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Outline

Abstract
Keywords
1. Introduction
2. Related works
3. Cluster based Data Aggregation Scheme for latency...
4. Simulation results
5. Conclusion
Declaration of Competing Interest
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Figures (19)

Cluster Based Data Aggregation Scheme for Latency and Packet Loss Reduction in WSN

V. Seedha Devi ᵃ ⚲ ✉, T. Ravi ᵇ ✉, S. Baghavathi Priya ᶜ ✉

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Abstract

In Wireless Sensor Networks (WSN), the main issues of cluster based data

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Cluster Based Data Aggregation Scheme for Latency and Packet Loss Reduction in WSN

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ARTICLE INFO

ABSTRACT

In Wireless Sensor Networks (WSN), the main issues of cluster based data aggregation algorithms are energy balancing, packet loss and latency reduction. In existing scheduling algorithms for data aggregation, time slots are mostly assigned based on the data sensing period and data transmission rate, ignoring packet loss and latency. In this paper, Cluster based Data Aggregation Scheme for Latency and Packet Loss Reduction in WSN is proposed. The proposed scheme consists of two phases: Aggregation Tree Construction and Slot scheduling algorithm. In phase-1, each cluster head applies compressive aggregation for the data received from its members. Then the aggregation tree is constructed by the sink using Minimum Spanning Tree (MST). In phase-2, the packet loss rate and latency are taken into consideration while prioritizing and assigning timeslots to the nodes with aggregated data. This scheme avoids using unnecessary retransmissions and waiting, which results to be beneficial in enhancing the network performance in WSN. Simulation results show that the proposed scheme reduces the latency and overhead and increases the packet delivery ratio and residual energy.

1. Introduction

WSNs are basically deployed over large areas in a distributed manner to estimate the variation in physical as well as environmental nature of the network. The modules used in sensor nodes also need to be effective so as to consume minimum energy to assure maximized lifetime for the network [2]. WSN is employed in many applications like military surveillance, environment monitoring, exploration, etc.
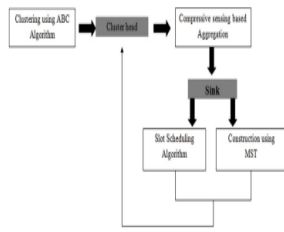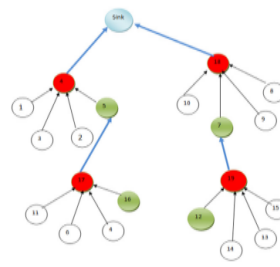
Fig. 1. Architecture of proposed scheme.

Fig. 2. Cluster based aggregation tree.

In phase-1, each CH aggregates the received data from its members using perfectly compressive aggregation function [4] in which the correlation between the generated packets is considered. After cluster formation, the CH broadcasts its ADV, including the CH ID, location, cluster ID, cluster size and residual energy. The sink based on the position of CHs, provides a minimum spanning tree (MST) between them and finally broadcast the tree information for all CHs [5]. It also includes a schedule for data transmission among the cluster heads.

In phase-2, the expected packet loss rate (PLR) is estimated at the sink. For delay estimation, the effective maximum delay (dm) at each node is estimated [15]. For nodes with real-time data having delay and loss constraints, time slots are allocated based on PLR and dm. For other nodes, time slots are assigned based on transmission rate.

Since the packet scheduling avoids losses and meets deadline, the energy consumption due to unnecessary waiting and retransmission can be avoided. Fig. 1 shows the architecture of the proposed scheme.

3.2. Aggregation Tree Construction

Initially, clusters are formed and CHs are selected as described in our previous paper [14]. Each cluster has N cluster members (CM) which generates variable number of data packets of fixed size. In

Table 1
Simulation parameters.

Number of nodes	50 to 100
Network size	1000 × 1000 m
MAC protocol	IEEE 802.11
Transmission rate	50 to 250 kb/s
Data flows	2 to 10
Antenna model	Omni antenna
Initial energy	14.0 J
Transmission power	0.660 W
Receiving power	0.4 W
Packet size	512 bytes

3.3. Slot scheduling algorithm

In Phase 2, the CH prioritizes the aggregated data so that it can be delivered at the sink without failing to fulfill the delivery constraints. The BS allots timeslot for the data based on the priority of data. This process is described in algorithm 1.

If the data is real time data with strict deadlines and by BS and the timeslots are allotted, such that the data packet gets delivered at the sink within reliability constraints, then the data is given high priority. If the data is non-real time with lesser constraints, then the data is

---

the Base Station (BS) [6]. The CH aggregates the data after decreasing the size of the packet and redundancy. Later the packet gets transferred to the destination [1]. In hierarchical network, the effectiveness of data aggregation technique can be maximized by employing the clustering concept. Clustering can be performed in two ways: static clustering and dynamic clustering. In static clustering, the network is grouped into many smaller clusters. Energy consumption in an unpredictable manner is a very common and serious issue in cluster based WSN. In tree based data aggregation, the sink node act as root node along with leaves assumed as source node. In this technique data is transfer from leaves node towards sink and aggregation is performed through parent node. In WSN, few nodes may exhaust its energy sooner and lead to network failure. To overcome this issue, several researchers have analyzed and presented new algorithms [6].

The main issue of cluster based aggregation algorithms are energy balancing and latency reduction. In compressive sensing (CS) based aggregation schemes [7–9], if recovery of original packets fails due to incorrect compression ratio, it may lead to packet losses. Moreover, packet losses may occur due to congestion or bad channel conditions which may not be resolved by using CS.

In existing scheduling algorithms [10,11], time slots are calculated based on the data sensing period and data transmission rate. For real-time data with high priority, data loss and delay are crucial parameters which have impact on scheduling. Hence time slot assignment should consider these two parameters in order to ensure reliable delivery of critical and real-time data.

Hence, the main objective of this work is to design a scheduling algorithm for cluster based aggregation which should provide

- balanced energy consumption
- reduced end-to-end latency
- reduced packet loss rate

is being consumed by the cluster head for aggregation purpose. In this algorithm, initially a tree which is rooted at nodes is created and is referred as virtual sinks. Next the children count at each level is managed. Later, the developed tree is taken into consideration by the DAS algorithm which allots timeslots to the consecutive nodes in order to minimize the redundant wastage of energy that may be caused due to repeated active-sleep transitions. Apart from the traditional static equal clustering algorithms, a set of unequal and dynamic clustering algorithms has been proposed.

Jun YUE et al. [12] have presented a new unequal cluster-based data aggregation protocol. In this proposed protocol, the network is divided into different sized grids. Then the cluster head rotation is followed in every grid in the network. This technique is capable of energy consumption balancing through applying appropriate grid size in order to manage the number of nodes which get involved in cluster head rotation from various grids. Also, in this technique, the energy efficiency is improved due to the some external schemes.

Woo-Sung Jung et al. [13] have presented a hybrid clustering technique on the basis of data aggregation mechanism. In this technique, any appropriate clustering process can be selected and employed on the basis of the network status, data aggregation effectiveness enhancement along with energy usage and data transmission ratio.

In order to reduce the aggregation overhead and energy consumption, compressive data aggregation techniques have been proposed. For energy-constrained WSNs, Compressive Sensing (CS) provides an effective data gathering approach.

