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ABSTRACTS

Extracting Public WebService Description from WWW

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Abstract

Web Service is a software component that provides business functionalities to other applications over the internet. The XML standards are providing the base for the web services. Most of the web service providers are now publishing the web services on their own websites. The consumers who want to understand the functionality of web service will need to see description of the web service in order to use it purposefully. There are two types of descriptions that are available with the web service, i.e. structural and non- structural. WSDL file contains the description of the web service, the textual description is the documentation element in WSDL file. The description in the WSDL file is normally missing or less then 1K words and which makes it hard for the consumer to understand it using the WSDL file. The proposed approach helps the consumer of the web service to understand its functionality by finding the details present on the pages over World Wide Web using Google search, and information filtering techniques.

Key words: WSDL; web services; public web services; web services description.

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Static Clustering for Target Tracking in Wireless Sensor Networks

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Abstract

The aim of this paper is to consider an energy efficient algorithm that uses static clustering architecture in which all nodes are kept in sleep state, except the active cluster is involved in the tracking process. Simulation experiments have been showed that our algorithm is much more efficient and outperforms other well-known tracking algorithms due to lower energy consumption while achieving acceptable tracking accuracy.

Key words: target tracking; Wireless Sensor Networks; static clustering.

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Syntactic And Lexical Features Of Online Restaurants' Ads.

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Abstract

Advertisement, recently, have invaded the peoples' lives promoting various kinds of services and products, foods, and even shopping center scoping with the rapid development of our era, different companies invent new methods of attracting and convincing customers, smartly, towards buying their product produce an effective piece of advertisement, manipulating different linguistic features and images plays and excellent sufficient way in achieving customers' attraction.

In this paper the researcher is focusing of presenting the different linguistic features of restaurants' advertisements and how do they reflect, and enhance people to select one retardant than the other.

Therefore, the researcher is interested in discussing the language of the commercial advertisements of different restaurants (online ads) by selecting four samples. These samples will be described and analyzed with narrative theory that focuses on linguistic description of advertising text.

Key words:

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A Novel Hybrid Rule Mechanism for the Arabic Conversational Agent ArabChat

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Abstract

This paper depicts an enhancement work upon a previous research work called ArabChat. The ArabChat is an Arabic rule-based conversational agent used the pattern matching approach to handle conversations between the user and human. After evaluating the previous version of ArabChat, it has been revealed that the user might speak with ArabChat with more than one topic inside the same utterance (sentence or conversation). Therefore, this paper continue the work on ArabChat to handle a conversation contains more than one topic by enhancing the ArabChat scripting engine methodology to issue a new version of it which it discussing in this paper.

Key words: Conversational agent, chatterbot, Arabic and hybrid rule.

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Flexural Behaviour of Normal Strength and High Strength Fibre Concrete Beams

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Abstract

The paper presents the results of an experimental work on the flexural behaviour of two types of concrete in terms of the progressive cracking process until failure and the crack opening, and beam deflection, using Digital Image Correlation (DIC) technique. At serviceability limit states, comparisons of the building code equations and the equations developed by some researchers for the short-term deflections and crack widths have been made using the reinforced concrete test beams.

The experimental results show that the addition of steel fibres increases the first cracking load and amplify the number of cracks which conducts to a remarkable decreasing in the crack width with an increasing in ductility. This study also shows that there is a good agreement between the deflection values for RC beams predicted by the major codes (Eurocode2, ACI 318 and the CAN/CSA-S806) and the experimental results for beams with steel fibres at service load. The most important added benefit of the DIC technique is that it allows detecting easily the first crack with a high precision, measures the crack opening and follows the progressive cracking process until failure of reinforced concrete members.

