

2023 International Conference on

Advanced Technologies in Chemical, Construction and Mechanical Sciences (ICATCHCOME 2023)

09 - 10, February 2023 | Coimbatore, Tamil Nadu, INDIA

This certificate is presented to

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Nanded , Maharashtra ,
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for presenting the research paper entitled "Finite Element Analysis of laser welding of 304L butt joint" in the 2023 International Conference on Advanced Technologies in Chemical, Construction and Mechanical Sciences (ICATCHCOME 2023) held at KPR Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India during 09 - 10, February 2023. The Conference has been organized by the Center for Research and Development (CfRD), KPR Institute of Engineering & Technology.


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2023 International Conference on

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09 - 10, February 2023 | Coimbatore, Tamil Nadu, INDIA

Certificate

This certificate is presented to

G. S. Lathkar

MGM College of Engineering ,
Nanded , Maharashtra ,
India

for presenting the research paper entitled "Finite Element Analysis of laser welding of 304L butt joint" in the 2023 International Conference on Advanced Technologies in Chemical, Construction and Mechanical Sciences (ICATCHCOME 2023) held at KPR Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India during 09 - 10, February 2023. The Conference has been organized by the Center for Research and Development (CfRD), KPR Institute of Engineering & Technology.

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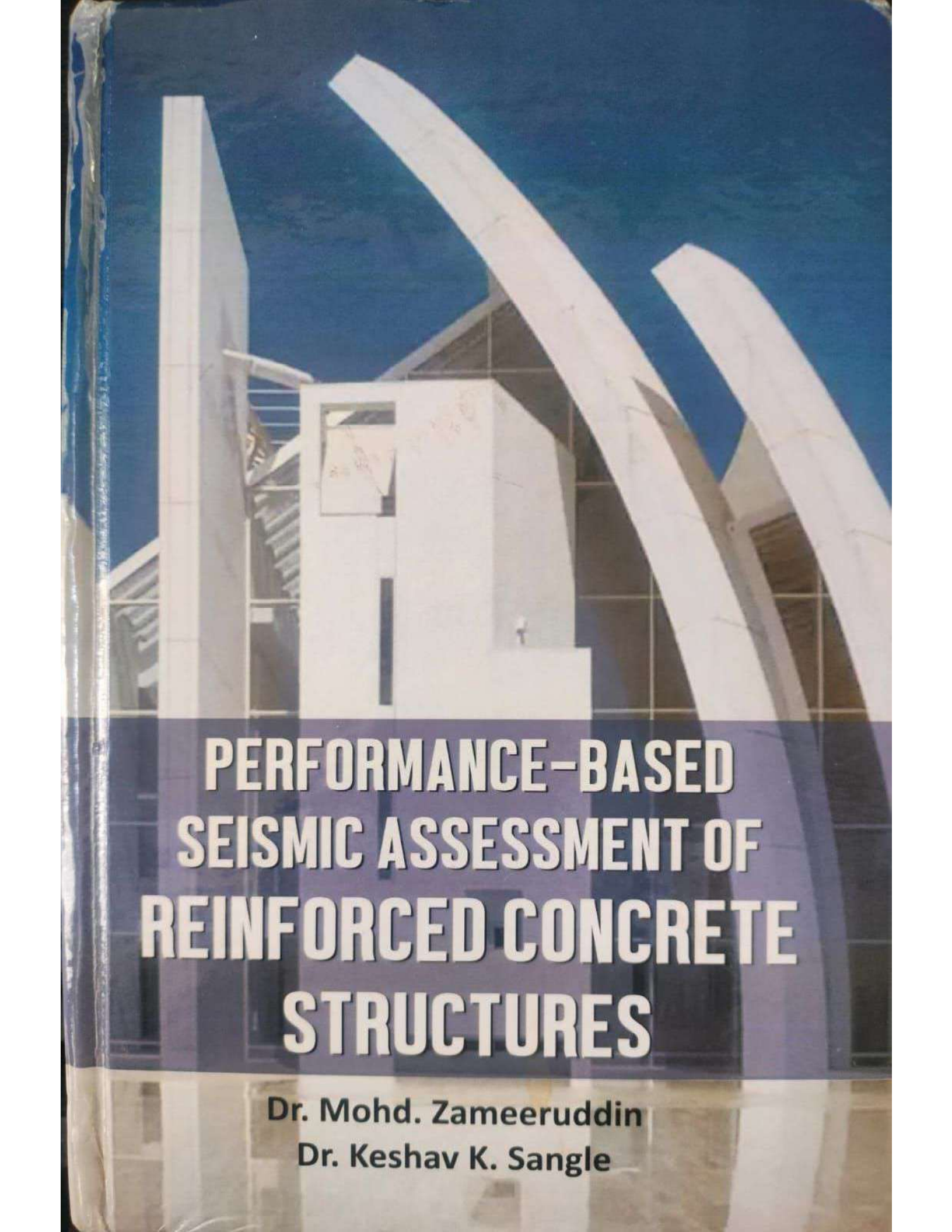
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**PERFORMANCE-BASED
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STRUCTURES**