Cuicui Lv et al. [7] have developed a mobile agent based compressive data gathering algorithm (MA-Greedy algorithm). In this algorithm, measurement matrix which is referred as sparse binary matrix is employed in CS. Coefficient of Variation(CV) metric is developed
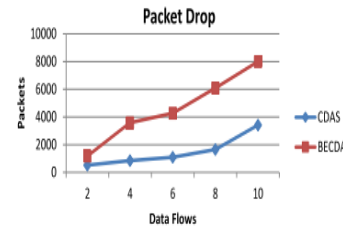

Algorithm 1

Notations	Meaning
CH_j	j^{th} Cluster Head
CH_{jk}	neighbour cluster heads of CH_j
CM	Cluster Member
CH_{ID}	Identity of the Cluster Head
CH_{loc}	Location of the Cluster Head
C_{ID}	Cluster ID
C_{size}	Cluster Size
E_{res}	Residual Energy
DR_{RXT}	Data packet reception rate
ER	symbol error rate
n	node
MST	Minimum Spanning Tree
n	number of nodes in a cluster
k	bits of data packets
M	data packet bits
$f(A_{CH})$	compressive aggregation function
X_i, Y_j	variables representing correlation between the number of packets generated by cluster members
V^1 and V^2	vertex of tree T1 and T2, respectively.
$Dist_{min}(V^1, V^2)$	minimum distance between V^1 and V^2
BS	Base Station

1. For each CH_j, j=1,2...n
   $\{CH_{ID}, CH_{loc}, C_{ID}, C_{size}, E_{res}\}$
2. $CH_j \longrightarrow CM_i, CH_{jk}$
3. $CM_i \{Packets\} \longrightarrow CH_j$

4. CH_j estimates the packet generation rate DR_{RXT} using equation (1) [18]:
5. $DR_{RIT}(i) = \prod_{j=1}^{1j}(1 - ER(i, j))$ (1)
6. CH_j applies compressive aggregation function f(A) at CH_j using equation (2) [4]:
7. $f(A_{CH}) = \sum_{i=1}^{k} X_i + \frac{1}{M}\sum_{j=1}^{M} Y_j$ (2)
8. CH_j transmits its data and CH_{loc} to BS
   $CH_j \longrightarrow CH_{loc} \longrightarrow BS$
9. If BS receives CH_{loc} from CH_j then
10. BS stores CH_{loc} in its table.
11. BS creates MST between all CH based on CH_{loc}

Fig. 5. Data flows vs. packet drop.

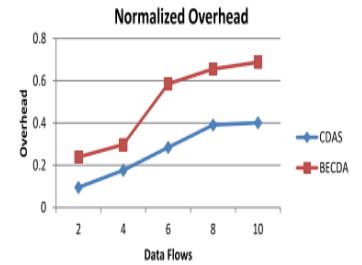Fig. 6. Data flows vs. overhead.

Fig. 7. Data flows vs. residual energy.

The result of average packet drop for the two schemes is shown in Fig. 5. As the data flows are increased, the queue at CH is overloaded, leading to increase in packet drop. The packet drop of CDAS increases from 522 to 3415 and the packet drop of BECDA increases from 1180 to 7999. Though both the schemes apply the aggregation function at CH, CDAS uses the slot scheduling algorithm, which reduces the expected packet loss rate of real-time flows. Hence the drop of CDAS is 67% less when compared to BECDA.

The result of normalized overhead for the two schemes is shown in Fig. 6. As the data flows are increased, the aggregation overhead increases, leading to increase in normalized overhead. The overhead of CDAS increases from 0.09 to 0.4 and the overhead of BECDA increases from 0.23 to 0.68. Though both the schemes apply the aggregation function at CH, CDAS uses the slot scheduling algorithm, which reduces the overhead at CH. Hence the overhead of CDAS is 46% less when compared to BECDA.
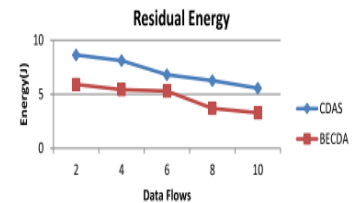
The result of average residual energy for the two schemes is shown in Fig. 7. As the data flows are increased, the residual energy of corresponding CH reduces leading to decrease in average residual energy.

Packet Delivery Ratio

Fig. 14. Transmission rate vs. packet delivery ratio.

Normalized Overhead
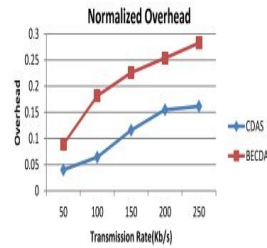
Fig. 16. Transmission rate vs. overhead.
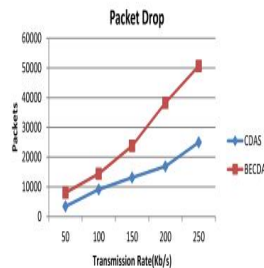
Packet Drop

Fig. 15. Transmission rate vs. packet drop.
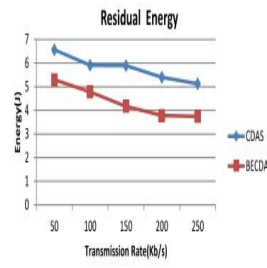
Residual Energy

Fig. 17. Transmission rate vs. residual energy.

End-To-End-Delay

Fig. 8. Number of nodes vs. end-to-end delay.

Normalized Overhead
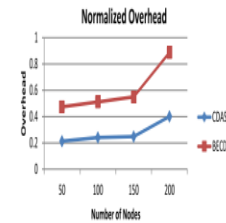
Fig. 11. Number of nodes vs. normalized overhead.

Packet Delivery Ratio
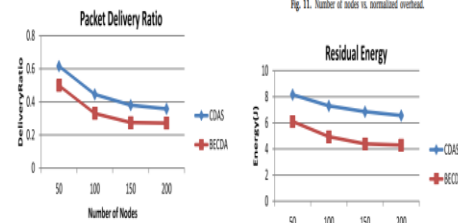
Fig. 9. Number of nodes vs. packet delivery ratio.
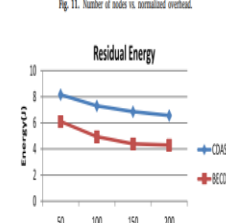
Residual Energy

Fig. 12. Number of nodes vs. residual energy.

Packet Drop

End-To-End-Delay

The result of end-to-end delay for the two schemes is shown in Fig. 13. As the transmission rate is increased, the waiting time at aggregation point increases, leading to increase in delay. The delay

energy. The residual energy of CDAS decreases from 6.5 to 5.1 J and the residual energy of BECDA decreases from 5.2 to 3.7 J. Since CDAS uses MST for inter-cluster routing and slot scheduling for transmission,
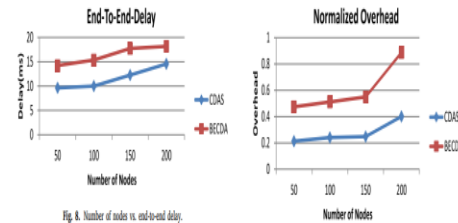
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Segmentation of Spinal Vertebrae in 3D CT Images Based on Kernel Density Estimate with Guassian Kernel

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In the human body, Organs segmentation is amongst the most imperative issues in therapeutic picture figuring. The challenges connected with medicinal image segmentation, and what is realizing extra research to be prodded inside of the area, consolidate low complexity between attention organ and incorporating tissues, and image clamor. There exist a wide range of methodologies for how a segmentation problem can be comprehended. These philosophies still required a site specific segment of individual bones, which remains a test for vertebrae division. As a result of the beforehand expressed downsides of the current spinal vertebrae division procedures, this paper proposed another system equipped for fragmenting spinal absolutely from uproarious pictures from missing information. This paper proposes the KDE with Gaussian (KDE-GK) parts to section vertebral bodies (VBs) in clinical 3D figured tomography (CT) images. KDE with Gaussian kernels gets the approximate information of the missed information and gets the data reduction. The execution of the proposed strategy is superior to in term of precision, robustness and complexity is less as compared with the other techniques.

