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Al-Qadisiyah University

College of Computer Science and Mathematics

تقنيتي آلة المتجه الداعم ومميز فيشر للكشف عن الإخفاء في JPG

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الخلاصة

يعد الإخفاء (Steganography) النظام الجديد والمتمم لعلم التشفير الذي استغرق وقتاً طويلاً في تناقل الرسائل السرية والمهمة عبر الشبكات والانترنت. ومن ثم ظهر ما يقابل الإخفاء من علم تحليل وكشف محتوى الرسائل السرية فكان علم كشف الإخفاء (Steganalysis). لغرض الكشف عن الإخفاء في الصور الملونة تم العمل على تقنيتين مهمتين في عمليات التصنيف تسمى الأولى آلة المتجه الداعم (Support Vector Machine) SVM والثانية مميز فيشر الخطي (Fisher Linear Discriminator) FLD. حيث تم استخدام تقنية SVM مع فكرة التطبيق الأعمى، في حين تم استخدام FLD مع أفكار التطبيق الأعمى وغير الأعمى. أما الصور الملونة فكان الاختيار للنوع المميز بالامتداد JPG. وأثبتت النتائج الكفاءة العالية للتقنيتين في الكشف عن الصور التي تحوي الرسائل السرية وتفاوتت المقارنات مابين التقنيتين من ناحية نسبة الكشف ومقدار الخطأ وزمن التنفيذ.

SVM and FLD Techniques for Steganalysis in JPG

Steganography is considered as the new and the complementary system of Cryptography that took a long time in transferring secret and important messages through the networks and the Internet. Then there was the emergence of what complements Steganography as a science that analysis and discover the content of the secret messages and this science is (Steganalysis).

For Steganalysis in colored images, the work relied on two important technologies; the first is called Support Vector Machine (SVM) and the second is called Fisher Linear Discriminator (FLD). The SVM technology has been used with the (blind) application idea while FLD has been used with the (blind and non-blind) application ideas using best type of colored images JPG.

Results proved the high efficiency of the two technologies in detecting the image that includes the secret messages and comparisons were varied between the two technologies in terms of detection rate, fault and the execution time.



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دراسة طرائق قياس جودة المواقع الالكترونية وتطبيقها على موقع جامعة الموصل

فتحي غازي فتحي

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جامعة الموصل

كلية علوم الحاسوب والرياضيات

قسم علوم الحاسوب

المخلص

تم في هذا البحث دراسة سبع من الطرائق الشائعة والمتوفرة في الأسواق الالكترونية لتقييم جودة المواقع الالكترونية حيث تم اختيار الطرائق الأكثر شيوعاً واستخداماً. كل طريقة تختص بمعايير مختلفة عن غيرها من الطرق قيد الدراسة.

تبين من الدراسة أن هذه الطرق تعتمد معياراً واحداً أو عدداً قليلاً من المعايير، لتحكم على المواقع من خلالها، ويعد هذا الأسلوب غير عادل ولا دقيق في تقييم جودة الموقع ككل. تم تطبيق خمسة من هذه الطرق على الموقع الالكتروني لجامعة الموصل لبيان كفاءتها في عملية التقييم، وبيان مستوى جودة موقع الجامعة بالنسبة لهذه الطرق. أظهرت النتائج أن بعضاً من هذه الطرق غير دقيقة وكانت نتائجها غير مستقرة حتى ليومين متتاليين. وأظهرت أخرى كفاءةً واستقراراً ودقةً في نتائجها. وحصل موقع جامعة الموصل على نتائج متفاوتة بحسب هذه الطرق. وتم إضافة مقاطع برمجية إلى برمجية موقع جامعة الموصل لتوفير خدمة تحليلات جوجل وكذلك لتوفير خدمة شريط جوجل لحساب مرتبة الصفحة، على صفحة كلية علوم الحاسوب والرياضيات التابعة لموقع الجامعة. مما أدى إلى رفع مستوى جودة موقع الجامعة وتوفير معلومات إحصائية وتحليلية كثيرة عن الموقع بشكل دائم، وهي مهمة جداً بالنسبة لموقع الجامعة سواء للقائمين على الموقع أو للمستخدمين.