**Dr. Mohd. Zameeruddin
Dr. Keshav K. Sangle**

An Investigation into Carbon/Epoxy Composites for Conceptual Design of Automobile Vehicle Under Various Loads

Abdul Rehman*, G. S. Lathkar

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Abstract

In this study the finite element analysis of CFRP square beam, which is used for chassis have been studied using bending and torsion loading cases. Total 8 sequences have been studied using ANSYS software. According to the Tsai–Wu failure theory and the results of reserve factor (strength to stress ratios) the fiber direction and stacking sequence design for square section beam have been discussed. Based on the finite element analysis it is observed that the stacking sequences [0/90/45/-45]s, [-45/45/0/90]s and [90/0/0/90]s are the better for the composite structural members of a vehicle.

Keywords. Carbon fiber reinforced polymer, stacking sequence, finite element analysis, automotive, lightweight Design.

1. INTRODUCTION

Composite material consists of fibre and matrix materials which are used in automotive industries because of its high strength to weight ratio, high impact strength, and low density and flexible in the design. Understanding the structural behaviour of composite materials with the complicated geometrical profiles under various loading situations is a challenging task. Different FEA software like ANSYS, ABAQUS, NASTRAN etc predicts the behaviour of the structure efficiently in terms of stresses and deformations. Finite element analysis is very challenging when designing an anisotropic material like carbon-glass fibre reinforced members which is used for a vehicle [1-6].

Many researchers have made attempts to understand the structural behaviour of composites, using FEA software and to replace the existing metallic automotive components with Fiber Reinforced Plastic (FRP) composites [1-10]. Finite element analysis predicted well the stress distribution and failure stress of the critical regions observed during experimental tests. Composite monocoque chassis analysed using finite element analysis on the geometry and laminate lay-ups of a chassis [1]. Optimal stacking sequence determined according to the maximum stress theory and the results of strength to stress ratios [2]. Finite element analysis of simplified part samples have been carried out under various loads. By calibrating the test sample at the coupon and element level, it is possible to predict the structural response at a higher structural level [3]. The damage behaviour of an aluminium–composite hybrid beam under three point bending loading was investigated by a finite element analysis [4]. Different



Early Detection of Grape Stem Borer Using IoT

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Abstract. Grape stem borer is a serious threat to grapes due to its severe symptoms and loss of production. Traditional diagnosis of grape stem borer depends upon symptom identification, due to sensitivity limits of identification tools in vineyards. Grape stem borer prime indications are parching and sneering of affected branches. Recognition of the borer in early stages is a most challenging chore. This paper presents a novel system, utilizing sound sensor for detection of stem borer in grape vineyard using Internet of things. Foremost contribution of this work is a technique for early detection of stem borer pest based on IoT through an handheld device. The analytic solution detailed in this paper does not necessitate the farmer or any user to be an IoT expert in order to use it. The accuracy achieved for the identification of grape stem borer is higher than 90%. The system is envisioned to incorporate the significant advancements in communication technologies and wireless sensor networks.