Segmentation of Lumbar Vertebral Bodies and Intervertebral Disc in CT Images

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Abstract

Precise segmentation of spinal vertebrae are crucial within the study of spinal connected disorders likes bone fractures. Distinguishing severity of fractures and understanding its causes canl help facilitate physicians confirm the foremost effective pharmacological treatments and clinical management methods for spinal disorders. Though image segmentation has been a wide analysis area, restricted work has been done on investigating and segmenting vertebrae. The complexness of vertebrae shapes, gaps within the cortical bone, internal boundaries, as well as the noisy, incomplete or missing data from the medical images have undoubtedly inflated the challenge. In

features. For example, Looby et al. 2011 explained how most fatal cervical spine injuries occur in higher level of cervical, either at craniocervical junction, specifically, Cl or C2, owing to traumatic accidents. Moreover, compression fractures of the bone body in older adults are common, owing to osteoporosis. Characteristic severity of fractures and understanding its cause can help physicians confirm the foremost effective pharmacological treatments and clinical management methods for spinal disorders. One in all the main challenges in this aspect is to attain a firm diagnosis that may direct more treatment. An automatic computerized method that enhances qualitative human judgment with precise quantitative measures could be a wanted approach in medical practice. Detection and segmentation are the initial steps towards this quantitative framework. Though image segmentation has been a wide analysis area in computer vision and medical imaging, restricted work has been done on detecting and segmenting vertebrae. The quality of vertebrae shapes, gaps within the cortical bone, internal boundaries, as well as the noisy, incomplete or missing information from the medical images have undoubtedly increased the challenge in segmentation tasks.

2. LITERATURE SURVVEY

Leventon et al. 2000 explained a segmentation method which utilized a former shape data to appraise the most extreme a posteriori high dimensional surface, that merged the zero level set on vertebra boundaries. Kim and Kim et al. 2009 suggested a fully automated method which depended on developing 3D fences to divide vertebrae from valley emphasized Gaussian images, and used algorithm to attain the resultant segmentation. Klinder et al. 2009 repeatedly followed tube shaped segments to separate the spine curve, used Hough transform on curved-planar reformatted images, and then identified vertebrae from rigid registration models, and using shape compelled deformable models, obtained the full segmentation results. Kadoury et al. 2011 got a verbalized shape complex

3. THE IDENTIFICATION FRAMEWORK

There are various clustering algorithms. One amongst the foremost vital and wide used algorithm is the k-means clustering (Isa et al. 2009). This technique is numerical, unsupervised, non-deterministic and iterative. It is frequently used in computer vision as a sort of image segmentation. However, the k-mean clustering algorithm has several weaknesses that are as follows (Isa et al. 2009):

1. The number of clusters, k, should be determined before the algorithm is enforced. The procedure is time intense and is simply too subjective for various users.

2. The algorithm is sensitive to initial conditions (i.e. completely different initial conditions could turn out different results of cluster). Furthermore, the algorithm may unfree in the local optimum. As a result, the unfree clusters or centers might represent wrong groups of information.

3. Information which are isolated far away from the centers could pull the centers off from their optimum location. This might cause poor illustration of information.

Many clustering algorithms are projected to overcome these weaknesses like arduous c-mean and also the fuzzy c-means (FCM) clustering algorithms (Isa et al. 2009). The major plan of introducing the fuzzy idea within the FCM algorithm is that an object will belong at the same time to quite one category and will thus by varying degrees referred to as memberships. The FCM algorithm is an iterative technique, that tries to separate the set of information into variety of compact clusters. Each cluster is diagrammatic by its center. The FCM has many advantages (Isa et al. 2009). The FCM is an unsupervised clustering technique. Thus, no previous information concerning the tested information is required. It is used with any range of features and any range of classes. It distributes the membership values with a normalized fashion. However, the FCM clustering technique is sensitive to noise, suffers from the computation time overhead and is incredibly sensitive to cluster center initialization.

3.1 FUZZY C-MEANS CLUSTERING

degrees of a point in all clusters is outlined as 1. In fuzzy c-means the the mean of degree of all points weighted against belonging to a cluster forms the centroid. The cluster distance is reciprocally proportional to the degree of belonging ["Computed Tomography-CT Scan information", http:/en.wikipedia.org/wiki/ Computed Tomography.]. Then a true parameter m>1 is employed to conventionalize and fuzzify in order that the sum equals 1.

The methodology utilized for implementing the Fuzzy C-Means clustering is represented as follows:

1. Read the CT scan spine image as input.

2. Convert the image into information type double.

3. Outline the quantity of clusters 'n'.

4. Reshape the input image into linear array to allow as an argument for the fcm built-in function.

5. Decision the built in function 'fcm' by passing the range of clusters 'n' and reshaped image as the arguments.

6. Get the clustered image and store it within the variable 'segmented image'.

7. Show the resultant image using imshow technique.

The FCM tries to maneuver the cluster centers to the proper location by systematically change the centre of the clusters. However, it does not pay attention if the center lies within the correct location. The initial choice of the placement finalizes the performance (Patrick et al. 1999). The most advantage is that clusters with overlapping tendencies will acquire partial membership in individual clusters.

3.2 SEGMENTATION

For segmentation of spinal vertebrae, we have to apply a shape constraint to the level set technique (Lim et al. 2011). The level set evolution is driven by a shape energy combined with a

By taking the Gateaux derivative of E(¢), followed by the gradient decent flow that minimizes the functional

$$\frac{\partial \phi}{\partial t} = -\frac{\partial E}{\partial \phi},$$

we obtain the standard evolution equation

$$\frac{\partial \phi}{\partial t} = -\left(H(\phi) - H(\phi_c)\right)\delta(\phi) - \lambda\delta(\phi)div\left(g\frac{\nabla\phi}{|\nabla\phi|}\right).$$

In order to include the regularizing result from shape constraint into the level set evolution, the above evolution equation is multiplied with a weighted Gaussian kernel:

$$w(\phi) = \frac{1}{2\sigma_c^2}e^{-(H(\phi)-H(\phi_c))^2/2\sigma_c^2},$$

where σ_c is a regularized parameter. Note that w(¢) acts as a "weighing" function giving the evolution term

$$\left(H(\phi) - H(\phi_c)\right)\delta(\phi)$$

higher influence when the difference between the level set and the shape constraint is larger. Hence, the level set evolution equation becomes

HD	3.9	3.8	3.8	3.6	4.8	3.98

4.1 Simulation Results and Discussion

$$MAD_{ag} = \frac{1}{n_a}\sum_{i=1}^{n_a}\left|d_i^{ag}\right| \qquad (26)$$

Hausdorff distance (HD)

The coordinated Hausdorff distance H_{ag}, between two arrangements of focuses A and G can be procured in a two stage way. To start with, for each point in A the base separation to all focuses in G is procured. H_{ag} is the most extreme of this arrangement of least separations. At that point, the base separation for the ith surface voxel in A to the arrangement of surface voxels in G is d_i^{ag}, along these lines H_{ag} is the most extreme estimation of the surface separation of all surface voxels in A. The Hausdorff separation H is the greatest of the coordinated structure for $A \rightarrow G$.

$$H_{ag} = max\{d_i^{ag}\}, i = \{1, ..., n_a\} \qquad (27)$$

$$H = max\{H_{ag}, H_{ga}\} \qquad (28)$$

To appraise the outcomes, the rate division blunder is figured as takes after:

$$error\% = \frac{100 * NMV}{TVB} \qquad (24)$$

Where NMV represents no. of misclassified voxels, TVB represents total number of VB voxels.

