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# Network Security: Approach Based on Network Traffic Prediction

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**Abstract.** Considering the network security aspect, one of the best way of preventing network infrastructure against anomalous activities is to monitor its traffic for suspicious activities. The reliable resource to accomplish this task is past network flow data, which can be analyzed to detect congestions, attacks or anomalies to ensure effective QoS of network infrastructure. Network traffic prediction involves analysis of past network flow data by capturing-storing data, preprocessing data, analyzing it based on various parameters & forming behavior patterns for various nodes in network. Once the patterns are observed for different nodes in network, their future communication can be predicted. Upon prediction of anomalous behavior, the preventive action will be initiated without wasting

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**Network Traffic Analysis, Importance, Techniques: A Review**

Sheetal Thakare; Anshuman Pund; M. A. Pund

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# *Network Traffic Analysis, Importance, Techniques: A Review*

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Abstract— ***Since the release of tcpdump in 1988 the network traffic data are been captured, analyzed and used for network security related decision making. But as the technologies evolved various types of methods can be used for network traffic analysis. The prominent once are Data Mining techniques, Statistical techniques and Visualization techniques, which are surveyed and studied in the following various sections of the paper. Machine Learning techniques are the latest ones to contribute a lot regarding network traffic analysis which forms the backbone of network security and is the important responsibility of administrators. At the end of the paper summarization of papers studied is presented***

***Keywords—network analysis;traffic data; network security***

## I. INTRODUCTION

While accessing the internet the common situations faced by many are "Why is the network speed is so slow?", "Why there is no access to my e-mail?", "Why am I not getting the access to the shared drive?", "Why is my computer behaving not normal?". The above queries are then escalated to systems administrator, network engineer, or security engineer frequently. System admins have to then begin with cumbersome and sometimes painful process of troubleshooting. The main task performed by the network network, analyzing the performance of a network to discover bottlenecks, network intrusion detection, logging network traffic for forensics and evidence, analyzing the operations of applications, discovering faulty network cards, discovering the origin of virus outbreaks or Denial of Service (DoS) attacks, detecting spyware, network programming to debug in the development stage, detecting a compromised computer, validating compliance with company policy, as an educational resource when learning about protocols, reverse-engineering protocols to write clients and supporting programs [1].

## II. BACKGROUND

Network is analyzed at different levels : at packet level, flow level and network level for security management[2].

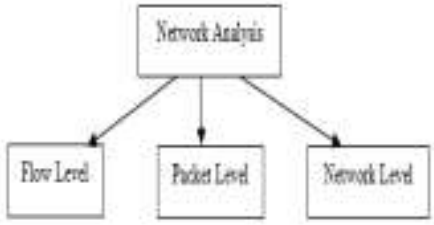


**Fig 1. Types of Network analysis**

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Quality Analysis And Grading of Soybean using Image Processing. in the

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# Quality Analysis and Grading Of Soybean Using Image Processing

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PRMIT&R Badnera

**Prof. S. V. Pattalwar**

Associate Professor
PRMIT&R Badnera

*Abstract*— **The use of good quality seed is important for the satisfactory production of a good quality crop and is essential for export in markets. Quality contrel is very important in food industry because based on quality of food products are classified and graded into different grades. Soybean is primarily graded based on its grain shape, colour, size and texture. This paper attempts to automate the grading process by using image processing and machine vision techniques. Soybean's grade is affected by damaging, decolourization, infection by insects, immaturity and shrivels, splitting, breaking, cracks, inorganic and organic foreign matter present in the sample. One of the objectives of this paper is to study the effect of these parameters on shape, colour, size and texture of the soybean image. In the present soybean-handling scenario, type and quality are identified manually by visual inspection which is tedious and not accurate. There is need for the growth of fast, accurate and objective system for quality determination of food grains. This paper proposes a model that uses colour and geometrical features as attributes for classification using image processing techniques and artificial neural network. This method requires minimum time and it is low in cost.**

*Keywords*—**ANN, Grading, Image Processing and Analysis, Soybean,**

## I. INTRODUCTION

Soybean has an important place in world's oilseed cultivation scenario, due to its high productivity, profitability and vital contribution towards maintaining soil fertility. The crop also has a prominent place as the world's most important seed legume, which contributes 25% to the global vegetable oil production, about two thirds of the world's protein concentrate for livestock feeding and is a valuable ingredient in formulated feeds for poultry and fish. Soybean contributes significantly to the Indian edible oil pool. Presently soybean contributes 43 % to the total oilseeds and 25% to the total oil production in the country. Currently, India ranks fourth in respect to production of soybean in the world. The crop helps earn valuable foreign exchange (Rs. 62000 millions in 2012-13) by way of soya meal exports. Soybean has largely been responsible in uplifting farmer's economic status in many pockets of the country. It usually fetches higher income to the farmers owing to the huge export market for soybean de-oiled cake. While on one hand production of Soybean in India has increased at a CAGR of 9.60 per cent from 6.87 million tonnes in 2004-05 to 15.68 million tonnes in 2012-13. On the other hand Soybean meal consumption has also increased at a CAGR of 10.82 per cent over the last eleven years from 1365 thousand million tonnes in 2004-05 to 4225 thousand million tonnes in 2014-

15. Therefore to keep pace with the increasing demand it is imperative to increase the productivity level of Soybean in the country. Production of soybean in India is dominated by Maharashtra and Madhya Pradesh which contribute 89 per cent of the total production. Rajasthan, Andhra Pradesh, Karnataka, Chhattisgarh and Gujarat contribute the remaining 11 per cent production. Because of this global demand of soybean market increasing day by day we need to improved quality of soybean by using image processing for better result than that of the manual inspection. In the present soybean-handling scenario, type and quality are identified manually by visual inspection which is tedious and not accurate. There is need for the growth of fast, accurate and objective system for quality determination of food grains. This paper proposes a model that uses colour and geometrical features as attributes for classification using image processing techniques and artificial neural network. This method requires minimum time and it is low in cost.