Keywords: Grape stem borer · Grape vineyard · Internet of things (IoT) · Early detection · Grape diseases

1 Introduction

Grape is a vital ephemeral, climatic produce, enormously grown in India. Maharashtra accounts for 70% of India's total grape acreage and 63% of production. It is confronted by approximately 100 insect pests, which advances different types of damages to the grape vineyards. Amongst them, grape stem borer is a stern pest that is becoming one of the restraining causes in grape farming, mostly in Nashik district [1]. Recently, IoT-based systems are used for remote monitoring of objects [2].

Grape stem borer was previously considered to be a problem only in longstanding and deserted vineyards. Nevertheless, extreme occurrence of this pest is observed in even one-year-old grape grounds in topical years. The disease caused by this pest causes damage which is initially invisible to the naked eye. If there is 1 ha of land, then the general farmer obtains 10 lac income for export. Nevertheless, if the farm is contaminated with this pest, there is a loss of approximately 3.75 lacs per hectare in the exportation of grapes.

Extreme boring can eradicate the plant through the casing. The damage can lessen the amount of rudders for reproduction. When the contamination is late, the white

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The Role of Medical Imaging in COVID-19 Detection and Diagnosis: A Review

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Abstract—Severe Acute Respiratory Syndrome CoronaVirus-2 (SARS-CoV-2) is the main cause of Corona virus disease 2019 (COVID-19) resulting in a massive death toll across the world. In December 2019, Wuhan Province of China witnessed the first case of COVID-19 and within less time complete world suffered from this deadly virus. Medical imaging modalities like X-ray, Computed Tomography (CT), Medical Resonance Image (MRI) etc. plays vital role in detecting COVID-19. Further medical imaging when combined with the recently emerging technologies - Artificial Intelligence (AI), Deep Learning and Machine Learning (ML) strengthens the power of the imaging tools and help medical specialists for diagnosis. Moreover, the Computer Aided Diagnosis (CAD) platforms can also be developed to help radiologists make clinical decisions. This paper can provide the researchers and organizations with new insights in how the medical imaging along with recent technologies can aid to overcome the situation of COVID-19 by detecting and diagnosing in its early stage.

Keywords—COVID-19, Artificial intelligence, diagnosis, Computed Tomography (CT) images

I. INTRODUCTION

The Corona virus is the cluster of related RNA (RiboNucleic Acid) viruses that is commonly found in birds and mammals. The Corona virus outbreak was first detected on December 31, 2019 when China reported the World Health Organization (WHO) [1].

consolidation in the lungs. These characteristics vary at different stages of the infection [4],[40].

For detecting and diagnosing COVID positive cases widely used screening procedures are Antigen, Nucleic Acid Amplification Tests (NAATs) using Reverse Transcription-Polymerase Chain Reaction (RT-PCR) and Antibody test [5]. These lab tests have less sensitivity and high false positive errors because of many reasons like quality control, sample preparation etc. Thus, this virus infection cannot be neglected even if the suspected patient has been tested negative.

In many countries infected patients are more than the available resources like testing kits, medical equipments, well-trained medical staff and COVID care hospitals. In India, many patients without any clinical symptoms, such as fever and cough, were quarantined or required hospitalization. So, medical imaging is considered as a complementary examination for COVID-19 detection and diagnosis in symptomatic and asymptomatic patients. In clinical practice, easily available medical imaging, like chest CT scan and X-ray, help doctors in diagnosis of various lung disorders.

The second wave of COVID-19 in India has put forward the new challenge to the health care department of the country to manage huge number of positive patients struggling for beds and oxygen in hospitals. The infection

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Segmentation, Detection, and Classification of Liver Tumors for Designing a CAD System

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Abstract

Globally cancer is the foremost threat to public health. Out of the world population, the deaths caused by liver cancer are increasing by 3% every year. Liver tumors are the pathological disorders which can be detected with the help of various image processing methods. A Computer-Aided Diagnosis (CAD) system use image processing tools and techniques for detecting liver tumors which acts as an assistance to the radiologists, oncologists, and hepatologists for effective diagnosis. The main objective of this survey is to analyze the



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Segmentation, Detection, and Classification of Liver Tumors for Designing a CAD System

[Rahulsingh G. Bisen](#), [Archana M. Rajurkar](#)  & [R. R. Manthalkar](#)

Conference paper | [First Online: 17 October 2019](#)

