(1)
Ant Colony and Load Balancing Optimizations for AODV Routing Protcol

Ahmed M. Abd Elmoniem, Hosny M. Ibrahim, Marghny H. Mohamed, and Abdel-Rahman Hedar

Abstract:

In this paper, we propose two methods to improve the Ad-Hoc On-Demand Distance-Vector (AODV) protocol. The main goal in the design of the protocol was to reduce the routing overhead, buffer overflow, end-to-end delay and increase the performance. A multi-path routing protocol is proposed which is based on AODV and Ant Colony Optimization (ACO). This protocol is refereed to Multi-Route AODV Ant routing (MRAA). Also we propose a load balancing method that uses all discovered paths simultaneously for transmitting data. In this method, data packets are balanced over discovered paths and energy consumption is distributed across many nodes through network. This protocol is refereed to Load Balanced Multi-Route AODV Ant routing algorithm (LBMRAA).

Keywords:

mobile ad-hoc network (MANET); routing; ant colony optimization; load balancing

Published In:

(2)
An Ant Colony Optimization Algorithm for the Mobile Ad Hoc Network Routing Problem Based on AODV Protocol

Ahmed M. Abdel-Moniem, Marghny H. Mohamed,and Abdel-Rahman Hedar

Abstract:

In this paper, we present a modified on-demand routing algorithm for mobile ad-hoc networks (MANETs). The proposed algorithm is based on both the standard Ad-hoc On-demand Distance Vector (AODV) protocol and ant colony based optimization. The modified routing protocol is highly adaptive, efficient and scalable. The main goal in the design of the protocol was to reduce the routing overhead, response time, end-to-end delay and increase the performance. We refer to the new modified protocol as the Multi-Route AODV Ant routing algorithm (MRAA).

Keywords:

Mobile Ad-hoc Network, Routing, Ant Colony Optimization.

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(3)
Ant Colony and Load Balancing Optimizations for AODV Routing Protocol

Ahmed M. Abd Elmoniem, Hosny M. Ibrahim, Marghny H. Mohamed, and Abdel-Rahman Hedar

Abstract:

Abstract. In this paper, we propose two methods to improve the Ad-Hoc On-Demand Distance-Vector (AODV) protocol. The main goal in the design of the protocol was to reduce the routing overhead, buffer overflow, end-to-end delay and increase the performance. A multi-path routing protocol is proposed which is based on AODV and Ant Colony Optimization(ACO). This protocol is refereed to Multi-Route AODV Ant routing (MRAA). Also we propose a load balancing method that uses all discovered paths simultaneously for transmitting data. In this method, data packets are balanced over discovered paths and energy consumption is distributed across many nodes through network. This protocol is refereed to Load Balanced Multi-Route AODV Ant routing algorithm (LBMRAA)

Keywords:

mobile ad-hoc network (MANET); routing; ant colony optimization; load balancing

Published In:

(4)
Hiding Data in FLV Video File

Mohammed A. Atiea, Yousef B. Mahdy, and Abdel-Rahman Hedar

Abstract:

Abstract. Video Frame quality and statistical undetectability are two key issues related to steganography techniques. In this paper, we propose a novel flash video file (.flv file extension) information-embedding scheme in which the embedded information is reconstructed without knowing the original host flash video file. The proposed method presents high rate of information embedding and is robust to lossless and lossy compression. The characteristic of the proposed scheme is to use a weak point in the header information of flash video file to assist compression process. Experimental results have indicated that the method is robust against lossless and lossy compression.

Keywords:

Steganography, FLV, lossless and lossy compression.

Published In:

(5)
Poor Quality Watermark Barcodes Image Enhancement

Mohammed A. Atiea, Yousef B. Mahdy, and Abdel-Rahman Hedar

Abstract:

Abstract. The one dimensional (1D) barcode was developed as a package label that could be swiftly and accurately read by a laser scanner. It has become ubiquitous, with symbologies such as UPC used to label approximately 99% of all packaged goods in the US [1]. The two-dimensional (2D) barcode has improved the information encoded capacity, and it also has enriched the applications of barcode technique. Recently, there are researches dealing with watermark technique on barcode to prevent it from counterfeited or prepensely tampered. The existent methods still have to limit the size of embedded watermark in a relatively small portion. Furthermore, it also needs to utilize original watermark or other auxiliary verification mechanism to achieve the barcode verification. In this paper, we propose a novel watermarking barcode reading enhancement method. The proposed method can fight most of reading challenges of watermarking barcode. Experiments with challenging barcode images show substantial improvement over other state-of-the-art algorithms.

Keywords:

Barcode, digital watermark, barcode verification.