## II. LITERATURE REVIEW

Timothy J. Herrman, Extension State Leader Grain Science and Industry Carl Reed,[1] Extension Specialist, Grain Storage Grain Science and Industry from Kansas State University Agricultural Experiment Station and Cooperative Extension Service have proposed soybean grading procedure on the basis of 1. Classes as yellow soybeans and mixed soybeans. 2. Damaged kernels 3. Foreign material 4. Heat-damaged kernels 5. Soybeans of other colours they Examine the sample for heating, odour, animal filth, castor beans, crotalaria seeds, garlic, glass, insect infestation, purple mottled and stained, smut, stones, unknown foreign substances, and other unusual conditions. Divide out a representative portion from the sample and determine its moisture content. Determine the test weight per bushel of the sample. When deemed necessary, divide out representative portions and determine the percentage of class, damaged kernels, heat-damaged kernels, foreign material, oil, protein, soybeans of other colours, and splits. All these procedure is done by manual inspection.

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# The Substation Automation through Smart Grid

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Prof.Meenal Pannase[3], Prof.Rucha Jichkar[4], Prof. Preeti.R.Lawhale[5]

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Country)

***Abstract:*** *Substitution Automation (SA) Can Give Essential Capacities To The Dissemination Organize Mechanization. SA Has Been Centered Around Robotization Capacities, For Example, Observing, Controlling, And Gathering Information Inside The Substation. This Restricted Degree Takes Into Consideration Successful Control Of Programmed Gadgets Situated Inside The Substation Fence. Substation Automation Is Relied Upon To Extend With Expanded Control Of Transfers, Capacitor Banks, And Voltage Controllers Along The Feeders. This Paper Gives A Cutting Edge Investigation On Models, Advances, Applications, Data Norms And Correspondence Protocols. It For The Most Part Centers Around Substation Robotization In The Transmission And Dissemination Area. From The Investigation It Is Seen That There Are Gigantic Endeavors Taken By The Smart Grid Key Partners To Enhance Interoperability Over The Different Segments Running An Electrical Matrix, From Field Procedures To Advertise Trades, Permitting The Stream Of Data More Unreservedly Crosswise Over Applications And Areas And Making Open Door For New Applications Which Are Relevant Various Space.*

***Keywords*** *- Substation Automation, Smart Grid Interoperability, Constraint, State-Of-The-Art*

## I. Introduction

The Brilliant Lattice Gives A More Effective Method For Transmitting And Expending Vitality. The Brilliant Matrix Is Information Interchanges Coordinate With The Power Lattice That Empowers Control Network Administrators To Gather And Dissect Information About Power Age, Transmission, Conveyance, And Utilization— All In Close Constant. Keen Network Correspondence Innovation Gives Prescient Data And Suggestions To Utilities, Their Providers, And Their Clients On The Most Proficient Method To Utilize Control Productively.

To Accomplish This Vision Of Inescapable Near– Continuous Data, A Change Of The Power Framework Interchanges Foundation Is Required, Especially In Transmission And Conveyance Substations. The Current Supervisory Control And Information Obtaining (SCADA) Remote Terminal Unit Frameworks Situated Inside The Substation Can't Scale And Advance To Help Cutting Edge Insight.

### A. Smart Grid

Brilliant Grid Rolls Out A Basic Improvement In The Electrical Framework. Establishment Of End Shopper Brilliant Meters, Organization Of Circulated Sustainable Power Source Age, And Interconnection Of Task And Data Frameworks Gives Another Arrangement That Screen And Deal With The Foundation Astutely.

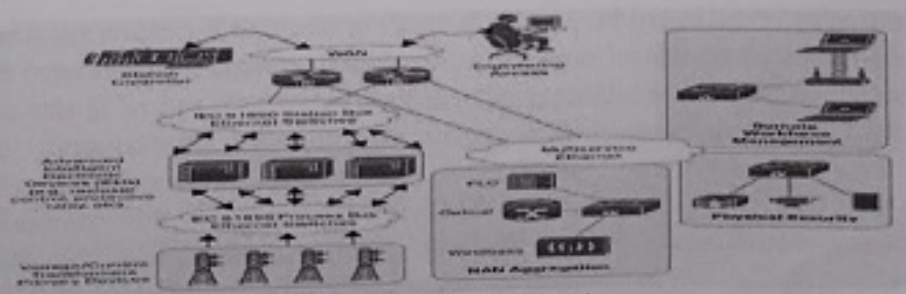

**Fig. 1**:Next Generation Substation

Brilliant Grid Rolls Out A Basic Improvement In The Electrical Framework. Establishment Of End Shopper Brilliant Meters, Organization Of Circulated Sustainable Power Source Age, And Interconnection Of