Web Site Evaluation Methods Study and Apply Them On Mosul University Web Site

Abstract

This paper presents a study on seven of the most well known and methods of web site evaluation which are selected according to the mostly common and used. Each method concern with specific criteria differ from others.

The study shows that these methods are depend on just one or little more of criteria to evaluate the web site quality. This manner isn't accurate for hall web site evaluation. Five of these methods are applied on Mosul University web site to declare the efficiency of these methods in evaluation and the level of Mosul university web site according to the applied methods.

Results show that some of these methods are not accurate and had unstable results even for two sequence days. The rest shows efficiency, accuracy, and stability in their results. Mosul University web site got variable results according to these methods.

Short code were added to the main programming code of the university web site to provide Google analytics services and Google page rank toolbar on the web page of college of computer sciences and mathematics which belong to the university web site. These adding led to



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improve the quality of the web site and give analytical and statistical information frequently which are important for the standing on the web site and users.





Comparing study using different multi-resolution transforms in image denoising process

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Abstract

Images may contain different types of noises; removing noise from image is often the first step in image processing, and remains a challenging problem in spite of the sophistication of recent research.

This paper presents an efficient image denoising scheme based on two types of multi-resolution transforms, namely, the Discrete Wavelet Transform (DWT) and the Curvelet Transform (CT). each subbands components of an uses transform are denoising using two steps: 1) passed through principal component analysis (PCA) denoising procedure. 2) The image data obtain from PCA procedure can be denoising either by hard or soft thresholding techniques. The effectiveness of the methods was compared using parameters like MSE and PSNR. We find that using CT more efficient then using DWT and the quality of denoising increase when we using PCA denoising procedure.

Use the matlab version of eighth in the different treatments stage.

Keywords: image denoising , wavelet transform, curvelet transform, PCA, soft thresholding, hard thresholding.



Robust Image Watermarking to Copyright Protection

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Abstract

The growth of new imaging technologies has created a need for techniques that can be used for copyright protection of digital images. In this paper, a new and robust spread Spectrum based watermarking scheme has been proposed. The proposed scheme depend on both Discrete Wavelet Transform (DWT) and Discrete Cosine Transform (DCT). First, we decompose the image by DWT into a single level. Then, the approximation part is divided into blocks. The embedding is done in an adaptive fashion depending on the entropy (H) of the block. A chaotic sequence of real numbers, depends on a secret key, is embedded as a watermark in the DCT coefficients of the selected blocks. Detection stage generates a watermark which would be compared with the original watermark, by the correlation measure, to determine the existing of the watermark or not. Experimental results prove robustness of this technique.

•Keywords: Image watermarking, Wavelet transform, Chaos theory, Transparency Uniqueness of watermark.



Image Steganography Based on Wavelet Transform and SPIHT Algorithm

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Abstract

In this research, we aim to conceal a secret image of the same size as the cover image without noticeable degradation. Set Partitioning in Hierarchical Trees (SPIHT) codec is used to obtain a low bit rate and high constructed quality image compression for secret image as well as better security. The proposed method applies Discrete Wavelet Transform (DWT) for cover image. The compressed bit stream of the secret image is embedded in the HL, LH, and HH subbands. A scaling factors α and β in frequency domain control the quality of the stego images.

إخفاء الصورة بالاعتماد على تحويل المويجة و خوارزمية تقسيم المجموعة في الاشجار الهرمية

الخلاصة

الهدف من هذا البحث إخفاء صورة (secret image) بنفس حجم الصورة الغطاء (cover image) بدون إحداث تأثير ملحوظ فيها. تم استعمال خوارزمية الترميز تقسيم المجموعة في الأشجار الهرمية (SPIHT) للصورة السرية لتقليل حجمها وللحصول على صورة مسترجعة ذات جودة عالية وكذلك للحصول على درجة أمان أفضل.

إن الطريقة المقترحة تطبق تحويل المويجة للصورة الغطاء ومن ثم الإخفاء في الأقسام LH, HL, HH وبالاتماد على المعاملين α , β في المجال الترددي للسيطرة على جودة الصورة



استخلاص القيم الذاتية لتميز العلامة الموسيقية القياسية المطبوعة

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الخلاصة

نظرا لأهمية العلامات الموسيقية في مجال الأصوات وإمكانية توليدها آليا من قبل كثير من الأجهزة إضافة إلى الحاجة إلى استخدامها في عدد من التطبيقات الموسيقية فقد تم في هذا البحث اقتراح خوارزمية تعمل على تمييز العلامة الموسيقية (العلامات الموسيقية) معتمدا على حساب القيم الذاتية (eigenvalue) لمصفوفة التباين لكل علامة موسيقية.