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Abstract

Globally cancer is the foremost threat to public health. Out of the world population, the deaths caused by liver cancer are increasing by 3% every year. Liver tumors are the pathological disorders which can be detected with the help of various image processing methods. A Computer-Aided Diagnosis



Cyber Security Using Machine Learning Techniques

Manisha A. Manjramkar^(*) and Kalpana C. Jondhale

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Abstract. Machine learning (ML) is a subfield of Artificial Intelligence (AI) that contributes to the development of systems that can learn from previous data, spot patterns, and make logical judgments with little human interaction. Cybersecurity methodologies provide modern security solutions for detecting and responding to threats. As a result of thieves' ability to circumvent traditional security measures, the previously utilized security solutions are no longer enough. Protecting digital systems from hostile assaults, including those on computers, servers, mobile devices, networks, and associated data, is the practice of cyber security. Accounting for cyber security where machine learning is used and using ML to enable cyber security are the two main components of combining cyber security and ML. We may benefit from this union in a number of ways, including by giving ML models better security, enhancing the effectiveness of cyber security techniques, and enabling the efficient detection of zero-day threats with minimal human involvement. We combine cyber security and ML to address two distinct themes in this survey article. By providing ML strategies for cyber security, the purpose of this paper is to give a wide overview of ML methods employed in cyberspace security.

Keywords: Cyber security · Artificial Intelligence · Intrusion detection · Malware · spam

1 Introduction

The amount of time spent on the Internet has significantly grown because to advancements in computer system, internet and smart phone. Millions of various networked computers, networks, and related devices make up the global Internet. As a result, online criminals and adversaries now have the Internet as a target. Information confidentiality, availability, and integrity must all be guaranteed via a solid, secure computer system. When an unauthorized individual, software, or unlawful breach accesses a system or network with the aim to cause harm or interfere with regular operations, the computer system's authenticity and privacy are seriously compromised [1]. Cybersecurity refers to a set of safeguarding practices that may be used to secure the digital environment and user activities against unwanted access and assaults.

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A Biometric system is a pattern recognition system. It operates by acquiring biometric data from an individual, extracting a feature set from the acquired data, and comparing this feature set against the template set in the database. A number of Biometric characteristics exist and are in use in various applications. Each Biometric has its strengths and weaknesses, and the choice depends on the application. The match between a specific biometric with an application is determined depending upon the operational mode of the application and the properties of the Biometric characteristic. Research in automated face recognition has been conducted since the 1960s. The reliability of face recognition schemes still poses a great challenge to the scientific community. Face recognition has several advantages over other biometric techniques. Face recognition is natural, non-intrusive and easy to use since it is based on images recorded by a distant camera and can be very effective even if the user is not aware of the existence of the face recognition system. The increased interest in automated face recognition systems have gained largely due to increasing public concerns for security.

Human Face using FSVD and RBF Neural Net



I am **Kalpna Jondhale**, working as Professor and Head, Department of Electronics and Telecom Engg. at MUM/JCN, India. The current FR systems does not support identification in controlled environments, especially in crowd situations. Scope is to extend the FR system to more difficult environment in public security and crowd surveillance.

COR AUTHOR

Kalpna Jondhale, Laxman Waghmare

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Human Face Recognition using FSVD and RBF Neural Network



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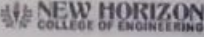

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Self-embedding and Variable Authentication Approach for Fragile Image Watermarking Using SVD and DCT

[B. S. Kapre](#) , [A. M. Rajurkar](#) & [D. S. Guru](#)

Conference paper | [First Online: 01 January 2023](#)

Part of the [Communications in Computer and Information Science](#) book series (CCIS, volume 1697)

Abstract

In this paper, we propose a self-embedding fragile image watermarking technique based on Singular Value Decomposition (SVD) and Discrete Cosine Transform (DCT). To improve security and robustness a novel block separation technique is presented in which an input image is divided into non-overlapping blocks and subsequently SVD is applied on each

An inside and out investigation of cloud-fog processing: design, application areas with security highlights

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Abstract: Fog figuring is a well known new term in the realm of comprehension after the approach of PCs. This thought of another universe of memberships can be viewed as an augmentation of PC use. The essential purpose of getting mist is to lessen the load in the cloud with a suitable degree of local area occasions close by, executives, applications, and huge subtleties close to the furthest limit of the organization. In this audit paper, we will examine the chief ascribes of God, in particular; 1.Mobility, 2.Location mindedness, 3.Lileness, 4.A enormous number of centers, 5.Broad geographic portion, 6. Different applications routinely and we research the center focuses and advancement of Fog enlistment, and afterward abrogate its IoT programs.