Vertebrae CT image Databases are obtained from a radiology center. It has the clinical report alongside every case demonstrating all abnormalities from the norm. Images were clustered into five groups using FCM algorithm and level set segmentation algorithm was applied. Among twenty cases, twelve cases are normal cases and eight cases are abnormal. It was found that each abnormal case has a minimum one abnormality vertebra including different sorts of crack and, particularly, pressure fracture, wedge pressure fracture, and spondolysis when compared to the results for normal cases. Fig 1 shows the segmentation of L1, L2, L3, L4 and L5 vertebrae in sagital view. Fig 2 shows the segmentation of axial view of L1 vertebrae. Fig 3 shows the segmentation of intervertebral disc between L1 and L2 in axial view.
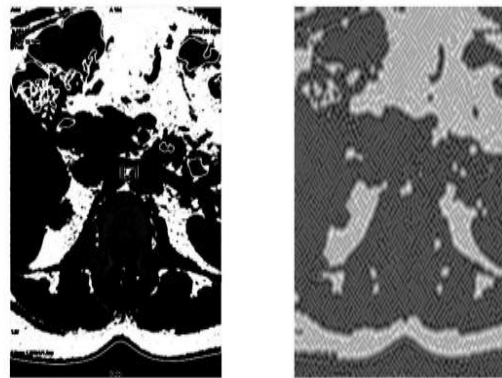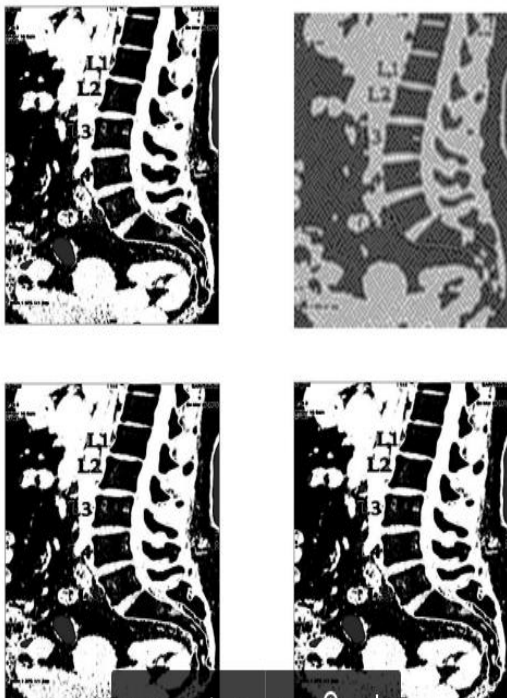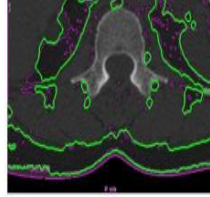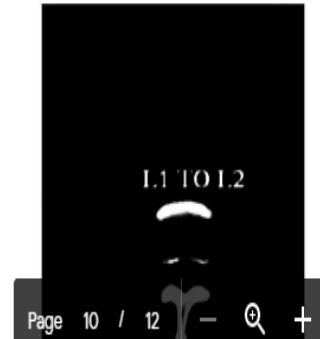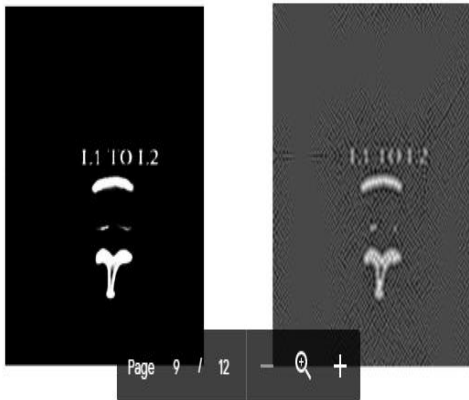
Figure 4.2. Segmentation results for lumbar spine vertebrae (axial view)

5. CONCLUSION

In this work, segmentation of spinal cord in sagital view an axial view have been proposed. This paper primarily centered around 2-D division of individual vertebrae with the mean to help doctor for better perception the states of the vertebras and inward structures of the vertebras, and additionally it will decide quantitatively the vertebrae volume and size of crack for surgical methods, e.g., spinal insert. Trial consequences of the proposed technique utilizing 3D CT pictures of spinal vertebrae exhibit the attainability in the vertebrae recognizable proof structure.

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RESEARCH ARTICLE

EFFICIENT STORAGE LOCATION ASSIGNMENT USING GENETIC ALGORITHM IN WAREHOUSE MANAGEMENT SYSTEM.

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Manuscript Info

Abstract

The Warehouse-Management System (WMS) primarily aims to organize the movement and storage space of materials within a warehouse and controls the associated transactions like receiving, put away, storage, order picking and dispatching flow of materials. This paper uses Storage Location Assignment using Genetic Algorithm (SLAG) to find the best location for goods and regulate the retrieval of goods in WMS. It reduces goods handling cost and improves space utilization. It considers the FIFO satisfaction, time of retrieval and frequency of retrieval of goods to find the best location of goods. It shows the increased performance of genetic algorithm in different frequent arrival of goods.

Design of Low Power FFT Processor for OFDM Wireless Communication Systems

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Abstract

The demand for high-speed mobile wireless communications is rapidly growing. OFDM technology promises to be a key technique for achieving the high data capacity and spectral efficiency requirements for wireless communication systems of the near future. Fast Fourier transform (FFT) processing is one of the key procedures in popular orthogonal frequency division multiplexing (OFDM) communication systems. Structured pipeline architectures, low power consumption, high speed and reduced chip area are the main concerns in this VLSI implementation. In this paper, the efficient implementation of FFT processor for OFDM applications is presented. This processor can be used in various OFDM-based communication systems, such as Worldwide interoperability for Microwave access (Wi-Max), digital audio broadcasting (DAB), digital video broadcasting terrestrial (DVB-T). The three processing elements (PE's), delay-line (DL) buffers are used for computing FFT. Thus we consume low power, low hardware cost high efficiency and reduced chip size.

Keywords

FFT, PE, Twiddle Factor, OFDM, Modified Booth Multiplier, SDF, Radix-2&4.

Segmentation of Lumbar Vertebral Bodies and Intervertebral Disc in CT Images

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Abstract

Precise segmentation of spinal vertebrae are crucial within the study of spinal connected disorders likes bone fractures. Distinguishing severity of fractures and understanding its causes canl help facilitate physicians confirm the foremost effective pharmacological treatments and clinical management methods for spinal disorders. Though image segmentation has been a wide analysis area, restricted work has been done on investigating and segmenting vertebrae. The complexness of vertebrae shapes, gaps within the cortical bone, internal boundaries, as well as the noisy, incomplete or missing data from the medical images have undoubtedly inflated the challenge. In this work, a technique is presented for fuzzy segmentation of two-dimensional Computed Tomography (CT) images. This method is followed by an advanced shape driven level set segmentation, where the level set evolution is guided by a shape constraint and driven by a shape energy combined with a Gaussian kernel. Experimental results on CT images of spinal vertebrae

Electricity Generation from Railway Track by using Power Hump

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ABSTRACT: In this paper we are generating electrical power as non-conventional method by simply utilizing energy from the rail track. Non-Conventional energy system is very essential at this time to our nation. A special arrangement called "POWER HUMP" is used which consists of rack and pinion arrangement, sprocket and chain drive mechanism and electric generator. Rack and pinion gear arrangement is used to produce rotary motion from linear motion. Sprocket and chain drive mechanism to increase the rotation of the shaft in the ratio of 1:3 and this shaft transmits the rotary motion to a generator for the generation of power.

KEYWORDS: Power Hump, Gear Rack, Pinion, Sprocket, Chain Track arrangement, Generator.

I. INTRODUCTION

India has a vast supply of renewable energy resources, even though energy crisis has become a great bottle necks in our sophisticated life. The total demand for electricity is expected to cross 2550,000 MW by 2030. The electrical sector has an installed capacity of 185.5GW as of November 2011. The thermal power plant constitute 65% hydroelectricity has 25% and the rest is the combination of wind and solar power. In January 2012 over 700 million citizens had no access to electricity and many people get electricity.

EFFECTIVENESS OF PERCEIVED ORGANIZATIONAL SUPPORT ON EMPLOYEE'S ORGANIZATIONAL COMMITMENT AT POWER BEST ELECTRICALS PRIVATE LTD, PALAKKAD

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ABSTRACT.