Key words: Beams, Digital image correlation (DIC), deflection, crack width, serviceability, fibre reinforced concrete, codes provisions

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Document Image Binarization Method That Compromises Between Global and Local Thresholding Techniques and Automates the Free Parameter Selection

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Abstract

Image binarization is an important step in many applications. With the existence of new imaging devices such as smart phones, the types of application become wider. Image binarization is the process of finding the proper image pixels threshold. Threshold methods can be grouped into two main categories: global and local. Local thresholding produces good binary images but is time consuming, which may not be appropriate for some imaging applications. On the other hand, global thresholding is fast but does not produce the target accuracy. In this article, a simple yet efficient method is presented. It is a mixture of global and local thresholding. It can be classified as local thresholding. However, it does not require calculations based on each pixel in the given image. It also automates the choice of thresholding free parameter. The resulting performance is comparable to the best of the existing methods and is faster than many of them.

Key words: Image binarization, Image thresholding, Pixel classification

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Expert system for evaluating tests in e-learning system

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Abstract

E-learning systems are very popular and offer very useful method of learning. Tests in e-learning system can be created in various modifications. The paper proposes expert system and fuzzy approach for evaluating test completed by students. Proposed approach identifies criteria for evaluation of specific test and divides test into suitable categories of questions. Then, the test is created and shown to the student. After collecting completed test from student, the expert system with knowledge base is proposed. Subsequently, test is evaluated by expert system. Finally, the evaluation of test is visualized and shown to teacher or administrator of e-learning system. Particular steps of proposed fuzzy approach with expert system are described.

Key words: e-learning, test, uncertainty, fuzzy, expert system, student, evaluation

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On Advantages of Dynamic Colored Graph for Fault tolerance in Grid Computing

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Abstract

The heart of the Grid is the ability to discover, allocate, and negotiate the use of system resources, such as a computer, network, or storage system. The Grid consists of geographically distributed cluster federations gathering thousands of nodes. At this scale, node and network failures are no longer exceptions, but a part of normal system behavior. Thus, grid applications must tolerate failures and their evaluation should take reaction to failures into account. We propose, in this paper, a decentralized model of fault tolerance based on new model of graph entitled dynamic colored graphs. The proposed protocol provides the ability to tolerate faults in all grid nodes, defining a threshold of Neighboring Collaborators for each node. After a coloring phase followed by a stabilization phase, we can classify the grid nodes into three categories: unstable, stable and hyperstable nodes. We demonstrated that the graph always converges to a stable state. We used the colors of the nodes to develop a new strategy for fault tolerance based on the colors assigned to nodes after the coloration and stabilization phases. From this model, we show through some experiments, the benefits of dynamic colored graphs to manage failures in grids.

Key words: Large scale systems, Grid computing, Fault tolerance, Dynamic colored graph.

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Fuzzy tool for selection of suitable job applicants

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Abstract

The paper deals with a fuzzy tool for selection of suitable job applicants. The paper describes in detail individual parts of the proposed fuzzy tool together with the expert system. A part of the expert system is a knowledge base consisting of IF-THEN rules. First of all, an HR manager defines suitable criteria that are important for selecting a suitable applicant for a given position. Selected criteria are assigned with corresponding values and then necessary data is uploaded from a database of all job applicants. The expert system then uses the IF-THEN rules from the knowledge base to assess the level of suitability of all relevant employees. Outputs of the expert system are then visualised and displayed to the HR manager. The HR manager then performs selection of the most suitable applicant for the given position in the company. The proposed fuzzy tool is verified on a real example.

Key words: fuzzy tool, job applicants, expert system, fuzzy, selection, company, HR manager

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Principles of territorial development: Using spatial tools based on GIS

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Abstract

Town and country planning is one of the most important activities of state and local government at all levels of the hierarchical administrative subdivision of the state. In general, formation of the zoning plan is a complicated process. Planning of the development municipalities, cities and regions is needed to develop and deepen the coordination of all planning techniques and procedures. It is necessary to take into account all bindings of its basic pillars, namely in the area of social, environmental and economic. Many actors and stakeholders create zoning plan and evaluate a lot of options. The most difficult activity in the creation of the zoning plan is decision making based on the applicable legislation, restrictive regulations and the planning analytical documents. These documents are currently predominantly in digital format and contain a variety of criteria which are needed to evaluate. This issue is solved by multi-criteria analysis methods. Given that digital database containing these materials is territorially bound, it is appropriate to use solution also geographic information systems (GIS). Multi-criteria analysis or expert analysis reaches relatively objective results. In this paper is proposed system for territorial decision making based on GIS technology and using three new methods of multi-criteria analysis which will gradually identify and analyse weights of individual factors in the selection process of the key factors. Multi-criteria analysis methods are designed using the scripting language Python and visualized by GIS software environment. It is a comprehensive system that includes an interconnection to the database of valid legislation and relevant regulative in the given area. The proposed system has been validated in the village Jinačovice a city district Brno-Komín).