ولغرض تمييز العلامة الموسيقية تم استخدام معامل التقارب (Correlation Factor) بين الخواص المستخلصة للعلامة المطلوب تمييزها (والتي هي عبارة عن القيم الذاتية لمصفوفة التباين لهذه العلامة) مع الخواص المخزونة في قاعدة البيانات (والتي تضم خواص كل العلامات القياسية الموسيقية) ليتم تحديد تلك العلامة.

تم تطبيق الخوارزمية المقترحة على عدد من العلامات الموسيقية المختلفة وكانت النتائج جيدة حيث لم يسجل أي اختلاف عند اعتماد علامات موسيقية قياسية بأحجام مناسبة.

Abstract

In sound field, musical notes are very important things, it have possibility of mechanical generation from a number of machines as well as needing of usage it in many of musical application .Therefore this paper suggested a new algorithm to musical notes recognition using eigenvalues of covariance matrix for each note.

The recognition operation depend on correlation factor between feature of desired one with stored notes features (both are eigenvalues of covariance matrix).

Good results are got when applying suggested algorithm to number of deferent music notes , no difference are notice when using music notes with suitable size.



Watermark Embedded in High Frequency Coefficient of Contourlet Transformation

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Abstract

At the end of the last century the watermark technique appear as technique to protect the authentication, so in this research we apply the watermark based on the contourlet coefficient to support the robustness of the watermark.

In the applied algorithm we study the energy of each contourlet coefficient of the cover image and we found the high frequency coefficient hold low energy ,due to that the message was embedded on the high frequency coefficient. The relationship between the size of the message and the cover image should not be more than 1:4 The effect of cover size on the quality of the image was also studied and it has proportional relationship. The evaluation factors are the Correlation, SNR and MSE The algorithm was applied on Matlab software version (7.10.0.499 (R2010a)).



تحسين كفاءة التعلم في مختبر الألكترونيك باستخدام الوسائط الألكترونية

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ملخص البحث

يهدف البحث الى تحسين كفاءة التعلم في مختبر الألكترونيك لأقسام الكهرباء في المعاهد التقنية التابعة الى هيئة التعليم التقني باستخدام اسلوب المحاكاة الحاسوبية المعتمد على حقيبة البرامجيات Multisim لبناء وتنفيذ ثمانية تجارب مختبرية من المنهج المقرر لطلبة المرحلة الأولى في لمادة الألكترونيك العملي. ان استخدام اسلوب المحاكاة الحاسوبية يمكن الطالب من الحصول على قيم عالية الدقة كما تمكنه من تجنب حدوث العطب في الأجهزة والمعدات الكهربائية نتيجة التجريب الخاطئ عند ربط التجربة بالأسلوب التقليدي. تم بناء التجارب الثمانية التي يتضمنها اسلوب المحاكاة المقترح بأعتماد على نموذج آشوركأحد اساليب التصميم التعليمي وتكنولوجيا التعلم المستخدم في بناء اسلوب المحاكاة. وتم تقويم البرنامج الحاسوبي من خلال استبانة وجهات نظر الخبراء في مجال تكنولوجيا التعليم ونظم القوى الكهربائية وأخرى تشمل عينة من الفئة المستهدفة المتمثلة بطلبة المرحلة الأولى - تخصص الكهرباء في المعهد التقني / الناصرية .

Abstract:-

This paper aims to improve the learning efficiency in electronic laboratory in electrical department of technical institutes in the foundation of technical education by using multisim simulation approach to implement eight experiments of electronic subject curriculum. By using computer simulation, the students able to achieve high accuracy reading and avoid the defect of electrical instruments through the wrong connection of electrical component.

The proposed simulation approach adopts "ASSURE Model" as type of instructional design models , this approach was evaluated by taking the opinions of experts in instructional technology and electrical engineering fields and others which included a sample of targeted group represented by first stage students of the electrical department at Al-Nassiriya technical institute in foundation of technical education.