Segmentation, Detection, and Classification of Liver Tumors for Designing a CAD System



Rahulsingh G. Bisen, Archana M. Rajurkar and R. R. Manthalkar

Abstract Globally cancer is the foremost threat to public health. Out of the world population, the deaths caused by liver cancer are increasing by 3% every year. Liver tumors are the pathological disorders which can be detected with the help of various image processing methods. A Computer-Aided Diagnosis (CAD) system use image processing tools and techniques for detecting liver tumors which acts as an assistance to the radiologists, oncologists, and hepatologists for effective diagnosis. The main objective of this survey is to analyze the available techniques that can aid in developing or designing a CAD system for liver tumors. Various methods and outcome of available techniques for segmentation, detection and classification of liver tumors from Computed Tomography (CT) or Dynamic Contrast-Enhanced Magnetic Resonance (DCE-MR) images are discussed and compared in detail.

Keywords Medical imaging · Computed Tomography (CT) images · Dynamic Contrast Enhanced-Magnetic Resonance (DCE-MR) images · Liver tumors

1 Introduction

The largest internal organ in our body that carries out important life sustaining tasks such as detoxification and storage of vitamins in the body is liver. Liver tumors are pathological disorders which can be detected by image processing techniques and this information utilized to develop a novel Computer-Aided Diagnosis (CAD) system. It can also assist radiologists to diagnose liver malignancy and oncologists to plan the treatment or surgery. Designing an effective CAD system is the emerging

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A Discriminative Model for Age Invariant Face Recognition

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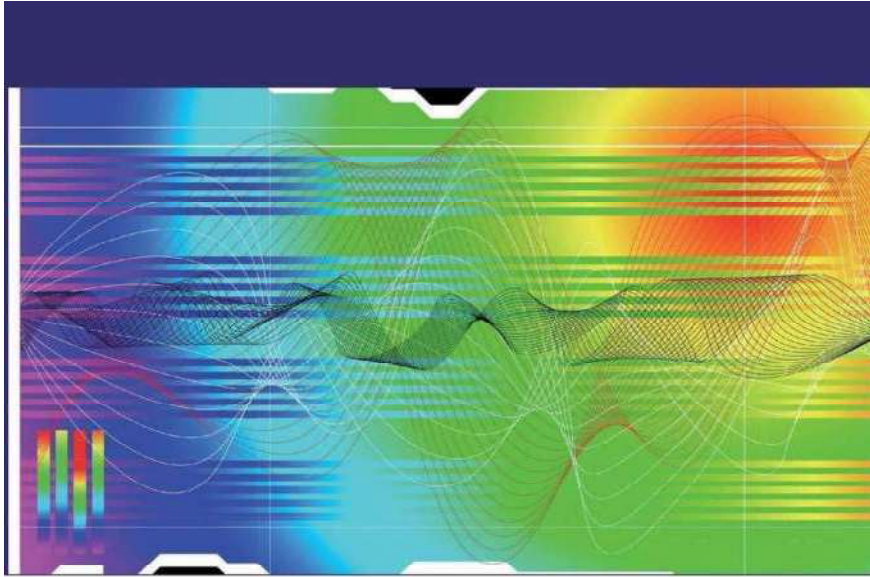
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The discriminative model is developed to address face matching in the presence of age variation. In this approach, each face is represented by designing a densely sampled local feature description scheme, in which Scale Invariant Feature Transform (SIFT) and Multi-scale Local Binary Patterns (MLBP) serve as local descriptors. Since both SIFT-based local features and MLBP-based local features span a high-dimensional feature space, an algorithm called multi-feature discriminant analysis (MFDA) is used to process these two local feature spaces in a unified framework. The new proposed method is discriminative model with multi-scale robust local binary pattern (MRLBP). MLBP is not so robust to the noise present in the image. The proposed method uses MRLBP which serve as the local descriptor in the discriminative model to enhance the performance.