Key words: Principles of territorial development, GIS, Multi-criteria analysis

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A novel approach for optimal rule creation and classification in Autonomous, Self-directed, Ant-optimized Adaptive Learning-based Intelligent Network Architecture

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Abstract

An Autonomous, Self-directed, Ant-optimized Adaptive Learning-based Intelligent Network Architecture (ASAALI) is a self-learning network management system [1] in which the collection and analysis of data from all Autonomous Nodes (AN), for generation of rule-sets was a significantly important but time consuming process. As a solution for efficient analysis and creation of optimized rule-sets an Ant Colony Optimization (ACO) based classifier AntMiner-CC [2] is used based on its performance comparison with other well-known learning based classifiers. Rule-sets are later used by Adaptation and Planning Network layer of ASAALI for imposing decisions over the heterogeneous network environment.

Key words: ASAALI, autonomous network management, Ant-Miner-CC, ACO, learning, classification

Influence of Yield Stress and Compressive Strength on Direct Shear Behaviour of Steel Fibre-Reinforced Concrete

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Abstract

This study aims in examining the influence of the paste yield stress and compressive strength on the behaviour of fibre-reinforced concrete (FRC) versus direct shear. The parameters studied are the steel fibre contents, the aspect ratio of fibres and the concrete strength. Prismatic specimens of dimensions 10x10x35cm made of concrete of various yield stress reinforced with steel fibres hooked at the ends with three fibre volume fractions (i.e. 0, 0.5 and 1%) and two aspects ratio (65 and 80) were tested to direct shear. Three types of concretes with various compressive strength and yield stress were tested, an ordinary concrete (OC), a self-compacting concrete (SCC) and a high strength concrete (HSC). The concrete strengths investigated include 30 MPa for OC, 60 MPa for SCC and 80 MPa for HSC. The results show that the shear strength and ductility are affected and have been improved very significantly by the fibre contents, fibre aspect ratio and concrete strength. As the compressive strength and the volume fraction of fibres increase, the shear strength increases. However, yield stress of concrete has an important influence on the orientation and distribution of the fibres in the matrix. The ductility was much higher for ordinary and self-compacting concretes (concrete with good workability). The ductility in direct shear depends on the fibre orientation and is significantly improved when the fibres are perpendicular to the shear plane. On the contrary, for concrete with poor workability, an

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inadequate distribution and orientation of fibres occurred, leading to a weak contribution of the fibres to the direct shear behaviour.

Key words: concrete, fibre, direct shear, yield stress, orientation, strength.

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Sentiment Analysis Tool using Machine Learning

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Abstract

This paper first presents the task of sentiment analysis and discusses its pros and cons when performed on data extracted from the web.

Next, the problems of sentiment analysis in the Czech language are introduced. Currently, there is no sentiment dictionary available for the Czech language. To cope with this problem, supervised machine learning techniques are presented in the article as an approach for the sentiment analysis of Czech web pages.

As part of this research, an application was developed using this approach for the analysis of web content based on language sentiment. An overview of its structure is included in the next part of the paper.

The application modules cover automated text data mining from web pages, text processing and transformation, and machine learning based sentiment classification of the text. Several classification algorithms were applied and tested on the Czech text datasets, and their overall accuracy evaluated. The results of a comparison of the accuracy of the algorithms in the given area are also included in this paper.

Key words: sentiment analysis, web content mining, text processing, machine learning.

