monitor and analyze the disease status. Additionally, ECG is also used to diagnose the latent disease to proceed with a further treatment. Therefore,

NOx Estimation Based on Flame Image of High Temperature Air Combustion
Zengshou Dong, Mingjun Liu, Fengchun Zhang
Pages: 537-541
doi:10.1109/ISDA.2008.41
Available formats: Publisher Site

By the analysis of NOx formation principle in the coal-fired process of power station boiler, the boiler operation parameter related with NOx emission are determinate. Then the furnace temperature field is gained by using combustion flame image processing.

Location Tracking with Power-Level Switching for Wireless Sensor Networks
Hung-Chi Chu, Chung-Jie Li, Ching-Yun Chen, Hong-Wen Yu
Pages: 542-547
doi:10.1109/ISDA.2008.174
Available formats: Publisher Site

In wireless sensor networks, object tracking is one of the important topics in research of wireless sensor networks. However, the core technology of object tracking is the positioning technique. In recent years, many positioning methods have been proposed.

Traffic Identification of Tor and Web-Mix
Xuefeng Bai, Yong Zhang, Xiamu Niu
Pages: 548-551
doi:10.1109/ISDA.2008.209
Available formats: Publisher Site

With the wide use of anonymity tools, both blocking and anti-blocking of these tools have become hot topics. And the traffic identifications of the corresponding tools are key issues of both blocking and anti-blocking. In this paper, we address on identifying.

Experiments with Boosted Decision Tree Classifiers
Michal Wozniak
Pages: 552-557
doi:10.1109/ISDA.2008.215
Available formats: Publisher Site

Boosting is the most popular method of improving quality and stabilizing weak classifiers. It bases on the voting by the group of classifiers, where each of them is generated on the basis of modified original learning set. The modification of AdaBoost.M1

Cooperative Collision Warning Based Highway Vehicle Accident Reconstruction
Chung-Ping Young, Bao Rong Chang, Jian-Jr Lin, Ren-Yang Fang
Pages: 561-565
doi:10.1109/ISDA.2008.358
Available formats: Publisher Site

Highway safety is always an important issue for automobile industry, so many researches have been conducted to prevent from or reduce the accidents. Cooperative Collision Warning (CCW), which provides an active safety mechanism for vehicles on highways

Design of an In-vehicle Anti-theft Component
Pages: 566-569
doi:10.1109/ISDA.2008.188
Available formats: Publisher Site

An in-vehicle anti-theft approach, named GIVAC (Group Identification of in-Vehicle Anti-theft Component), is proposed. The approach proposes that each valuable appliance should be integrated with an GIVAC component which will not enable the functions.

Point Clouds Construction Algorithm from a Home-Made Laser Scanner
Bagus Artayua, Irwan Gunawan, Hendra Gunawan
Pages: 570-575
doi:10.1109/ISDA.2008.231
Available formats: Publisher Site

Reverse Engineering (RE) technique is now becoming an emerging technology for modeling a physical part into a digital model. This is eventually required when one has to redesign an old product or to remanufacture a non-filed engineering product. This
The Novel Fuzzy Sliding Mode Control of Synchronous Reluctance Motor
Chien-An Chen, Huann-Keng Chiang, Chih-Huang Tseng
Pages: 576-581
doi:10.1109/ISDA.2008.33
Available formats: Publisher Site

This paper presents a fuzzy sliding mode speed control design procedure for robust stabilization and disturbance rejection of the synchronous reluctance motor (SynRM) drive system. In general, the conventional sliding mode control design is assumed that ... expand

Immune System Assisted Radial Basis Function Network for OFDM System Channel Tracking in Dynamic Environments
Jingchen Liu, Xiaogang Zang, Xinbao Gong
Pages: 582-586
doi:10.1109/ISDA.2008.36
Available formats: Publisher Site

In this paper, we develop an immune system assisted radial basis function (RBF) neural network for wireless channel tracking in pilot-added orthogonal frequency-division multiplexing (OFDM) systems. The RBF network is applied to approximate and follow ... expand

Rough Set Granularity in Mobile Web Pre-caching
Sarina Sulaiman, Siti Mariyam Shamsuddin, Ayish Abraham, Shahida Sulaiman
Pages: 587-592
doi:10.1109/ISDA.2008.273
Available formats: Publisher Site

Mobile Web pre-caching (Web prefetching and caching) is an explication of performance enhancement and storage limitation of mobile devices. In this paper, we present the granularity of Rough Sets (RS) and RS based Inductive Learning in reducing the size ... expand

The Innovation of Manufacturing Premise Based on Knowledge Obtained by Quality Accident Report
Shujiro Murayama, Junko Shibata, Koji Okuhara, Hiroaki Ishii
Pages: 593-598
doi:10.1109/ISDA.2008.260
Available formats: Publisher Site

The accident (manufacturing mistake) in production line gives a large influence on the production cost. The number of enterprises recognizing the accident should be managed through company risk management process is increasing. However in those circumstances, ... expand

Categorizing Heartbeats by Independent Component Analysis and Support Vector Machines
Kuan-To Chou, Sung-Nien Yu
Pages: 599-602
doi:10.1109/ISDA.2008.236
Available formats: Publisher Site

We propose a method that utilizes independent component analysis (ICA) and support vector machines to classify electrocardiogram (ECG) beats. In this study, ICA is used to dig up underlying components from ECG signals. A classifier constructed by support ... expand