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# *An Efficient Design for Canny Edge Detection Algorithm using Xilinx System Generator*

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***Abstract*— Digital Image consists of some informative pixels and some redundant pixels. Edge Detection is the process of preserving informative pixels and eliminating redundant data which improves bandwidth and storage efficiency. A sudden change in pixel intensity level is defined as an Edge. Theoretically, from the literature it is seen that Canny edge detection is the most accurate algorithm. It is also insensitive to Noise. The only disadvantage of Canny algorithm is its high computational complexity which limits its maximum frequency of application with high latency and low throughput. In this paper, tradeoff between Accuracy and Complexity is studied. An efficient Canny algorithm is designed using Xilinx System Generator which utilizes JTAG Hardware co-simulation approach. An accuracy is compromised in order to make it more efficient in terms of resource utilization than the conventional one. Spartan-3E FPGA is used as a reconfigurable hardware platform for the designed algorithm.**

***Keywords*— Image Processing; Edge Detection; Canny Algorithm; Xilinx System Generator; Spartan-3E FPGA***

## I. INTRODUCTION

Pixels are the fundamental unit of any Digital Image. Every pixel has some intensity value which varies in between 0-255. Edges are nothing but pixels which carry structural information of an Image. Edge Detection thus an important and essential step in any image processing application [1]. In recent years, Edge detection acquired a significant attention due to its role in the field of Computer or Machine Vision. Further, it has many applications such as Brain Tumor Detection, Satellite Imaging, Weather forecasting etc. Many edge detection techniques are used for this purpose which are mainly classified as Gradient based and Laplacian based [2]. Canny algorithm is also known as Optimal Edge Detection technique. It uses classical operator for gradient calculation. Canny algorithm has several steps which make it a complex algorithm than others. But, anyway Canny is the most accurate edge detection technique. It is also immune to Noise. Gradient based edge detection operators are Sobel, Prewitt and Robert. These are simple to design but sensitive to noise. Laplacian based edge detection techniques finds out derivative twice. A derivative mask acts like High Pass Filter. Thus, high frequency noise components can corrupt the whole image. A conventional Canny [3] has four steps. These are Image smoothing, Gradient Magnitude & Orientation Calculation, Nom-Maximum Suppression (NMS) and Hysteresis Thresholding. Xilinx System Generator allows common environment for MATLAB/Simulink and ISE Design Suit. XSG provides an efficient way of designing complex algorithms [4]. It automatically generates required Hardware Description Language (HDL) along with Test bench. Field Programmable Gate Array (FPGA) is used for prototyping purpose. Spartan-3E Starter Kit is programmed by downloading generated bit stream file. System Generator Token provides various types of Compilation.

## II. CONVENTIONAL CANNY ALGORITHM

The Canny algorithm is also called as the optimal edge detector. It is proposed by John Canny in 1986. At that time, classical operators such as Robert, Prewitt and Sobel were known. His interest was to improve performance of these operators. All the mathematical formulation and analysis required to support his theory is given in [5]. Canny proposed few criteria for improving classical methods of edge detection. First one is Low Error Rate. It emphasizes on minimizing Errors. Second one is Localization of Edges. There should not be any difference between located and actual edges. Third and final criterion is Only One Response to Single Edge. It makes Canny the most accurate edge detection technique.

By considering all three criteria mentioned above, Canny came up with a four block model (as shown in Fig. 1). The first block is used to eliminate high frequency noise. Generally, Gaussian filter is used here as a Low Pass Filter. Due to this, Canny often known as Gaussian of Gradient. In second block, any classical operator is used for gradient magnitude and orientation calculation. As Sobel is more efficient than Robert and Prewitt, generally it is used for this purpose. Third block is called as Non-Maximum Suppression. In this block thick edges which are present in the gradient output due to smoothing step are made thin. Hysteresis Thresholding is the final block of Canny model. It performs Edge Linking by applying two thresholds.

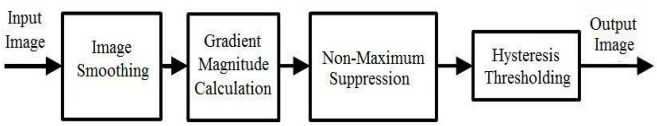


Fig. 1 Various Blocks of Canny Model

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# Development of Fault Diagnosis System using Fault Injection For Discrete Architectures

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***Abstract*— Physical realization of momentous electronic circuit elements have becomes possible due to the avant-garde integration technology. Such components are propitiously providing high speed data execution with least power utilization in highly optimized area. With such attainment, fault diagnosis becomes significant in order to provide reliable product to the end user.**

**The present research work introduces a methodology to evaluate the testability of the digital circuit. In the proposed work, the architecture is developed which produces expected output combinations and output combinations which are possible when fault condition occurs in the circuit. The architecture is implemented using VLSI-FPGA architecture, famous for implementing concurrent architecture and is targeted to Virtex FPGA for best optimization.**

***Keywords*— Fault Diagnosis, VLSI-FPGA, Xilinx Virtex, Fault Injection, Built in Self Test.**

## I. Introduction

Due to the modern integration technology, it becomes feasible to design and develop complex electronic architecture. The circuits are designed through highly sophisticated Very Large Scale Integrated (VLSI) Computer Aided Design (CAD) synthesis tools. These tools emphasizes on high level of optimization of circuit with respect to the different traits of the application like power, routing time, area and frequency. With such up-to-the-minute foolproof CAD tool, the modern circuit components are designed using behavioral approach than to focusing on structural level designing.