Sentiment Analysis, Web Content Mining, Text Processing, Machine Learning

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Abstract

The different activities and approaches in software testing try to find the most possible number of errors or failures with the least amount of possible effort. Mutation is a testing approach that is used to discover possible errors in tested applications. This is accomplished through changing one aspect of the software from its original and writes test cases to detect such change or mutation. In this paper, we present a mutation approach for testing software components integration aspects. Several mutation operations related to components integration are described and evaluated. A test case study of several open source code projects is collected. Proposed mutation operators are applied and evaluated. Results showed some insights and information that can help testing activities in detecting errors and improving coverage.

Key words: Software testing, integration testing, mutation, coverage, software design.

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A Robust Data Clustering Approach Using Gravitational Search Algorithm and a Heuristic Search Approach

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Abstract

In this paper, we present an efficient algorithm for data clustering, which is based on the gravitational search algorithm and a heuristic search approach. In the proposed algorithm, called GSAHS, the gravitational search algorithm is used to find an initial solution for the clustering problem, and then at the next stage, a heuristic search algorithm is applied to improve the quality of the initial solution by thoroughly exploring the both sides of the initial solution. Four benchmark datasets are used to evaluate the performance of the GSAHS in comparison with K-means, genetic algorithm (GA), tabu search (TS), simulated annealing (SA), ant colony optimization (ACO), honey bee mating optimization (HBMO), particle swarm optimization (PSO) and gravitational search algorithm (GSA). The experimental results confirm that the GSAHS can find high quality clusters in all the test datasets.

Key words: Cluster analysis; Gravitational search algorithm; Heuristic search algorithm.

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Performance Evaluation of Broadcast Beacons in VANETs over Road Intersections and Roundabouts

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Abstract

The accumulative number of road accidents and the limited capacity of the streets are among the main reasons of the increasing interest in research area of vehicular applications. These applications concentrate mainly on improving the drivers and passengers safety and comfort over the course of their travel on the roads. Vehicular Ad-Hoc Networks (VANETs) is a class of Intelligent Transportation Systems (ITS) which aim to reduce the number of accidents, improve the flow of vehicular traffic and provide comfort for the drivers and passengers. Mobility models are the key requirement that provide realistic environment for VANETs simulation. They represent the real behaviour and movement of vehicular traffic. Therefore, these models should be as close as possible to the realistic situations and describe truthfully the real world behaviour to provide accurate results. This paper investigates the impact of broadcasting beacon messages between vehicles with two most popular mobility models which are, Intersection Management and Roundabout Layout. These two mobility models provide further understanding on the effect of introducing realistic details that can be found in physical world. The mobility models are generated using Simulation of Urban Mobility (SUMO) traffic generator and the broadcast protocol is implemented in Network Simulator NS-2. The performance of broadcast protocol is evaluated by calculating the Packet Delivery Ratio (PDR). The qualitative and quantitative results obtained demonstrate that intersections and roundabouts have great impact on packets delivery between vehicles mainly in dense environments.

Key words: Car Following Model-Intersection Management, Car Following Model-Roundabout Layout, Mobility Models, NS-2, SUMO, VANETs;

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A New Artificial Neural Network Model based on Trimmed Multiplicative Neuron Model to Determine Fuzzy Relations

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Abstract

Nowadays, artificial neural networks (ANN) have been used in different areas such as mathematics, statistics, physics, engineering and computer science because of its ease of use and superior performance. One of the important usage areas of ANN is fuzzy time series forecasting models. The fuzzy time series methods consist of three basic stages as fuzzification, determination of fuzzy relations and defuzzification. And each of these stages plays an effective role on forecasting performance of the method. Therefore, if the researchers would like to obain good forecasting performance, they should pay attention to selection of the suitable approach in these stages. In recent years, feed forward artificial neural networks (FF-ANN) and artificial neural networks with multiplicative neuron model (MNM-ANN) have been commonly used in the determination of fuzzy relations stage. In this respect, especially in the last studies, MNM-ANN have been frequently utilized to determine the fuzzy relations via by using the membership values as input values and correspondence real values of time series as target values. But using this kind of ANN model with multiplicative activation function will sensitize the forecasting performance of the model to outliers.