ELEVATION SURFACE INTERPOLATION OF POINT DATA USING DIFFERENT TECHNIQUES IN ArcGIS SOFTWARE

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ABSTRACT

It is impossible to imagine of continuous measurements representing every physical location on the earth surface. It is the interest of everybody to know the exact amount or quantity of a given phenomenon or a given conditions such as elevation, precipitation, water quality, air pollution, in reality quantification is based on approximations. Measurements are in discrete nature but information needs to be somewhat continuous. In order to achieve information continuity over space, it is necessary to carry out some form of interpolation to fill gaps. Various interpolation techniques are available based on mathematical formulas and approximations but need to apply them carefully to the given phenomenon in hand and amount and distribution of real-world information. This paper presents results that obtained interpolating elevation data to create a digital elevation model. A study area with distinct variations in height was selected and interpolation was carried out using Inverse Distance Weighting (IDW), Spline and Kriging functions available in the Spatial Analyst interpolation tools in ArcGIS software ver. 9.3.

Key Words: numerical analysis, interpolation, digital elevation models, spatial autocorrelation.

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المؤتمر العلمي الدولي

الرابع





A proposed Algorithm for digital signature and encryption by using knapsack problem

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Abstract

The aim of this paper was to improve knapsack algorithm which used to create digital signature communicate entities (sender and receiver) in addition to encryption message .

Using merkle hellman knapsack algorithm is hard process to solve and then the idea of using generator mechanism to improve this algorithm is very important .

this process can be used to generate the key for digital signature .

The proposed process can be used to generate the key for the digital signature process by developing the encryption process by entering the encrypted message like a seed as initial value for key generator to generate the encryption output to digital signature .

the proposed algorithm will produce more secrecy method for the digital signature and also to the proposed algorithm computing the keys of cipher operation.

The proposed algorithm works well for both encryption and digital signature because the encryption process will proceed in double stages .



Artificial Intelligence and its Role in Building an Smart System has a High Capability in Tracking

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Abstract

There are many techniques used to protect data or attempts to reduce the Attack. The most important techniques used to reduce the attacks are detection, so the process of increasing the rate of tracking or detection rate is very important. This paper concerned not to increase the detection rate. To detect the intrusion depend on special factors, collected and these (41) factors, but in our paper that we will use only (8) factors. Use one of important fields of artificial intelligence, Neural networks and Fuzzy set.

Keywords: Detection Rate, intrusion Detection, Fuzzy set, neural networks



Intuitive Models Based Architecture for Formal Modeling of Mammalian Circadian Networks

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Abstract:

In this paper intuitive models are used as a formal framework for the specification and simulation of mammalian circadian genetic control mechanisms. Current approaches in modeling dynamic biological systems often lack comprehensibility, especially for users without mathematical background. We propose a new approach to overcome such limitations by combining the graphical representation provided by the use of Petri nets with the modeling of dynamics by powerful yet intuitive systems. We construct a model for the genetic network of the gene regulatory network. The built models formalism is a good alternative to differential equation models that require kinetic parameter values and superior to Boolean formalism which automatically sets regulation as “on” or “off” rules. The gene network has been considered as a model system for understanding the molecular biology of gene expression and its regulation. We validate our formal model by automatic checking a series of properties that are known for the regulation of the mammalian circadian gene regulatory network. Thus, we show the viability of using the net to model and reason about biochemical networks.

Keywords: Mammalian circadian gene regulatory; Hybrid models; Biological network; Modeling and simulation.



Building a Steganography Comparing System Using Random Key in a Spatial Domain of Image

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Abstract:

With time progress importance of hiding information become more and more and all steganography applications is like computer games between hiding and extracting data, or like thieves and police men always thief hides from police men in different ways to keep him out of prison. The sender always hides information in new way in order not to be understood by the attackers and only the authorized receiver can open the hiding message.

This paper explores our proposed random method in detail, how chooses locations of pixel in randomly , how to choose a random bit to hide information in the chosen pixel by compare it with other bit in another pixel, how it different from other approaches, how applying information hiding criteria on the proposed project, and attempts to test out in code, and in practice, through example.