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Survey of Diabetic Retinopathy Screening Methods.

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Abstract—This electronic document iDiabetic retinopathy is an abnormality which involves the small blood vessels that targets the central region like macula. It is a progressive disease and main reason that causes loss in vision. Diabetic retinopathy is a vascular illness of the retina which influences patients with diabetes. This harms the retina of eye and leads to visual impairment if level of diabetes is very high. Diabetic retinopathy has no early signs. In some cases vision will get better or worse during the day. So the importance of automatic assessment of macular enema increased. In this paper we have done a survey on the different techniques used for detection diabetic retinopathy. Diabetic retinopathy is composed of a characteristic group of lesions found in the retina of one having diabetes for several years. Detecting the exudates in early stage can prevent vision loss.

Keywords— *Diabetic retinopathy, machine learning, ensemble learning, exudate, decision tree, adaBoost, Naive Bayes, SVM*

Introduction

Diabetic retinopathy, i.e. diabetic eye disease, is a medical condition in which damage retina is damaged due to diabetes mellitus and which leads to cause of blindness. The longer a person has diabetes, has higher chances of developing diabetic retinopathy.

Nonproliferative diabetic retinopathy (NPDR), (background retinopathy) is a beginning time of diabetic retinopathy. In this stage, little veins in retina spill blood or liquid. The releasing liquid influences the retina to swell to or to frame stores known as exudates. Many individuals having diabetes have mellow NPDR, which does not influence their vision. At the point when vision is influenced, it is the consequence of macular enema. Macular edema is swelling, or thickening, of the macula, a little region in the focal point of the retina that enables us to see fine subtle elements plainly. The swelling is caused by liquid spilling from retinal veins. Vision misfortune might be mellow to extreme, however even in the most pessimistic scenarios; Laser treatment can be utilized to help control vision misfortune from macular edema.

In the proliferative diabetic retinopathy (PDR) very small blood vessels grow from the surface of the retina; these tiny blood vessels are a capillary which bleeds easily. Laser treatment prevents blindness, but some vision is lost.

A microaneurysm is a tiny aneurysm, or swelling, in the side of a blood vessel. In people having diabetes, microaneurysms are sometimes found in the retina of the eye. These aneurysms can burst and leak blood. Some research shows that these microaneurysms can predict the progress of diabetic retinopathy, a condition in which blood

vessels of the retina are damaged by diabetes, which can lead to blindness.

Exudates is a fluid with a high content of protein and cellular scattered pieces that has escaped from blood vessels and has been deposited in tissues or on tissue surfaces, as a result of is welling.

I. LITERATURE SURVEY

METHOD

Pilar P´erez Conde, Jorge de la Calleja, Antonio Benitez, Ma. Auxilio Medina et al [1] had proposed a mechanized strategy to characterize fundus images of diabetic retinopathy into two sorts: diabetic retinopathy non proliferative and proliferative. This technique is partitioned into three phases: 1) image handling; 2) image diminishment and highlight extraction; and 3) order.

A. Image processing

The point of this stage is to improve those highlights that will permit, in the following stage, arrange the informational index of fundus images. They have researched the execution of two image preparing procedures: the Canny edge finder and the histogram adjustment technique.

- 1) The Canny edge indicator: It is an edge location administrator that utilizes multi organizes calculation to identify extensive variety of edges in images.
- 2) Histogram equalizer: The histogram balance is a broadly utilized non straight technique intended for the upgrade ment of images. This strategy utilizes a monotonic non direct mapping which reassigns the force estimations of pixels in the info image.

B. Image lessening and highlight extraction

For their situation they have made eigen fundus images. For the order arrange they have to extricate critical data of each image, encode it as effectively as could be expected under the circumstances, and contrast one encoded image and an informational index utilizing a model encoder in light of comparably.