In this study, to avoid the effect of outliers, a new ANN model is proposed which is called as trimmed multiplicative neuron model artificial neural networks (TMNM-ANN) to determine the fuzzy relations in a fuzzy time series forecasting model. To evaluate the forecasting performance of TMNM-ANN, the proposed TMNM-ANN is applied some real life time series and obtained results are compared some fuzzy time series methods which are well known in the literature.

Key words: Artificial neural network, fuzzy time series, multiplicative neuron model, outlier, forecasting.

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Pre and Post Test Suite Reduction Techniques: A Comparison Study

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Abstract

Test suite reduction is a critical activity which occurs pre or post test cases generation process. As software keeps growing large amounts of new test cases will be generated and added to the test pool and others will be updated. Accordingly test suite size will increase. Test suite reduction techniques have been proposed to eliminate redundant or irrelevant test cases based on variant criteria, while seeking to maintain the total effectiveness of the reduced test suite. In this paper we address and compare four test case reduction techniques: CBR (case-based reasoning) deletion algorithms Technique, GE & GRE Heuristics and priority cost technique, Model-checker based technique and Base choice coverage criterion technique. The aim of the study is to provide a guideline for choosing the appropriate test suite reduction techniques.

Key words: Test suite reduction techniques; Requirement Test Coverage.

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Graphology And Forensic Graphology

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Abstract

The text is a secondary system explaining the verbal system in certain symbols which humans use for communicating each other. The discovery of the writing is one of the most important developments in humanity history, and is the first information revolution. The discovery of writing has led to settlement and development of bureaucracy, political development of the states, more appropriately implementation of legal regulations, and transfer of the history into todays. Besides the systemic transfer of information through the texts, the discovery of writing is of important also because it contains the information about its author. The determination of the relationship between the author and the text, which is as important as speech is in communication, is also important. The science investigating the relationship between the author and the text is named graphology. Graphology is utilized in various domains such as education, business, clinics, justice, and forensic sciences. In this study, the graphology and the forensic graphology among the implementation domains of graphology.

Key words: Graphology, graphemics, forensic graphology

Implementation of WSN Security mechanism based on the Energy consumption in the context of QOS

Lamyaa moulad,

Abstract

thanks to technological breakthroughs in diverse domains, such as the microelectronics and the miniaturization, the technological development of the networks of wireless communication, knew an important development, in this sense a new type of wireless network aroused a big interest with the scientific community, it is networks of wireless sensors WSN (Wireless Sensor Networks) [1] [2] [3]. A WSN is established of a large number of entities (sensors) geographically scattered, of reduced size, with an autonomy and a power of treatment also reduced. These devices are used to realize, in a independent way, tasks as surveillance, measure and control of industrial process, etc....

In several applications, a large number of this type of sensors may be spread. Thus He a need mattering in term of availability of the bandwidth, a strong constraint concerning the deadline of transmission, a high energy consumption, and especially a « Guarantee of the Security ».

Because of their deployment in open environments has big scale, of their limited resources, and the nature broad-cast of the medium of transmission, sensors networks have to face numerous attacks. Without security measures, an intruder can throw of attacks which can damage (the networks of wireless sensors (WSN) and to prevent their good objective of deployment. Thus a security policy is necessary for these networks.

Any study of security is made according to three big stages ; identify all risks and sources of risks, handle and optimize the level of risk most rather possible, and especially fight against the latent risks with a strategic prevention. Mechanisms of protection exist (the cryptography, the partitioning of the data the location, the confidence index.) but it is often necessary to add to these systems a mechanism of detection and prevention of intrusion to complete the functions of security.