With such development of technology, it becomes significant to focus on eight dimensions of the quality like Reliability, Performance, Features, Conformance, Durability, Serviceability, Aesthetics and Perceived Quality in order to meet the end user needs and beat the competition. The present invention discloses a possible solution to attain Reliability, Conformance and Durability. It gives means to analyze the performance of the circuit under test when it operates normally and when possible faults occurred in the circuit.

The research work implements fundamentals of fault injection to generate fault in the circuit under test. Circuit under test (CUT) can be operated under normal condition and all stimulus are applied to generate normal output combinations. Fault injection can then be enabled, on purpose, to understand the behavior of the CUT when fault occurs in the circuit. All possible input stimulus can again be applied to descry possible faulty output combinations. This helps to come up with a circuit which can be assured to work without fail, produces outputs with precision and will be highly durable.

The architecture of the novel system is described using Very High Speed Integrated circuit Hardware Description Language (VHDL). For logic verification, the architecture is simulated using Modelsim simulator and for physical verification the architecture is later synthesized using Xilinx ISE platform. While implementing using Xilinx tool the design is targeted to Xilinx Virtex series Field Programmable Gate Arrays for high level of optimization. Subsequently, a cogent analysis is carried out to juxtapose the outcomes on Virtex-5, Virtex-6, Spartan-6 and Spartan-6 Low Power FPGAs.

## II. Fault Injection Technique

In routine testing of the circuit, the behavior of the circuit is described using sophisticated CAD tools and all possible stimulus' are applied and output responses are observed carefully to conform circuit behavior to expectation. Through such traditional way of validating the behavior of the circuit, it is only possible to contrast to the architecture behavior but it fails to highlight possible output responses when error occurs in the designed architecture.

Fault injection is the technique through which the architecture responses to the input stimulus in normal operating conditions are observed. Further the analysis can be extended by inserting faults in the architecture, on purpose, for performance validation of the CUT in faulty conditions. Through this it becomes possible to access dependability of the CUT. Different fault injection techniques are discussed further.

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**Paper Title**
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**Reviewer #1**

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**1. Overall evaluation:**
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**2. Organisation and language:**
Strong

**3. Originality of idea:**
High

**4. Novelty or through research:**
High

**5. Systematic approach:**
Strong

**6. Clarity of result and conclusion:**
High

**7. Review Comments (do you find any Innovative Research Components in Paper, if yes please mention )**
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**Reviewer #2**

## Questions

**1. Overall evaluation:**
Weak Accept

**2. Organisation and language:**
Medium

**3. Originality of idea:**
Medium

**4. Novelty or through research:**
Medium

**5. Systematic approach:**
High

**6. Clarity of result and conclusion:**
High

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Use of computer resources and sharing of contents has changed the ways along with as the cloud computing comes. One of the important concept of cloud computing is virtualization that plays a vital role to maximize resource usage among large number of users. To efficiently utilize the resources in a virtualized environment; they need to be over committed. Over commitment is the process of allocating more resources to a virtual machine that is physically present on the host. It is based on the principle that the majority of the Virtual Machines will use only a small percentage of the resources allocated to them at a given time. With the virtualization it becomes possible to use all different resources in shared manner and at same time by different time. There are lots of techniques now days are available to make the cloud system to be work more efficiently. This paper performs study of different changes and techniques for memory optimization and management.