Employers commonly value employee dedication and loyalty. Employees who are emotionally committed to the organization show heightened performance, reduced absenteeism, and a lessened likelihood of quitting their job. By contrast, employees are generally more concerned with the organization's commitment to them. Being valued by the organization can yield such benefits as approval and respect, pay and promotion, and access to information and other forms of aid needed to better carry out one's job. The norm of reciprocity allows employees and employers to reconcile these distinctive orientations. Some individuals might base their sense of perceived organizational support upon such factors as the organization members' willingness to provide them with special assistance or special or special equipment in order to complete a project. Others might develop a strong sense of POS based upon the organization members' willingness to provide them with additional opportunities for training in an area that was of particular interest to them. In addition, the employees are frequently sensitive to relevant environmental and organizational constraints that might limit the ability to provide them with desired rewards. Employees who experience a strong level of POS theoretically feel the need to reciprocate favourable organizational treatment with attitudes and behaviours that in turn benefit the organization. In support of this social exchange perspective, this paper has revealed that POS is positively related to job attendance and measures of job performance in PBEPL, PALAKKAD

Performance and Emission Analysis of a Four Stroke Diesel Engine Using Various Internal Threaded Intake Manifold

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Experimental Study on Strengthening Of Concrete by Replacing Seashell and Flyash

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ABSTRACT

This paper reports the exploratory study on the suitability of the cockle shells as partial replacement for in concrete. In developing countries where concrete is widely used, the high and steadily increasing cost of concrete has made construction very expensive. The high cost of conventional building materials is a major factor affecting housing delivery in world. This has necessitated research into alternative materials of construction and analyzing tensile and compressive strength characteristics of concrete produced using by sea shells as substitutes for conventional coarse aggregate with partial replacement using M30 grade concrete. The main objective is to encourage the use of these products as construction materials in low-cost building. In this project, cement is partial replacement with Fly ash of about 5%, 10%, 15%. The coarse aggregate is partial replacement with 5%, 10%, and 15% by sea shell. Hardened concrete properties such as compressive strength of the concrete on 7, 14, & 28 days has been achieved. A comparative study was also done based on the obtained results and the variations were plotted

Keywords: sea shell, partial coarse aggregate replacement, concrete, workability, compressive strength.

I. INTRODUCTION

Civil engineering practice and construction works in Nigeria depend to a very large extent on concrete. Concrete is one of the major building materials that can be delivered to the job site in a plastic state and can be molded insitu or precast to virtually any form or shape. Its basic constituents are cement (binding material), fine aggregate (sand), coarse aggregate (granite chippings) and water.

Hence, the overall cost of concrete production depends largely on the availability of the constituents. In Nigeria, a 50kg bag of cement is sold at almost uniform price with slight deviations in every state of the federation and fine aggregates are readily available. However, the cost of concrete is directly proportional to the cost of crushed stones or local gravels, which increases from the north to the south. Cost of construction in the Niger Delta areas especially the south-south zone is highest. Thus, alternatives lightweight options are adopted for non-load bearing walls and non-structural floors in buildings.

Different alternative waste materials and industrial byproducts such as fly ash, bottom ash, recycled aggregates, foundry sand, china clay sand, crumb rubber, glass were replaced with natural aggregate and investigated properties of the concretes. The basic constituents of concrete are cement, water and aggregate (and selected additives). Cement is produced by heating limestone and clay to very high temperatures in a rotating kiln. Cement is produced by grinding the resulting clinker to a fine powder. Water reacts chemically with cement to form the cement paste, which essentially acts as the "glue" (or binder) holding the aggregate together. The reaction is an exothermic hydration reaction. The water cement ratio is an important variable that needs to be "optimized". High ratios produce relatively porous concrete of low strength, whereas too low a ratio will tend to make the mix unworkable. Aggregates are usually described as inert "filler" material of either the fine (sand) or coarse (stone) variety. Aggregate tends to represent a relatively high volume percentage of concrete, to minimize costs of the material. Seashell is also known simply as a shell, is a hard, protective outer layer created by an animal that lives in the sea. The shell is part of the body of the animal. Empty seashells are often found washed up on beaches by beachcombers. The shells are empty because the animal has died and the soft parts have been eaten by another animal or have rotted out. The term seashell usually refers to the exoskeleton of an invertebrate (an animal without a backbone). Most shells that are found on beaches are the shells of marine molluscs, partly because many of these shells endure better than other seashells. Seashells have been used by

RESEARCH ARTICLE   **OPEN ACCESS**

Experimental Analysis of Concrete with Quarry Dust and Demolished Concrete Waste

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ABSTRACT

The use of Recycle product is increasing with innovation in present scenario. The utilization of waste product in the manufacturing of new product is a challenging job. The Natural Resource decreases in a short period and therefore the use of waste product is necessary. In the construction field of the world, use of Demolished Concrete Waste as alternative of coarse aggregate plays a vital role to save natural resources and economically good for us. Natural sand is a prime material used for the preparation of concrete and also plays an important role in Mix Design. One such material is Quarry stone dust: a by-product obtained during quarrying process. Attempts have been made to study the suitability of Quarry Dust as sand replacing material and it has been found that Quarry Dust improves the mechanical properties of concrete as well as elastic modulus. This present work is an attempt to use Quarry Dust as partial replacement for fine aggregate in concrete and Demolished Concrete Waste as partial replacement for coarse aggregate in concrete. The main object of this project is to determine the Compressive strength, Split tensile strength, Flexural strength. Various mixes were prepared for carrying out the research by varying the proportions of cement, sand and aggregates. All mixes were designed for characteristic strength (f_{ck}) of M20. The Compressive strength, Split tensile strength, Flexural strength of concrete was tested in laboratory after 7, 14 and 28 days.

Keywords: Concrete, Natural Sand, Quarry Dust, Natural Coarse Aggregate Demolished Concrete Waste.

I. INTRODUCTION

Concrete is the premier construction

areas can be an economical alternative to the river sand. Quarry dust can be defined as residue, tailing

Corrosion Prevention on Coated Rebars and Fiber in R.C Slabs

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Abstract

Concrete structures prevail primarily due to prior attrition of steel due to preterm failure of rebars. The major cause of deterioration is the corrosion of the steel reinforcement, that can lead to structural problems. By utilizing our knowledge on corrosion of steel reinforcement, concrete structures could be made more durable. The research work is intend at arrestcorrosion in RC slabs by glazing silicon tombac to the steel rods. Nylon fiber is induced in concrete to attain strength for the concrete. A study report carried the effects of coating material between the conventional and fibers in concrete was compared with that of uncoated material between the conventional and fiber in concrete rebar's. A continuous corrosion process is accelerated by inducing direct current to rebars. Process used to prompt corrosion is Accelerated corrosion test and Half-cell measurement.

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PERCOLATION SPOT LOCATION USING GIS FOR CHECK DAM CONSTRUCTION- TIRUTTANI BLOCK

Paper ID#:151022112045

Published in IJTIMES, Volume 06 Issue 10, October-2020

Editorial Board

of

International Journal of Technical Innovation in Modern Engineering & Science(IJTIMES)

ISSN (Online): 2455-2585

http://www.ijtimes.com/

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E-mail (s): editor.ijtimes@gmail.com

Experimental Study of Using Bentonite Concrete with and Without Crimbed Steel Fiber in Conventional Concrete.

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Abstract

Cement manufacturing pollutes atmosphere by release of greenhouse gases like carbondioxide and it depletes the ozone layer causing adverse affect on livings on earth by global warming. Due to this reason mineral admixtures are added to concrete to reduce carbondioxide emmision in concrete.various type of mineral admixtures are available fly ash, silica fume, rice husk, sea shell and a cheaper clay material bentonite is considered and used in this project.This paper presents the result of an experimental investigation carried out to evaluate the properties of concrete with bentonite and steel fiber bentonite in which ordinary portland cement was partially replaced with bentonite by weight for a mix of M25 grade concrete. Replacing of cement by bentonite and bentonite with steel fiber was carrird out, concrete was casted and tested for the compressive strength, split tensile strength and flexural strength. Mix of bentonite with conventional concrete for various percentage and the results have been tabulated and compared with conventional concrete. Then, the same properties were examined in concrete adding different percentages of crimed steel fiber by weight of concrete with constant amount of bentonite which in turn increases the strength of concrete

Keywords: crimbed steel fibers, Steel fiber reinforced concrete, Bentonite, Flexural strength, Split tensile strength.