To be able to answer this security need, we used a parameter called, the « energy consumption ». Indeed, any abnormal request of energy gives a strong indication of situation of a bad behavior of intrusion aiming at the devices of the WSN, however a WSN have to make sure to be capable of honoring the service (Qos) asked to

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know the resources energetics [1]. In this context we can thanks to our technique measure, detect via scenarios IDS, warn via scenarios IPS and especially check the communication between devices and routing of the flow passing in transit by the components of the WSN to anticipate afterward any attack aiming at the WSN. It allows to reduce the complexity of the routing and to avoid the failure of network s nodes engendering the failure of the hole WSN , Especially if the node has a big importance in this network like a « sink » node, by the good energy resource management. So, we proposed an improvement Of the reactive routing protocol AODV [11] under the simulator NS2 for the support of the security via the modification of mechanism of routing by integrating the notion of energy into its elements contributing to the process of routing. This protocol modified and based on 3 scenarios (IDS, IPS, IAS) allowed the optimization of the energy consumption of WSN by building a such mecanism which allowed the detection (IDS), prevention (IPS) and the anticipation (IAS) of random accesses in the resources energetics influencing the performances of this network

Key words: WSN, power management, security, AODV, IDS, IPS, IAS, routing protocol, longevity of WSN.

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by intruders and consequently to guarantee a longevity of the network.

Effective management of groundwater systems based on information technology

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Abstract

The article discusses the concept of a comprehensive assessment of groundwater, information technology of developing the evaluation subsystem, quantitative assessment methods of groundwater contamination risk. This technology will enhance the analytical component of the information system for groundwater monitoring.

Key words: groundwater pollution, vulnerability assessment of groundwater, information technology, indicators of groundwater status.

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Droidrunner Emulator: An Emulator Framework For Running Android Apps On Windows Phones

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Abstract

Windows Phone is a successful and stable operating system with increased flexibility. Despite its amazing features, the global market share has been reported to be far less than its competitor; Android. As per some recent market analysis, Windows Phone currently holds a 2.5% share as compared to Android's overwhelming 84.7% [1]. This may be due to the fact that the Android Operating System (OS) is preferred by application developers due to the key reason that Android is open-sourced and offers a wide variety of applications, unlike Windows.

In this paper, we propose an Emulator framework for the Windows Phone that would allow its users to also execute Android applications, thus, bridging the "Application Gap". Initially, the framework will only execute some basic Android applications and can be extended later on.

Key words: Windows Phone, Android, Framework.

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Optimization of Travelling Salesman Problem Using Genetic Algorithm and Fuzzy C Means Clustering

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Abstract

Traveling Salesman Problem (TSP) is one of the most intensively studied optimization problems in computer science and some other areas. It is expected that the optimum tour is completed with the minimum cost by salesman. In this study, a hybrid system is developed composed of two methods Genetic Algorithms and Fuzzy C-Means Clustering for solving TSP. The aim in selecting TSP is that it can be applied in real world as well as adaptive applications. In our method, the cities according to their membership functions are divided into several clusters by the Fuzzy C-Means Clustering method. Therefore, an appropriate form of a population in the genetic algorithm is provided. The performances of both proposed method and classical genetic algorithm are obtained and compared. In the conclusion of the paper, some experimental results are provided to illustrate the effectiveness of the approach.

Key words: Travelling Salesman Problem, Genetic Algorithm, Fuzzy C-Means Clustering.

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Integrated Monitoring System for Elderly Care In Smart Home

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Abstract

There exist a substantive number of applications that have been designed for smart homes. They may include; home monitoring, security, comfort, alarm, health monitoring etc. Research shows that the number of people at the age of 60 or more around the globe is likely to increase. For instance, it is estimated that by the year 2050, this group of people will increase by almost half (50%). There is a lack of adequate and sufficient resources to care for the elderly in the society. This paper seeks to provide for the design and implementation of an effective monitoring system that incepts sound and face detection as a means of tracking. The projected monitoring system incorporates the Arduino Intel Galileo as a control monitoring mechanism. The device, that mainly uses sound detection sensor EasyVR 2.0, will be used to monitor the elderly people in different facilities. In addition, the gadget is fitted with a pixy camera programmed by using an OpenCV framework with C++ language. The device will be integrated together with the GPRS/GSM shield so as to notify the administrators at medical facilities of emergencies that may occur. The EasyVR commander software (3.7.25.0) was used in the determination of the effectiveness of this gadget. Further, the experimental test run was also arrived at by use of PixyMon software together with hardware results that were obtained by 50 fps. The main aim of this research study is the provision of a device with multimodal biometric features to enhance monitoring ability in various homes.