Wavelet-Based Bispectra for Motor Rotor Fault Detection
D.-M. Yang
Pages: 603-607
doi:10.1109/ISDA.2008.23
Available formats: Publisher Site

Wavelet-based bispectral analysis is addressed for condition monitoring of induction machines. This advanced signal processing technique combining wavelet analysis and bispectral techniques allows the detection and characterization of non-Gaussian and ... expand

An Approach for Achieving Self-Optimization in Mechatronic Systems Supported by Active Patterns
J. Gausemeier, O. Znamenshchikov, S. Oberthür, H. Podlogar
Pages: 608-613
doi:10.1109/ISDA.2008.239
Available formats: Publisher Site

The conceivable development of information technology will enable mechatronic systems with inherent partial intelligence. We refer to this by using the term “self-optimization”. Self-optimizing systems react autonomously and flexibly on changing environmental ... expand

Intelligent Stock Selecting via Bayesian Naive Classifiers on the Hybrid Use of Scientific and Humane Attributes
Tien-Tsai Huang, Chir-Ho Chang
Pages: 617-621
doi:10.1109/ISDA.2008.148
Available formats: Publisher Site

Among all kinds of investment activities, security’s transaction is an important activity among all investors’ involvements in the past decade. How to find out the relationships between a security’s name, price, trading quantity, and/or other scientific ... expand

The Neural Network Algorithm for Data-Mining in Dynamic Environments
Ching Lien Huang, Tsung-Shin Hsu, Chih-Ming Liu
Pages: 622-625
doi:10.1109/ISDA.2008.282
Available formats: Publisher Site
This work presents a novel algorithm, the Artificial Neural Network (ANN) algorithm, which can solve the parameter selections under a dynamic environment for product parameter design. The utility of the algorithm is assessed by the ANN links parameters... expand

Fuzzy Assessment for Sampling Survey Defuzzification by Signed Distance Method
Lily Lin, Huey-Ming Lee
Pages: 626-630
doi>10.1109/ISDA.2008.109
Available formats: Publisher Site

Traditional sampling survey via questionnaire is difficult in reflecting interviewee's incomplete assessment and uncertain thought. Therefore, if we can use fuzzy sense of sampling to express the degree of interviewee's feelings based on his own concept, ... expand

Neural Network for Routing in a Directed and Weighted Graph
Mehran Ghaziaziagar, Armin Tavakoli Naeni
Pages: 631-636
doi>10.1109/ISDA.2008.164
Available formats: Publisher Site

In this paper, we use a neural network based algorithm to find the best path in a directed and weighted graph. In this algorithm, we define a suitable energy function; the minimum of this function correspond to the best path. By using gradient descent... expand

Petri Net Based Synthesis Method to Construct Optimal Controllers and Its Application to a Jobshop Scheduling
Eun Joo Lee, In-Jae Jeong, Jeeyoung Lee
Pages: 637-642
doi>10.1109/ISDA.2008.193
Available formats: Publisher Site

The goal of this paper is to propose a design method of closed-loop Petri net model respecting user specifications. We propose a synthesis method for optimal controllers based on the supervisory control and the Petri nets formalism. By proposed the method... expand

Reactive Planning with Weak Plan Instances
Frantisek Zbovit Jr., Vladimir Janousek, Radek Koci, Zdenek Mazel
Pages: 643-648
doi>10.1109/ISDA.2008.266
Available formats: Publisher Site

Reactive planning serves for fast but intelligent reasoning of intelligent artificial agents. In this paper we show some weak spots of such kind of planning together with our approach how to solve them. To be specific, we present our preliminary work... expand

The Design of a Quality Control System of PCB with SMT Based on RFID and AOI
Shih-Che Lo, Bei-Ming Li
Pages: 649-653
doi>10.1109/ISDA.2008.70
Available formats: Publisher Site

This research combines Radio Frequency Identification (RFID) and computer vision technology to assist printable circuit board (PCB) production line with quality control management. The proposed system relies on RFID tags offering ubiquitous computing... expand

Architecture Centric Approach to Enhance Software Testing Management
Fu-Shiau Li, Wei-Ming Ma, Architect Chao
Pages: 654-659
doi>10.1109/ISDA.2008.116
Available formats: Publisher Site

Schedule is always running tight during the software system development, thereafter reducing efforts of performing software testing management. In such a situation, improving software quality becomes an impossible mission. It is our belief that software... expand

Fault Diagnosis of Generator Based on D-S Evidence Theory
Qingdong Du, Jin Li, Xiao Chen
Pages: 660-663
doi>10.1109/ISDA.2008.206
Available formats: Publisher Site

It is difficult to identify the fault type with the signal gathered from the sensors. In this paper, a new fusion algorithm based on the Dempster-Shafer theory of evidence and neural networks is brought forward. This method combines the advantages of... expand

FCM-Based RBF Network in Identifying Concrete Slab Surface Cracks
Young Woon Wap, Doo Heon Song, Kwang-Baek Kim
Pages: 664-669
doi>10.1109/ISDA.2008.191
Available formats: Publisher Site

In this paper, we propose a novel method that automatically extracts characteristics of cracks such as length, thickness and direction, etc., from a concrete surface image with a series of image processing techniques. We use the closing morphologic operation... expand

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Pages: 671-675
doi>10.1109/ISDA.2008.379