Published In:

(6)
SS-SVM (3SVM): A New Classification Method for Hepatitis Disease Diagnosis

Mohammed H. Afif, Abdel-Rahman Hedar, Taysir H. Abdel Hamid, Yousef B. Mahdy

Abstract:

Abstract.In this paper, a new classification approach combining support vector machine with scatter search approach for hepatitis disease diagnosis is presented, called 3SVM. The scatter search approach is used to find near optimal values of SVM parameters and its kernel parameters. The hepatitis dataset is obtained from UCI. Experimental results and comparisons prove that the 3SVM gives better outcomes and has a competitive performance relative to other published methods found in literature, where the average accuracy rate obtained is 98.75%.

Keywords:

Support Vector Machine; Scatter Search; Classification; Parameter tuning

Published In:

(7)
Support Vector Machines with Weighted Powered Kernels for Data Classification

Mohammed H. Afif, Abdel-Rahman Hedar, Taysir H. Abdel Hamid, and Yousef B. Mahdy

Abstract:

Abstract. Support Vector Machines (SVMs) are a popular data classification method with many diverse applications. The SVMs performance depends on choice a suitable kernel function for a given problem. Using an appropriate kernel; the data are transform into a space with higher dimension in which they are separable by an hyperplane. A major challenges of SVMs are how to select an appropriate kernel and how to find near optimal values of its parameters. Usually a single kernel is used by most studies, but the real world applications may required a combination of multiple kernels. In this paper, a new method called, weighted powered kernels for data classification is proposed. The proposed method combined three kernels to produce a new combined kernel (WPK). The method used Scatter Search approach to find near optimal values of weights, alphas and kernels parameters which associated with each kernel. To evaluate the performance of the proposed method, 11 benchmark are used. Experiments and comparisons prove that the method given acceptable outcomes and has a competitive performance relative to a single kernel and some other published methods

Keywords:

Support Vector Machine, Scatter Search, Classification

Published In:

(8)
Scatter programming

Abdel-Rahman Hedar,Mostafa Kamel Osman

Abstract:

The core of artificial intelligence and machine learning is to get computers to solve problems automatically. One of the great tools that attempt to achieve that goal is Genetic Programming (GP). As alternatives to GP, Scatter Programming (SP) is proposed in this paper. One of the main features of SP is to exploit local search in order to overcome some recently addressed drawbacks of GP, especially its highly disruption of its main operations; crossover and mutation. This work shows that SP has promising performance and results in solving machine learning problems.

Keywords:

Genetic programming , Local search programming , Machine learning , Meta-heuristic programming , Scatter programming

Published In:

(9)
Utilizing Support Vector Machines in Mining Online Customer Reviews

Taysir Hassan A. Soliman, Mostafa A. Elmasry, Abdel Rahman Hedar, and Magdy M. Doss

Abstract:

As e-commerce is increasingly becoming popular, the number of customer reviews that a product receives grows rapidly. However, for popular products, many online product reviews exist but for other reviews product reviews are very few. These online discussions about particular products may help other online users to make a decision in buying/ not buying those products, like in amazon.com and ebay.com. Since an enormous number of unstructured and ungrammatical reviews on a product exist, opinion mining is getting a crucial research area for better decision making of buying products. In this paper, we apply an opinion mining approach to summarize the unstructured and ungrammatical users' reviews, based on Support Vector Machine (SVM). Two levels of classification is applied: 1)Features classification and 2) Polarity classification for every feature class. Our approach has been tested on Amazon data with dataset of 535 sentences, where a summary is obtained and analysis of precision (93.15%) and recall (92.41%) illustrate the accuracy of the proposed system.

Keywords:

Opinion mining, E-commerce, sentiment analysis, support vector machines, reviews classification, opinion visual summary.

Published In:

(10)
Advanced Parallel Genetic Algorithm with Gene matrix for Global Optimization

Abdel-Rahman Hedar, Amr Abdelsamee, Ahmed Fouad Ali, Sherif Tewfik

Abstract:

Keywords:

Published In:

Proceeding of AMLTA 2012, CCIS 322 , , 295303

(11)
Sentiment analysis of Arabic slang comments on facebook

Taysir Hassan Soliman, M.A. Elmasry, A. Hedar, M.M. Doss

Abstract:

ABSTRACT Social networks have become one of our daily life activities not only in socializing but in e-commerce, e-learning, and politics. However, they have more effect on the youth generation all over the world, specifically in the Middle East. Arabic slang language is widely used on social networks more than classical Arabic since most of the users of social networks are young-mid age. However, Arabic slang language suffers from the new expressive (opinion) words and idioms as well as the unstructured format. Mining ...

Keywords:

NULL

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(12)
A new robust line search technique based on Chebyshev polynomials

Kareem T. Elgindy, Abdel-Rahman Hedar

Abstract:

NULL

Keywords:

NULL

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