Dimensions of the Application E-government

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Abstract

The world is witnessing development in all areas of life. One of the most important of these areas is Information Technology. Where was this in our use of information technology at the university, through the construction of an electronic network through which access to documents of the students (transcripts).

Our paper is (E-Government) each student has graduated from the University of Data stored in a central database (Server), and to maintain them has been copied to more than one place. Information is collected about the student and the most important information is the Finger print. Then the student can, from anywhere in the world after fulfilling the wages access to (take) transcripts. Where access to the site and then ask him a *question randomly* and after making sure of that question mark is verified.

This paper has proved successful in practice across the university, but there are some obstacles to investigative. Of the main obstacles at the present time is a device Finger Print.

Index Terms: E-government, E- systems, Finger print, Security.



Face Recognition by using Dynamic Time Warping (DTW)

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Abstract

The current work look at pattern recognition specially in face recognition ,this work depend on data base (faces) sensitive to variation of lighting and facial expression ,it is remarkable that a various of lighting is take very little interest in the problem of face recognition ,this research is depend on wavelet transformation method for analysis Image to extract features ,which produce the feature components in allow dimensional (I,J dimensional) subspace of an image, even under moderate variation in lighting and facial expression ,and use DTW for face classification .



Design and Implementation of a Computer Virus

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1. Abstract

A virus is a small piece of software that piggybacks on real programs and attach itself to a another program, each time the program runs, the virus runs, too, and it has the chance to reproduce (by attaching to other programs) or wreak havoc. Computer viruses can be destroyed the infected programs and information in many ways. Some of viruses run directly after infected the other programs, another viruses run after executed some command or after date or time which programmed to run in it.

Each virus consists of main program that directs the following subroutines:

Infected Executed programs subroutine.

Trigger pulled subroutine.

Do damage subroutine.

This project describes the various types of computer viruses and the work of computer virus and the method that viruses can be infected the various programs and then describes the design and implementation of an executable computer virus based on visual basic programming language.



Information Hiding by using Cryptography ,Steganography and Watermarking Methods

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قسم الحاسبات

Abstract

Throughout the ages have been used many ways to hide information as the first to use the methods of concealment are the ancient Egyptians, and use encryption are widely used in wars, especially World War II where invented many ways to transfer information through the spies to their countries in different ways and there were weak easy to detect quickly, that increased experience in this area emerged as ways of Breaking the hard decoded only have a key to .

There of these methods have been used in this paper , they are, Cryptography, Stganography and Watermarking .

Definition of these roads and algorithms, types and requirements, compare them and give them example to illustrate how each method work and thus reach the conclusion that these three methods are important in the process of concealment , encryption and decryption code for the protection of different systems from hackers and curious.



Comparison of Genetic Algorithm and Memetic Algorithm for Bicriteria Permutation Flowshop Scheduling Problem

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Abstract

Flowshop scheduling is a well-known research field for many years. As the problem size gets bigger, an analytical solution becomes impossible. Here, heuristic solutions come to the stage. In the literature, generally solutions regarding a multi-objective are developed; and multi-objective is generally used for three machines. In this paper, the weighted mean completion times and weighted mean tardiness flowshop machine scheduling. For this purpose, Genetic Algorithms (GA) are a population-based Meta heuristics. They have been successfully applied to many optimization problems. However, such pure genetic algorithms that makes them incapable of searching numerous solutions of the problem domain. A Memetic Algorithm (MA) is an extension of the traditional genetic algorithm. It uses a local search technique to reduce the Variable Neighborhood Search (VNS). The methods were tested and various experimental results show that pure memetic algorithm performs better than the pure genetic algorithms for such type of NP-Hard combinatorial problem. But the hybrid genetic algorithms versions with VNS, gives a good solutions better than hybrid MA and both was better than pure algorithms.