1. Introduction

Most widely used construction material around the world is Concrete.Concrete is the composite material of combination of cement, fine aggeregate and coarse aggregate and water in proportion. Binding material for concrete is the cement (ordinary Port-

at later stage and durability purposes it gives good results at every stage. W.H. Huang[8] "have discussed about the properties Properties of cement - fly ash grout admixed with bentonite, Silica fume, or organic fiber." J. Thomas and A. Ramaswamy[9] "have evaluated the Mechanical properties of steel fiber reinforced concrete" [10]M.Karthikeyan1,P.RajaRamachandrn,A.Nandhini,R. Vinodha

Efficient and Flexible Data Access of Personal Health Records in Cloud Using Hierarchical Attribute based Encryption

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Abstract--- Personal Health Record (PHR) is an emerging patient-centric model of health information exchange, which is often outsourced to be stored at third party, such as cloud. To assure the patients control over access to their own PHRs, However, by storing PHRs in the cloud, the patients lose physical control to their personal health data, which makes it necessary for each patient to encrypt her PHR data before uploading to the cloud servers. Under encryption, it is challenging to achieve fine-grained access control to PHR data in a scalable and efficient way using Hierarchical Attribute Based Encryption. For each patient, the phr data should be encrypted so that it is scalable with the number of users having access. Also, since there are multiple owners (patients) in a PHR system and every owner would encrypt her PHR files using a different set of cryptographic keys, it is important to reduce the key distribution complexity in such multi-owner settings.

Keywords--- Personal Health Records, Cloud Computing, Data Privacy, Fine-grained Access Control, Hierarchical Attribute based Encryption.

I. Introduction

In recent years,personal health record (PHR) has emerged as a patient-centric model of health information exchange. A PHR service allows a patient to create, manage, and control her personal health data in one place through the web, which has made the storage, retrieval, and sharing of the medical information more efficient. Especially, each patient is promised the full control of her medical records and can share her health data with a wide range of users, including healthcare providers, family members or friends. Due to the high cost of building and maintaining specialized data centers, many PHR services are outsourced to or provided by third-party service providers, for example, Microsoft Health Vault. At the same time, cloud computing has attracted a lot of attention because it provides storage-as-a-service and software-as-a-service, by which software service providers can enjoy the virtually infinite and elastic storage and computing resources .

Monitoring Of Mining Workers at Higher Altitude - Iot

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Abstract:

Since mine workers face numerous health issues during their careers, this system is designed to monitor their health and physiological parameters. Environmental variables include ambient temperature and relative humidity, as well as physiological variables such as electrocardiogram, respiratory function, and body temperature. To achieve a working interface and optimal comfort for the users, the proposed system's non-invasive sensors are inserted throughout a T-shirt (first layer of protective clothing). The system can measure heart and respiration rates, air temperature and humidity, and chemical concentrations in human bodies on a continuous basis. When the sensor detects any abnormal behaviour in the human body, the LCD displays the issue with a buzzer tone. Using IOT, create a wireless data transfer to a central monitoring station.

IndexTerms: Arduino UNO Heart beat Sensor, RespirationSensor, Gas Sensor, Humidity Sensor,LCD16*2,Buzzer,Zigbee module.

1. INTRODUCTION

The workers in the materialistic production hazards such as mining chemical industry should go through many difficulties such as temperature changes,physiological changes. For the

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DWINDLING OF HARMONICS IN CML INVERTER USING GENETIC ALGORITHM OPTIMIZATION

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Abstract: Devices whose outputs are non linear to inputs are responsible sources for creating the undesirable harmonics. Inevitably it is very important task to control the unwanted harmonics. We are right here to discuss about the Total Harmonic Distortion (THD) reduction in the output voltage of multilevel inverters. We know that the harmonics can be reduced by avoiding non fundamental frequencies and it can be achieved regulating the switching on and off angles of switches. In this paper the level of THD of the inverter device by applying switching angles obtained by Genetic algorithm is discussed.

In this paper about the one of the new methodology adopted to pull down the harmonic distortion in multilevel inverters. The main advantage of this new topology is it   reduces the number of switches compared to conventional cascaded bridge multilevel inverter and as well it be extended to any number of levels. The modes of operations of nine level inverter

switching losses, high efficiency & low output of electromagnetic interference (EMI),[1][2]. The preferred output of a multilevel inverter is constructed with several sources of dc voltages. With an increasing number of dc voltage sources, the inverter voltage waveform approaches a virtually sinusoidal waveform while using a low switching frequency method [3]. This ends in low switching losses, & because several dc sources are used to synthesize the total output voltage, intern every switch experiences a low level of dv/dt then to a single level inverter. Consequently, the multilevel inverter know-how is a promising know-how for high power electric devices such as utility applications. Multilevel voltage source inverter using with separate dc sources (SDCSs), hereafter called a cascaded multilevel inverter technically superior to other multi-level structures in term of its construction is simple & modular. It also needs the less number of output voltage levels without increase in power circuit

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A POWER GENERATING SMART SHOE SYSTEM BASED ON BIOTECHNOLOGY

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Abstract: The main objective of this work to harvest energy from human walking, and more precisely from the pressure load applied on the heel of the shoe. This paper presents the development of a low cost wireless data shoe system for monitoring human locomotion. The sensor unit consists of 3 force sensing resistors (denoted by FSR located at ball, lateral border and heel) and 3-axis acceleration sensor (ADXL335). Pressure and acceleration data were sampled at 10 Hz, which is sufficient for various activities such as sitting, standing, walking and possibly for running. The data from these sensors were sent to a base station.This method is generating electric voltage for charging an inside shoes battery from the Piezo element. The Piezo electric effect based to piezo element producing a voltage for charging internal battery. The battery charging every running and walking time. Then the battery power transfer way is

care practices. Methodical studies on Smart-shoe-based biotechnology systems have become an influential tconstituent in decreasing elderly injuries due to fall. This paper proposes Internet of Health Things-based system for analyzing characteristics by using a wireless Smart-shoe. The system employs four force sensitive resistors (FSR) to measure the pressure distribution underneath a foot. Data is collected via a Wi-Fi communication network between the Smart-shoe and Smartphone for further processing.. Experimentation and verification is conducted on 10 subjects. The sensor outputs acquired from the experiment, is presented in this paper.In the recent years micro power electronics and portable storage devices requires low power requirements for their operations and due to the existing characteristics of such devices the demand for energy harvesting from the surrounding environment increases drastically due to the

Automatic Solar Tracking System

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ABSTRACT:

This paper presents the hardware style associated implementation of a system that ensures a perpendicular profile of the electrical device with the sun so as to extract most energy falling thereon renewable energy is quickly gaining importance as an energy resource as fuel costs fluctuate. The distinctive feature of the planned system is that rather than taking the world as its reference, it takes the sun as a guiding supply. Its active sensing element perpetually monitors daylight the daylight and rotates the panel towards the direction wherever the intensity of sunlight is most. the sunshine dependent resistor's do the duty of sensing the modification within the position of the sun that is dealt by the various modification within the star panel's positionbyshiftonandofftheintermeshedmotor the negative feedback circuit will the duty of taking the input from the sensing element and offerscommandtothemotortorunsoastotackle the modification within the position of the sun. With the implementation the planned system the extra energy generated is around twenty fifth to half-hour with terribly less consumption by the system itself. During this paper, associate improvement within the hardware style of the present alternative energy collector system has been enforced so as to supply higher

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This is to certify that

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Volume 23 - Issue 11 - 2021

Paper ID: JUSST/21/10855

D.O.I - 10.51201/JUSST/21/10855

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A Study on an Impact of Traditional Leaders in Rural Economic Development with Special Reference to Chibombo District, Lusaka Province-Zambia