Key words: Sound detector, Face detection, Arduino Galileo, Pixy Camera, GPRS/GSM.

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Decentralized LEACH Routing Algorithm for Wireless Sensor Networks

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Abstract

— Energy conservation has a main priority in all technology and engineering fields. During the rise of wireless sensor networks (WSNs) field applications and the critical situation of energy consumption, the optimization of energy dispatch becomes a critical and important field of research. LEACH (Low Energy Adaptive Clustering Hierarchy) is one of the most popular routing protocols in WSNs. However, in LEACH nodes energy are drained quickly and it decreases network lifespan due to cluster heads that are selected randomly without taking into consideration the residual energy and position of nodes. The goal of this paper is to introduce a routing algorithm named D-LEACH (Decentralized LEACH) to enhance network lifetime by selecting cluster heads according to their residual energy and position. This is achieved by decreasing the amount of communication which is needed for selecting cluster heads. The simulation results indicate that the proposed scheme can prolong network's lifespan and also increase the average residual energy of nodes up to 150%.

Key words: Wireless Sensor Networks; LEACH; Clustering

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An Improved Approach for Scheduling Tasks Based on Lottery Algorithm in Cloud Computing Environment

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Abstract

Cloud computing paradigm of distributed computing, applications are composed a large number of resources and services for the purpose of sharing resources and services on the internet. Task scheduling problems have paramount importance and are trying to determine an efficient scheduling to run tasks and optimal resource allocation. There are many different ways to schedule the tasks in cloud environment which one of the efficiency measures method is makespan. Makespan is the completion time of all tasks and the purpose is its reduction. This paper introduces a new method for task scheduling based on lottery in order to find a solution for mapping a set of requests to system's available resources which are classified with K-means algorithm according to condition of cloud systems and its implementation. Algorithm runs on requests and classified resources in parallel. Using the characteristic of min-min method tried to accelerate the process of finding the answer. The proposed algorithm was evaluated with a view to reducing make span time and compared with min-min, max-min and suffrage algorithm.

Key words: Task Scheduling, Cloud computing, Lottery algorithm, makespan

Static Clustering for Target Tracking in Wireless Sensor Networks

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Abstract

The aim of this paper is to consider an energy efficient algorithm that uses static clustering architecture in which all nodes are kept in sleep state, except the active cluster is involved in the tracking process. Simulation experiments have been showed that our algorithm is much more efficient and outperforms other well-known tracking algorithms due to lower energy consumption while achieving acceptable tracking accuracy.

Key words: Target tracking, Wireless sensor networks, Static clustering.

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An Evolutionary Approach for Scheduling Tasks Based on Lottery Algorithm in Cloud Computing Environment

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Abstract

An evolutionary method based on Lottery algorithm for independent task scheduling in cloud computing systems has been presented in this study. Task scheduling is a major issue in large-scale distributed systems that impresses on system performance. For some reasons such as heterogeneous and dynamic features in cloud environment, task scheduling is an NP-hard optimization problem. In fact, the goal is determining a processing resource from set of resources that a task needs for processing, so more jobs could be in less time. Hence task scheduling in cloud computing is very important which try to determine an efficient scheduling and source allocation. Our proposed algorithm with the base of lottery and by some goal oriented operations such as, making an optimize initial population, and also running the tasks by a special ordering considering resource load balancing and quality of service, achieves the optimize makespan and response time. It also decreases the task starvation problem and supports the scheduling for new entered tasks in system by a dynamic method. The experimental results show that the algorithm is effective when compared with existing algorithms.