In this manner, they have utilized important segment investigation keeping in mind the end goal to locate the noteworthy highlights (key segments) of the dispersion of the image information set. The premise of main segment examination is to discover the vectors that best record for

Robust Exemplar Based Image And Video Inpainting For Object Removal And Region Filling

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Abstract— Inpainting an art the restores old, damage image. Exemplar based inpainting is that use the patch based approach. This method uses patches to fill the target region of the image. This method uses simultaneous the texture synthesis and structural propagation. But after some iteration the dropping effect of confidence term is occur in this method. The robust exemplar based method avoid dropping effect by using robust priority function. We proposed a video inpainting method on the basis of the robust exemplar based inpainting algorithm using region segmentation. In our we use robust priority function to avoid dropping effect and region segmentation to determine the adaptive patch size and reduced search region. The experimental results show the effectiveness of our method.

Index Terms—Image inpainting, Exemplar based inpainting, Robust image inpainting, Robust video inpainting

I. INTRODUCTION

Image inpainting fills the damaged, missing region in an image with help of spatial information of the neighbor of same image. Now a day, the image restoration is an important part of the digital image processing due to population of consumer digital cameras. Image inpainting is a method that restores old, damaged images. Also, it removes the object from image. Image inpainting is applied to red eye correction, super resolution, compression. There are several methods of image inpainting. M. Bertalmio [1] proposed a inpainting method that fills the target region with textural synthesis. This method fills the user selected region pixel by pixel. A. Criminisi introduced exemplar based image inpainting method [2] that removes the large object from the image and fills the target region with patch approach i.e. set of pixels. This method combines the textural synthesis and structural propagation. Robust exemplar based inpainting using region segmentation [9] that defines the robust priority function that avoids the dropping effect and uses the region segmentation that determines the adaptive patch size and reduced search region. This method gives less error propagation and more accuracy while filling the target region. So, we extend this approach to video inpainting. We proposed a video inpainting method that uses the robust priority function and region segmentation for selected video.

II. REVIEW AND BACKGROUND

A. REGION SEGMENTATION

The graph based region segmentation algorithm [10] gives the spatial information of image. This region segmentation gives the segmentation map or segmented image that divides into number of region. Segmentation map is given as $G = (V, E)$, where V denotes initial vertex set and E denotes a corresponding set of edges. We get segmented image through iterative merging. In each step of merging, the component of vertices C_k and C_{k+1} will merge in one segment if the difference between two components is smaller than internal difference of two components.

B. EXEMPLAR BASED INPAINTING

Criminisi exemplar based inpainting [2] that removes the large object from image. It uses patch approach and iteratively search the source region to fill the target region. This method defines the priority function in order to fill the manually selected target region of the image. This method simultaneously conducts textural synthesis and structural propagation. Priority function of patch which to be fill first in order to fill target region is defined as,

$$P(p) = C(p)D(p) \quad (1)$$

Where, $C(p)$ is confidence term i.e. textural information at pixel p and $D(p)$ is data term i.e. structural information at pixel p and given as,

$$C(p) = \frac{\sum_{q \in \Psi_p} C(q)}{|\Psi_p|}, D(p) = \frac{|\nabla I_p^\perp \cdot n_p|}{255} \quad (2)$$

Where, $|\Psi_p|$ is size of patch centered at p . ∇I_p^\perp is intensity gradient and n_p is normal vector at pixel p . 255 is normalized value for 8-bit image. This method uses fixed size patch. But the error propagation is occurring in this method due to dropping effect of confidence term after number of iterations. The confidence term is nothing but the textual information of the source region that have to fill the region which is selected manually and in the same way the data term is structural information that fills contour, lines. In this way, this method inpaint the image with confidence term and data term.

DRLBP based edge texture features for Object Recognition with SIFT

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ABSTRACT

Category recognition system will be developed for application to image retrieval. This paper proposes two sets of novel edge-texture features, Discriminative Robust Local Binary Pattern (DRLBP) and Ternary Pattern (DRLTP), for object recognition. By finding the limitations of Local Binary Pattern (LBP), Local Ternary Pattern (LTP) and Robust LBP (RLBP). DRLBP and DRLTP are proposed features by analyzing with HOG and SIFT features for better performance. For classification purpose linear SVM classifier is used. Furthermore, the proposed features retain contrast information necessary for proper representation of object contours that LBP, LTP, and RLBP discard. Our proposed features are tested on CALTECH 256 Data set. Results demonstrate that the proposed features outperform the compared approaches on most data sets.