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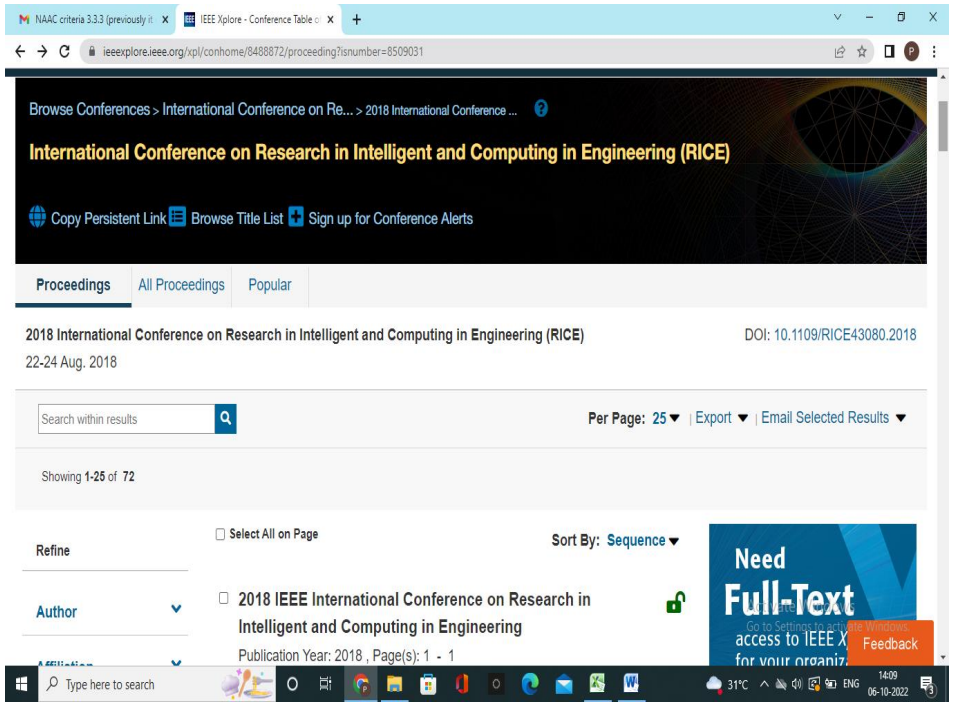
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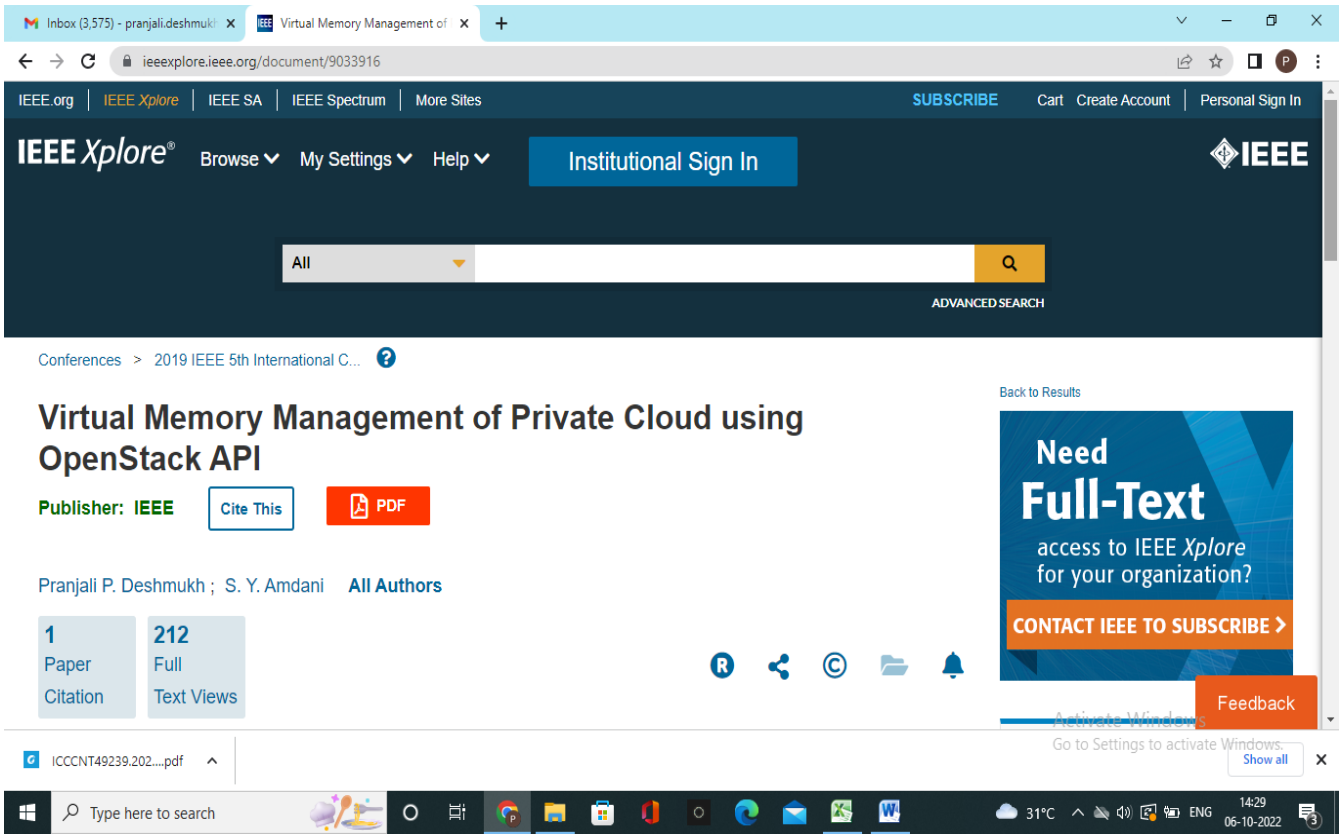
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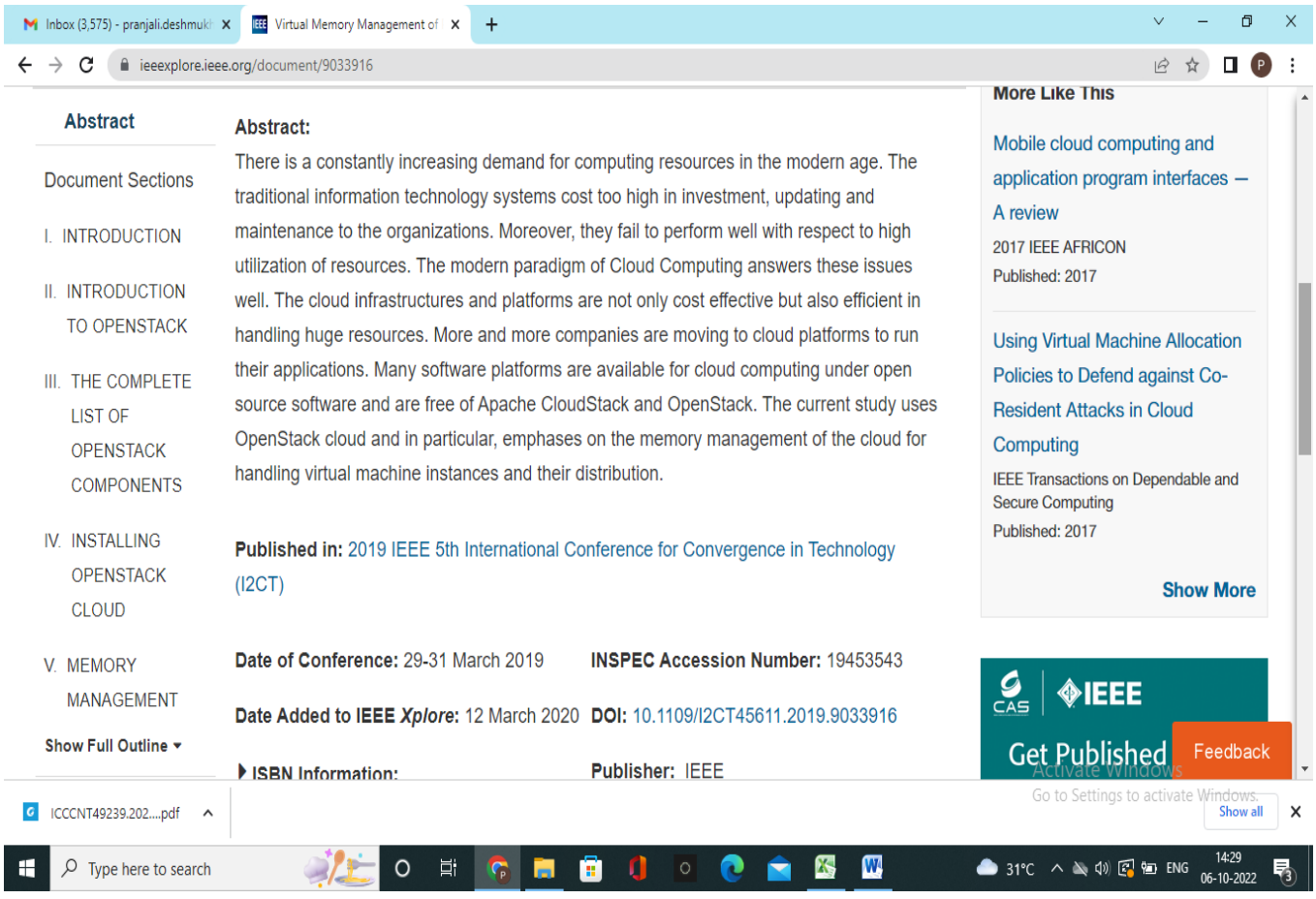