المستخلص

جدولة المسألة الانسيابية معروفة منذ عدة سنوات. وبينما حجم المسألة يُكبر، أصبح الحل التحليلي لها مستحيل. هنا، تأتي الحلول التقريبية في هذه المرحلة. عموماً الحلول متعلقة بمسائل متعددة الأهداف مطورة؛ والمسألة المتعددة الأهداف كانت انسيابية على ثلاث مكنان. في هذا البحث، متوسط الأهمية لوقت التمام و متوسط الأهمية للتأخير لجدولة مكنان انسيابية. لهذا الغرض، الخوارزميات الوراثية (GA) مع أساس مجتمع سكاني تكون متعددة التنقيب. وقد قدمت العديد من الحلول الأمثلية بنجاح. على أية حال، مثل هذه الخوارزميات الوراثية الصافية التي تكون عاجزة عن حلول متعددة لهذه المسألة. خوارزمية (MA) هي امتداد للخوارزمية الوراثية التقليدية. يستعمل تقنية البحث المحلي ليققل قيمة دالة الهدف بواسطة بحث الجوار المتغير (VNS). هذه الطرق اختبرت وأعطت نتائج مختلفة تبين أن خوارزمية MA الصافية تعطي نتائج أفضل من خوارزمية GA الصافية.



لهكذا نوع من NP-Hard التي تكون حساباتها معقدة. لكن الخوارزميات الوراثة الهجينة مع VNS، تعطي حلول جيدة أفضل من MA هجينة وكناتهما كاتنا أفضل من الخوارزميات الصافية.

Multi-orientation property of Gabor wavelet in Astronomical Images Compressed

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Abstract-

In the present paper, Gabor wavelet bases properties are studied. A novel and effective method for Multi-orientation property of Gabor wavelet in Astronomical image compression is introduced. A comparative analysis of orientation invariant feature extraction using different Gabor wavelet bases is discussed. The main advantage of the wavelet transform is the multi-resolution analysis. Multi-orientation property of Gabor wavelet used to optimize the results of the compressed images and used to optimize the resolution of images. Experimental results show that, whenever the angles increased for Gabor wavelets analysis, the astronomical compressed images have more accuracy and outperform better than the loss of angles orientation.

Keyword: Gabor wavelet , milt-orientation, milt-resolution, compression, JPEG2000.



Genetic Algorithms Module

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Abstract:

Evolution of artificial systems is an important component of artificial life by providing an important modeling tools and an automated design method Genetic Algorithm (GAs), are currently the most prominent and widely used models of evolution in artificial life systems.

In this paper presents the theory definition for the simple Genetic algorithms, the general algorithm and the basic terminology. Then describe the algorithms of the operator that used in the module which depending on the uniform crossover, bit inversion mutation and Roulette Wheel Selection operator. Test the with different values of operators to specify the effect of the population size with the number of generation on the optimal solution.

Key words: Genetic algorithm, Uniform crossover, Bit inversion mutation, Roulette Wheel Selection.



HYBRID KNAPSACK PUBLIC KEY CRYPTOGRAPHIC- STEGANOGRAPHY SYSTEM

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ABSTRACT

In this system we made a combination between a cryptography and steganographic we use the technique which is called least significant bit(LSB) .

A cryptography system which we use it is a knapsack public key crypto system .

First we used cryptographic system to generate the ciphertext and seconde is the stegnography which is embedded the ciphertext in it .in this paper we gave explanation of this hybrid system and gave a computer example to represent the system .In this case we strengthen the knapsack system by the stegnography system .

Keyword : knapsack, stegnography, cryptography,public key.



Hybrid image compression method based on fractal

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Abstract

Fractal image compression give some advantage in compression ratio, resolution independence and fast decompression and it is known that , Fractal compression work good when data have a a sort of self-similarity at different scales but the question is that ,how can a fractal method work when data reflect a great deal of similarity come from repeating in data (as in I,Q band of image),so in this paper the RGB images is transformed to YIQ color space and then the I&Q band have been down samples in order to get effective compression ,then Two methods were compared ;in the first one Y band compressed by Fractal compression and I,Q bands were compressed by DCT and RLE and this method called scheme1 ,while in the second Y,I,Q bands compress by fractal compression separately it called scheme 2.



Predictive Model based on Logical Analysis of Data

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Abstract

Logical Analysis of Data is a technique that used in finding a specific pattern. In Data mining, using this technique through learning process with available data set in order to extract a useful pattern. Then use it in different tasks. So in this paper, we apply this framework in construction a predictive model based on the useful extracted patterns. Then testing this predictive model. The practical work in this paper was performed based on data set of disease that convenient with the nature of this technique. The data would be obtained from UCI web site for experimented data set.