Keywords- DRLBP, DRLTP, SIFT, HOG, Feature extraction and SVM

1. INTRODUCTION

Object recognition is divided in two parts category recognition and detection. Category recognition is used to classify an object into one of several predefined categories. Detection is used to distinguish objects from the background. Typically, objects have to be detected against cluttered, noisy backgrounds and other objects under different illumination and contrast environments. Performance of object recognition can be improved by discriminating the object from the background or other objects in different lightings and scenarios.

Object recognition features are categorized into two groups sparse and dense representations. For sparse feature representations, interest-point detectors are used to identify structures such as corners and blobs on the object. A feature is created for the image patch around each point. Dense feature representations, which are extracted at fixed locations densely in a detection window, are gaining popularity as they describe objects richly compared to sparse feature representations.

LBP is robust to illumination and contrast variations as it only considers the signs of the pixel differences. However, it is sensitive to noise and small fluctuations of pixel values. To handle this, Local Ternary Pattern (LTP) has been proposed. In comparison to LBP, it has 2 thresholds which creates 3 different states as compared to 2 in LBP. It is more resistant to noise and small pixel value variations compared to LBP. LBP and LTP

Sliding Discrete Fourier Transform for 2D Signal Processing



Anita Kuchan, D. J. Tuptewar, Sayed Shoaib Anwar
and Sachin P. Bandewar

Abstract Discrete Fourier Transform (DFT) is the most frequently used method to determine the frequency contents of the digital signals. As DFT will take more time to implement, this paper gives the algorithm for the fast implementation of the DFT on the Two-Dimensional (2D) sliding windows. To fast implement DFT on the 2D sliding window, a 2D DFT (here 2D SDFT) algorithm is stated. The algorithm of the proposed 2D SDFT tries to compute current window's DFT bins directly. It makes use of precalculated bins of earlier window. For a 2D input signal, sliding transform is being accelerated with the help of the proposed algorithm. The computational requirement of the said algorithm is found to be lowest among the existing ones. The output of discrete Fourier transform and sliding discrete Fourier transform algorithm at all pixel positions is observed to be mathematically equivalent

1 Introduction

In several applications of image processing, frequency domain offers an improvement over performing a similar job in the time domain. At times the improvement is just simpler or more hypothetical algorithm. Often the largest obscurity in working in frequency domain is concern with calculation of Fast Fourier Transform [1]. If the frequency-domain data must be reorganized constantly in a real-time application, the difficulty and latency of the FFT can become a significant obstruction to achieve system goals and keeping cost and power consumption low.

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Selected Deep Features and Multiclass SVM for Flower Image Classification

[M. R. Banwaskar](#) , [A. M. Rajurkar](#) & [D. S. Guru](#)

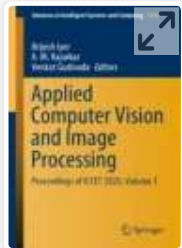
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Abstract

Flower classification and recognition is an exciting research area because extensive variety of flower classes have similar colour, shape and texture features. Most of the existing flower classification systems use a combination of visual features extracted from flower images followed by classification using supervised or unsupervised learning methods. Classification accuracy of these



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Segmentation of Knee Bone Using MRI

[Anita Thengade](#)  & [A. M. Rajurkar](#)

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concern to segment, detect and extract

the defects from knee magnetic resonance images (MRI). Conventionally, this process is carried out manually in clinical practice but it is time consuming and observer dependent. It is a big challenge to segment cartilage manually from MRI, as cartilage structure has inadequate image contrast and complex tissue structure. Currently, semiautomatic and automatic methods are used to overcome this limitation. In the proposed method, we present a segmentation approach for the extraction of bone and cartilage from MRI. Here, in this paper we perform preprocessing for image enhancement and noise removal of knee MR image using Gaussian blur and block matching 3D method. Larger bones in the knee joint

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method is analyzed on a variety of knee MR images and experimental results demonstrated the improvement in accuracy compared to existing approaches. In conclusion, it is observed that the proposed technique improves significant performance with consistency and robustness during the segmentation process.

Keywords

Magnetic resonance imaging

Bone segmentation

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