Key words: Cloud Computing, Task Scheduling, Makespan, Lottery Algorithm, Virtual Machine

Cloud Computing Security: A Survey

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Abstract

Cloud computing brings new possibilities for individuals and firms to utilize computing as a utility. It utilizes computing power irrelevant of user's location and devices. Thus it has become more demanding due to its performance, high computing power, cheapness, elasticity, accessibility, scalability and availability. Cloud computing offers ubiquitous operation with different security challenges. In this paper we discuss security challenges and vulnerabilities as well as limitations of current security modules. This paper will serve as a baseline guide for new researchers in this area.

Key words:

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Ear region detection in profile face images

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Abstract

Ear detection from a profile face image is an important step in many applications including biometric recognition. But accurate and rapid detection of the ear for real-time applications is a challenging task, particularly in the presence of occlusions. For identification, first ear region should be detected from profile faces. In this work, We adapted the cascaded profile faces from canons approach to detect ear from a 2D profile face images. profile face image is getting as input image. In profile face, ear image region is estimated by profile faces canons. And then after review, ear region is specified as a frame. For this aim, we use filtering, edge detection algorithm, closing morphology and noise elimination. Experiments are performed on CVL image database. Also, with increasing number of profile image database we evaluated two important biometric factor that are included False Detection Rate(FDR) and Correct Detection Rate(CDR).

Key words: Biometrics, Ear identification, image processing

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Optimization of processing of enormous amounts of geographical data

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Abstract

The paper deals with the optimization of processing of large volume of geographic data. The essence of the method is hierarchical decomposition of the set of processes into elementary processes and the allocation of means to these processes. The means can be of three types: hardware, software or human factor, eventually combination of these types. Each elementary process can be processed at one of these means in certain time. Generally, the processes and the means can be interdependent or independent. The described problem can be represented using an oriented graph, where nodes correspond to the processes or the means and edges represent either the interdependence of processes and means, or the processing time of certain process on a given mean. The map of processes is formed on the basis of the graph. This map contains temporal continuity of solutions of sub-processes. Then, the duration of all processes is compiled from this map, which must be less than the time solving a task in the required quality of results. If not, the pairs of sub process-mean are replaced alternative pairs according to the map of processes with lower duration. The special algorithm was designed for this task. If the sum of the durations of all processes complies with solutions, the optimization ends and at this time the sub-processes and their allocated means are defined. The proposed method of data processing was realized in the project of data analysis of storage of gas facilities under certain types of terrain surface in the Czech Republic with the area of 64,350 km2. This analysis was done in order to determine reproductive values of gas facilities of the RWE concern and the valuation of costs which would be necessary to spend for building new networks.

Key words: process scheduling, optimization, GIS

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The Training of Artificial Neural Networks with Multiplicative Neuron Model Based On Differential Evolution Algorithm for Forecasting

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Abstract

Artificial neural networks (ANN) have been used especially in the analyzing of problems such as pattern recognition, classification and forecasting. ANN has three basic components as architecture structure, activation function and learning algorithm. It can be said that the most important property of ANN is the learning ability from a knowledge source (data). The learning process is a process that the best values of weights are obtained and this process is called as the training process of ANN. The obtaining of the best values of weights can be regarded as an optimization problem. Back propagation and Levenberg-Marquardt learning algorithms have been commonly used in ANN literature. Besides these learning algorithms based on derivative, some heuristic optimization techniques such as particle swarm optimization (PSO), taboo search and simulated annealing algorithms have been utilized.

Although multilayer feed forward artificial neural networks (FF-ANN) have been commonly and successfully used, they have some basic problem. One of these problems is the selection of architecture which plays an important role on the forecasting performance of ANN. Yadav et al. (2007) proposed a new ANN with multiplicative neuron model (MNM-ANN) in order to overcome this kind of problems. The researchers have preferred to utilize back propagation and PSO learning algorithms in the training process of MNM-ANN.

In this study, differential evolution algorithm which is an important heuristic optimization algorithm is firstly used in the learning process of ANN with multiplicative neuron model (MNM-ANN-DEA). The forecasting performance of MNM-ANN-DEA is evaluated by applying to some real life time series.

Key words: Artificial neural networks, learning algorithm, multiplicative neuron model, differential evolution algorithm.

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