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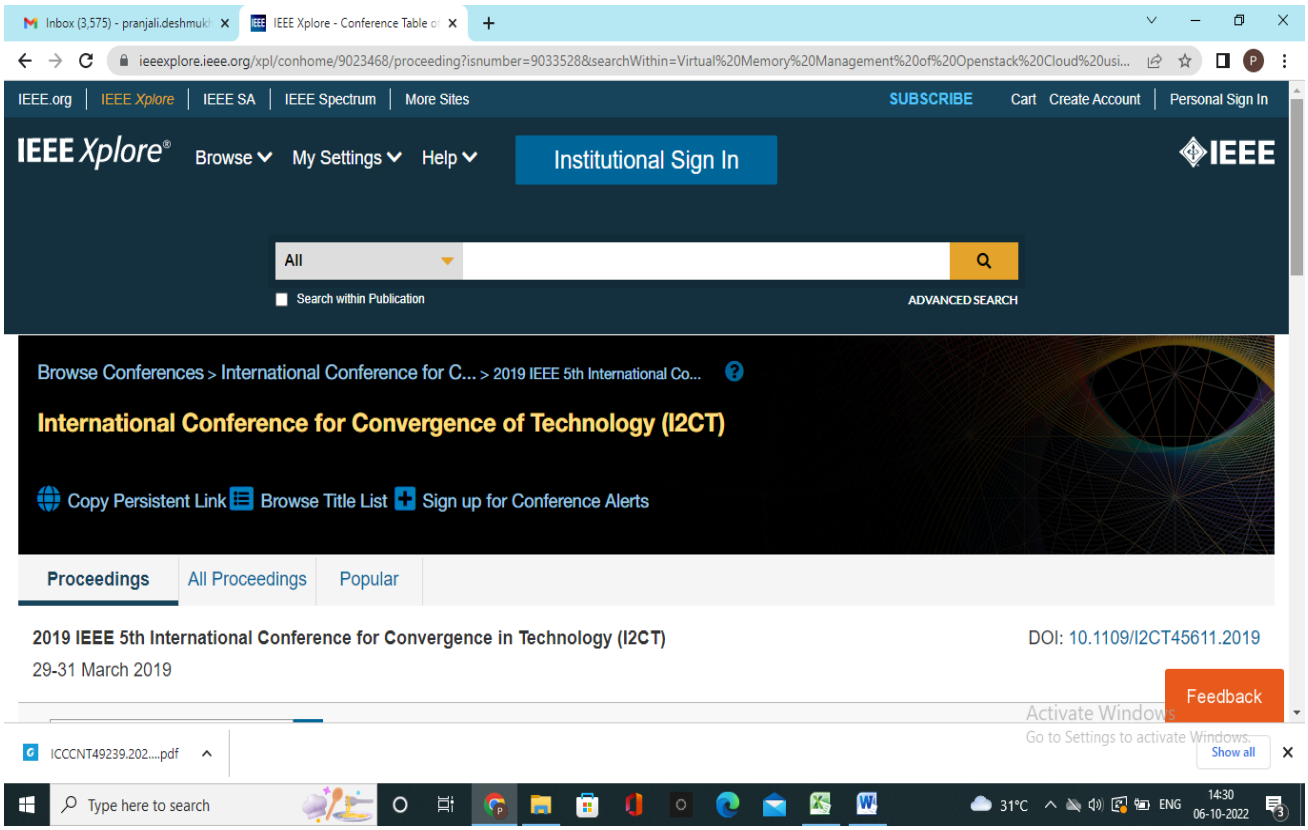
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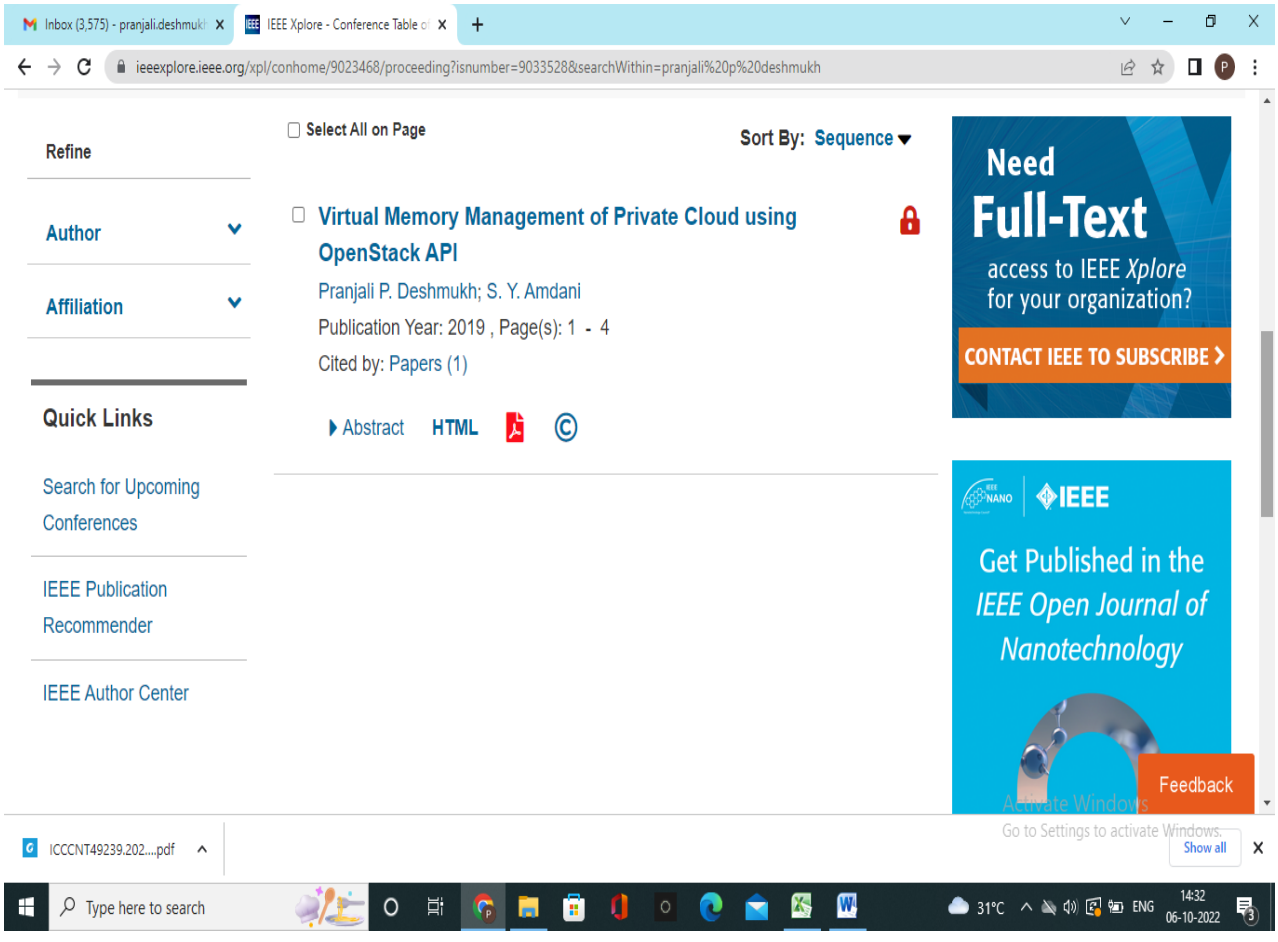
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| Train, Test, Validate: An Artificial Neural Network Approach for Human Moods Recognition | Mr.Sandeep A.Awachar, Dr.P.V.Ingole | |
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# Train, Test, Validate: An Artificial Neural Network Approach for Human Moods Recognition