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Abstract: *Traditional leadership in villages play an important role in leading and managing rural community development. The role of effective Traditional leadership is determinant for the success and failure of development projects at rural area. A Traditional leader as an agent of change at local level should possess certain competencies to effectively conduct his role. However, leader's effectiveness also depends on the plight and environment prevailing in rural areas, the quality of people and their support, their attitudes toward leadership, leadership mechanism, leader's competency and suitable working environment are also important for leaders to be effective. Thus, the purpose of this paper is to analyse issues and challenges that affect village traditional leadership. Furthermore, we need to explore, to what extent are their skill and experience, knowledge, being utilised by government officials for village economic development? And to what extent do government programmes and policies are being implemented in villages? This paper analyses the type of living conditions, villagers are experiencing, and their genuine*
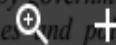
A Unified Framework For Supervised And Unsupervised Feature Selection In Data Mining

K.sutha, Dr.j.jebamalar tamilselvi

Abstract—data analysts use data mining tools to find out useful information from high dimensional data. Massive data needs to be preprocessed to avoid inaccurate mining results. Feature selection is a preprocessing step in data mining, as well as in other fields like machine learning. It involves in selecting a best feature subset for providing accurate mining results. Depending upon the availability of class information, feature selection algorithms are categorized as supervised and unsupervised feature selection. As a result of researches in this field for more than a decade, there are a large number of feature selection algorithms in both the categories. This paper introduces a new unified framework using laplacian score and distance correlation, for supervised and unsupervised feature selection, which can handle both labeled and unlabeled dataset. Experimental results reveal that the proposed framework works well for both supervised and unsupervised feature selection process.

Index terms: classification, clustering, dimensionality reduction, feature selection, supervised, unsupervised, labeled data, unlabeled data.

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1.INTRODUCTION

Analyzing large amount of data, results in most beneficial and intelligent outcomes. Data Mining (DM) uses mathematical algorithms to analyze such larger data sets and comes out with most useful information. Data Analysts utilizes DM tools and techniques to understand and predict knowledge from the huge amount of data. Using DM techniques: Enterprises can improve customer relationships, increase turnover, predict the future trends in business, take crucial decisions and reduce risk. Financial Institutions can safeguard themselves from fraudulent customers. Health care providers can improve their quality of service. As the dimensionality increases, the performance of mining algorithm degrades due to the problem of "Curse of Dimensionality" [1]. Another problem with larger dataset is that it possesses noisy, redundant and irrelevant data, which affects the accuracy of mining results [2]. dimensional data should undergo preprocessing steps before applying mining algorithms. Feature Selection (FS) is one of such

Artificial Neural Networks (ANN) integrate FS as part of the training process. Hybrid methods combine both filter and wrapper methods. Initially filter method is applied to reduce the number of features and wrapper method is then applied in the reduced dataset to obtain the optimal feature subset. Thus it utilizes the advantages of both filter and wrapper methods. Depending upon the existence of label information in the dataset, FS algorithms are classified into (i) Supervised (ii) Unsupervised (iii) Semi-Supervised [6][7][8]. FS algorithm which works with labeled data is termed as Supervised Feature Selection. Supervised FS algorithms use the label information during the feature selection process for classification task. Numerous Supervised FS algorithms are available. Some of the supervised FS algorithms are Minimum Redundancy Maximum Relevance (mRmR) [9], Fast Correlation-based Filter (FCBF) [10] and ReliefF [11]. Unsupervised FS algorithm does not depend on class information for FS process, during clustering tasks. Unsupervised Feature Selection using Feature Similarity

Synthesis, characterisation and antimicrobial activity of Mannich base derived from pyridine-2-carboxaldehyde and its metal complexes

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Abstract : The present study deals with the synthesis, characterization and antimicrobial properties of Mannich base N-[1-piperidino(pyridine-2-carboxyl)]acetamide (**PPCA**) and its metal [Cu(II), Co(II), Ni(II) and Zn(II)] complexes. The ligand forms 1:1 (metal:ligand) type of complexes with Cu(II), Co(II), Ni(II) and Zn(II) metal salts. The structural features have been arrived from their microanalytical, IR, UV-Vis., CV, EPR spectral data. The electrolytic behaviour of the chelates was assessed from their molar conductance data. The magnetic susceptibility measurements suggested that all the complexes were paramagnetic except Ni and Zn, which were diamagnetic, and the magnitude of magnetic moment values were useful to find out the number of unpaired electrons which in turn were useful to further support the geometry suggested by electronic spectral data. The magnetic susceptibility and electronic absorption spectra of copper complex indicates an octahedral geometry around the central metal ion while cobalt, zinc complexes exhibit tetrahedral geometry and nickel complex shows square-planar structure. Both the ligand and its metal complexes were tested against

Research articles

Magnetic and micro-mechanical behavior of Cu-Ni-P-W-TiO$_2$ hybrid composite electroplating on Al alloy substrate

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ARTICLE INFO

ABSTRACT

The present work has been made to improve the micro-hardness, wear resistance, low coefficient of friction and surface roughness of Cu-Ni-P-W-TiO$_2$ hybrid composite coated Al6063 substrate which was made by electro-deposition process. Cu-Ni-P-W-TiO$_2$ hybrid composite was electrodeposited from the modified Nickel-Watts bath solution. Coated substrates were heat-treated at various temperatures for 1 h and then the effect of heat treatment on the coating concert was studied. The inter-metallic structure was identified by Scanning Electron Microscopy (SEM) and Energy Dispersive X-ray (EDX) Spectroscopy analysis. The micromechanical behavior of the coated substrates were investigated by various mechanical tests like wear, vicker's-microhardness, surface roughness and friction. Hence the results shows that when the addition of phosphorous (P) and tungsten (W), the

Electrodeposition of Cu-Ni-P-W Composite on Al-6063 Substrate

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Abstract— Thin layer coating of metals will improve the mechanical properties. Cu-Ni-P-W composite coatings were prepared by means of coating a thin film on the above of Al-6063 alloy. The aim of this composite coating is to improve the micromechanical properties such as sliding wear resistance and hardness of the Al. The microstructure of coated Al-6063 material was analyzed to determine such that properties. Due to slight increase in P and W content, the grain size refined gradually and the micro-hardness increased. However, on heat treatment, the composite coating exhibits improved wear resistance and better micro-hardness of the coated Al. Also the mechanical properties and tribological study of the coated material were analyzed by various tests such as wear, friction, hardness and surface roughness test and the results were compared and validated with Cu-Ni-P, Cu-Ni-P-W composite coatings. Hence the results shows that Cu-Ni-P-W composites possess higher hardness, better corrosion resistance, good wear resistance, and low coefficient of friction.

Keywords— Al-6063, Electroplating, Cu-Ni-P-W composite coating, Micro-hardness, sliding-wear

I.	INTRODUCTION

corrosion resistance are improved in electro co-deposited metals or alloys [10] With the purpose of increasing the

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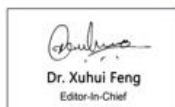Authored by

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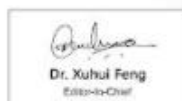
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17

COMPARATIVE STUDY OF ANTIBACTERIAL ACTIVITY OF SEMI-ORGANIC AND ORGANIC SINGLE CRYSTALS

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Abstract

The advancement of laser technology and the use of lasers in the modern day devices need very highly efficient single crystals. The effects of Nonlinear Optical (NLO) have found increasing interest. Low temperature solution grown NLO materials are widely used due to their low cost in production and large volume of optically transparent and homogenous single crystals can be grown with relative ease. In this present study, semi-organic single crystals of Thiourea Potassium Chloride (TPC) and Thiourea tartarate (TT) was grown by slow evaporation method. The prepared crystals were studied for their antibacterial properties against Escherichia coli and Pseudomonas aeruginosa. Antibacterial activity confirmed that TPC had no effect on the bacterial strains, whereas TT displayed concentration dependant inhibition in both the pathogens. The diameter of the inhibition zone increased with increase in the concentration of TPC. This property of the single crystal can be tapped and utilized in antibacterial applications.
Keywords: Crystal Growth, Antibacterial studies, X-ray diffraction, Escherichia coli, Pseudomonas aeruginosa.

INTRODUCTION

Use of lasers and the technical advancements in laser technology in the modern day devices need very high quality single crystals. Recently, nonlinear optical (NLO) effect has found increasing interest. NLO materials grown in lesser temperature are predominantly used because of the low cost in production and relative ease with which the growth of optically transparent and homogenous single crystals can be increased. The Second Harmonic

Generation (SHG) efficiency will be high in the organic materials but it is least stable as most of the organic molecules are formed by weak Vander walls and hydrogen bonds with conjugated π electrons while the inorganic compounds are highly stable but the SHG efficiency is less. This creates interest in semi organic compounds, which are the hybrids of good stability and good efficiency.

17

COMPARATIVE STUDY OF ANTIBACTERIAL ACTIVITY OF SEMI-ORGANIC AND ORGANIC SINGLE CRYSTALS

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Abstract

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CERTIFICATE

This is to certify

Dr. C. Murugesan

Assistant Professor, Department of Chemistry

Jaya Engineering College, Chennai, Tamil Nadu, India

in recognition of the publication in the edited book entitled,

"NOVEL MATERIALS FOR EMERGING APPLICATIONS"

edited by Dr. M. Anusuya, Dr. B. Yogeswari & Dr. N. Thangaraj

His/Her Chapter Title

"Comparative Study of Antibacterial Activity of Semi-Organic and Organic

Single Crystals"

Published in Category of Book Chapter October 2021

ISBN: 978-93-91373-10-8

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AN ADVANCED PATTERN MINING TECHNIQUES ACROSS HIGH DIMENSIONAL DATA SETS

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Abstract

Rapid advances in data collection and storage technology have enabled organizations to accumulate vast amount of data. In many cases, these large volumes of data can be mined for interesting and relevant information in a wide variety of applications. For example, simple transactions of everyday life such as using a credit card, a phone or browsing the web lead to automated data storage. When the volume of the underlying data is very large, it leads to a number of computational and mining challenges. Currently, a large class of data-intensive applications, in which data is in the form of continuous streams, has been widely recognized. Not only the size of the data for these applications unbounded, but the data arrives in a highly burst mode. In many cases, the data patterns may evolve continuously, as a result of which it is necessary to design the mining algorithms effectively in order to account for changes in underlying structure of the data stream. This makes the solutions of the underlying problems even more difficult from an algorithmic and computational point of view. Here we are discussing the broad research issues in data streams.

1. Introduction

Frequent pattern mining focuses on discovering frequently occurring patterns from different types of datasets, including unstructured ones, such as transaction and text datasets, semi-structured ones, such as XML datasets, and structured ones, such as graph datasets. The patterns can be itemsets, sequences, subtrees, or subgraphs, etc., depending on the mining tasks and targeting datasets. Frequent patterns can not only effectively summarize the underlying datasets, Compared with other stream processing tasks, the unique challenges in discovering providing key sights into the data, but also serve as the basic tool for many other data mining tasks.

Compared with other stream processing tasks, the unique challenges in discovering frequent patterns are in three-fold [1]. First, frequent pattern mining needs to search a space with an exponential number of patterns. The cardinality of the answering set itself which contains all frequent patterns can be

Characteristic Accommodate Re-Ranking Model Image Forage

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Abstract: Image search Reranking is an efficient approach to refine the text-based image search result. Most existing Reranking approaches square measure supported low-level visual options. Exploit linguistics attributes for image search Reranking. Supported the classifiers for all the predefined attributes, every image is drawn by AN attribute feature consisting of the responses from these classifiers. A hyper graph is then wont to model the link between pictures by group action low-level visual options and attribute options. Hyper graph ranking is then performed to order the pictures. Its principle is that visually similar pictures ought to have similar ranking scores. During this work, we tend to propose a visual-attribute joint hyper graph learning approach to at the same time explore 2 info sources.

Keywords: Image-Search Goals, Click-Through Logs, Goal Images, Semi-Supervised Clustering, Spectral Clustering.

I. INTRODUCTION

With the dramatic increase of on line pictures, image retrieval has attracted vital attention in each academia and business [31]–[38]. Several image search engines Such as Google and Bing have relied on matching mater information of the photographs against queries given by users. However, text-based image retrieval suffers from essential difficulties that are caused in the main by the incapability of the associate text to suitably describe the image content Recently, visual reranking has been planned to refine text-based search results by exploiting the visual info contained within the pictures [1]–[3]. the prevailing visual reranking strategies is usually classified into 3 categories because the cluster based mostly, classification based mostly and graph based mostly strategies. The cluster based mostly reranking strategies stem from the key observation that a wealth of visual characteristics is shared by relevant pictures. With intelligent clustering algorithms (e.g., mean-shift, K-means, and K-medoids), initial search results from text-based retrieval can be classified by visual closeness However, for queries that come back extremely numerous results or while not clear visual patterns, the performance of the clustering based strategies isn't guaranteed. Within the classification based mostly strategies, visual reranking is developed as binary classification drawback about to identify whether or not every search result's relevant or not.

Graph based mostly strategies have been planned recently and received increasing attention as demonstrated to be effective. The transmission entities in prime ranks and their visual relationship are depicted as a collection of nodes and edges. The native patterns or salient features discovered exploitation graph analysis is terribly powerful to improve the effectiveness of rank lists. All the same, the reranking algorithms mentioned higher than are strictly supported low-level visual options whereas usually don't contemplate any semantic relationship among initial graded list The high level semantic ideas that are crucial to capture property of images may deliver a lot of clear linguistics messages between various nodes within the graph. Thus, during this paper, we tend to propose to exploit stronger linguistics relationship within the graph for image search reranking.

II. RELATED WORK

The existing strategies for image search re ranking suffer from the undependableness of the assumptions below that the initial text-based image search result.However, manufacturing such results containing an oversized range of pictures and with additional range of inapplicable pictures. Image search engines apparently give an easy route, however presently are restricted by poor preciseness of their turned pictures and additionally restrictions on the whole range of pictures provided. as an example, with Google Image Search, the

Big-data: Acid versus base for database transactions

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Narsimha Banothu ; ShankarNayak Bhukya ; K Venkatesh Sharma   **All Authors**

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Abstract	
Document Sections	

I. Introduction

II. Question of Database

Abstract:

Database developers all know the ACID acronym. It says that database transactions should be: Atomic, Consistent, Isolated, and Durable. These qualities seem indispensable, and yet they are incompatible with availability and performance in very large systems. For example, suppose you run an online book store and you proudly display how many of each book you have in your inventory. Every time someone is in the process of buying a book, you lock part of the database until they finish so that all visitors around the world will see accurate inventory

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Synthesis, Characterization and Antibacterial Activity of Cu(II), Co(II), Ni(II) and Zn(II) Complexes Using Mannich Base Ligand

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Abstract

This paper describes the synthesis and characterization of Mannich base, N-(1-pyrrolidino- benzyl)nicotinamide (PBN) and its complexes with Cu(II), Co(II), Ni(II) and Zn(II) ions. The structural features of the complexes have been confirmed by microanalytical analysis, IR, UV-visible, NMR, EPR, Mass, magnetic susceptibility and CV technique. The electronic absorption spectra and magnetic susceptibility measurement values of the complexes indicate octahedral geometry for copper, square-planar geometry for nickel and tetrahedral geometry for cobalt and zinc complexes. The non-electrolytic nature of the complexes is characterized from their low molar conductance values. The cyclic voltammogram of copper complex in acetonitrile solution shows a quasi-reversible one-electron transfer. The EPR spectra of the copper complex in DMSO at 300 K and 77 K were recorded and its salient features are reported. The antimicrobial activity of the complexes has been extensively studied on microorganisms such as *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli* and *Pseudomonas aeruginosa* by well-diffusion technique using DMF as solvent. The values of zone of inhibition were found out at 37 °C for a period of 24 h. It has been found that all the complexes have higher activity than the Mannich base ligand and the standard.

Keywords

Synthesis, Transition metal(II) complexes, Mannich base, N-(1-Pyrrolidinobenzyl)nicotinamide.

Reference (30)