**Mr.Sandeep A.Awachar, Dr.P.V.Ingole**

***Abstract*- Neural Network proves to best for its important role to learn and model linear as well as non linear complex connections. It specifies the close to precise reproduction of human brain. The inputs to dendrites, then process within the cell that gets regenerate to output at axon changed with some weight issue, and also the output received by next dendrites and then on. To figure with artificial neural network, includes the method of train, check and validate. The target of this review paper is processed concerning the terms train, test and validate in neural network and its significance in human mood recognition work.**

***Keywords*- moods, test, train, validate, neural network**

## I. INTRODUCTION

A neural network (NN) model forms a good tool to figure within the field of recognition of bound seeing, face recognition, character recognition, human moods recognition etc and rest intelligent tasks performed by human brain. Its approach is predicated on variety of learning mechanism applied to get the network output. The educational are often classified as supervised or unsupervised learning. Just in case of supervised learning the required response is thought to the system i.e. the system is trained per the on the market previous data therefore on acquire the required output. On the opposite hand in unsupervised learning, output is created on the premise of previous assumptions or observations and also the output isn't illustrious.

Learning has to embody the method of training the network, validation of it and test it before creating it on the market to the important work for unseen objects to be recognized. Training, testing and validation plays an important role in creating any neural network based mostly application to be effectively add universe. For increasing its effectiveness of NN in universe, it's necessary to get or give adequate coaching knowledge to the neural network system that can be consistently divided for training, testing and validation. The approach in human mood recognition relates it to urge adequate mood image knowledge of a minimum of six basic moods viz. anger, happy, sad, fear, surprise, disgust etc., in order that any unseen mood image can be effectively known as per the individual mood.

## II. RELATED WORKS

It was found that there have been no important variations between moods exhibited by varied human races once it came to determinative feeling from a face expression. During this study every participant went through an active screening with varied moods. This study additionally organized the experiment in order that it might be simple to last the participants to be concerned in [1].

Facial expressions measure the fundamental instinct of kith and kin to precise feelings of spontaneous outburst of 9 emotions illustrated in Indian art forms. Out of those 9 emotions, researchers have succeeded in investigation of six basic expressions solely. This study is an endeavor to extract the scope of some vital developments in automatic face expression recognition and its applications. Face expression Recognition could be a quick developing human machine interface. It are often developed into an important tool to elicit hidden truth, level of understanding of lessons by students, level of capability assessment throughout interviews, severity of sickness and designation etc., provided the methodologies measure refined and tuned up to cope up with the new necessities with most precision[2].

Neural networks, with their exceptional ability to derive which means from difficult or inexact knowledge, are often wont to extract patterns and discover trends that measure too advanced to be detected by either humans or alternative machine techniques. A trained neural network is often thought of as associate degree within the class of knowledge it's been given to investigate. Regarding image process it's terribly attention-grabbing to acknowledge the human gesture used for general life applications. as an example, perceptive the gesture of a driver once he/she is driving and alerting him/her once in sleepy headed mood are going to be quite helpful. Human gestures are often known by perceptive the various movements of eyes, mouth, nose and hands [3].

2018 International Conference On Advances in Communication and Computing Technology (ICACCT)
Amrutvahini College of Engineering, Sangamner, Ahmednagar, India. Feb 8-9, 2018

# Survey of Image De-noising on Square Structure and Hexagonal Structure

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*Abstract*— **Image de-noising is one of the foremost challenges in the field of computer vision image processing. The aim of the image de-noising is to estimate the original image by overwhelming noise from a noisy image. Usually the noise is introduced in the images during image acquisition (digitization) or during image transmission. Commotion evacuation is as yet an astounding issue for analysts. There have been a few distributed calculations and each approach has its suspicions, points of interest, and restrictions. This paper displays an audit of some huge work in the territory of image denoising utilizing square and hexagonal structure. After a concise presentation, some mainstream approaches are arranged into various gatherings and a diagram of different calculations and investigation is given. Bits of knowledge and potential future patterns in the zone of denoising are additionally talked about.**

*Keywords—Hexagonal, Square, De-noising.*

## I. Introduction

Advanced pictures assumes a fundamental part both in day today life applications, for example, satellite TV, attractive reverberation imaging, PC tomography and in addition in regions of research and innovation, for example, land data frameworks and space science. Informational collections gathered by picture sensors are for the most part tainted by commotion. Defective instruments, issues with the information obtaining process, and meddling regular marvels would all be able to debase the information of intrigue. Besides, commotion can be presented by transmission mistakes and pressure. Subsequently, denoising is frequently an essential and the initial step to be taken before the pictures information is examined. It is important to apply an effective denoising procedure to make up for such information defilement.

Image denoising still remains a test for analysts since clamor expulsion presents antiques and causes obscuring of the pictures. This paper portrays diverse philosophies for commotion diminishment with special focus on hexagonal structure grid.

Clamor demonstrating in pictures is significantly influenced by catching instruments, information transmission media, picture quantization and discrete wellsprings of radiation. Distinctive calculations are utilized relying upon the clamor show. The vast majority of the common pictures are accepted to have added substance irregular clamor which is demonstrated as a Gaussian.

A picture frequently gets tampered through impulse noise although existence retrieved above a transmission network. It weakens the vivid nature of picture, however it is useful in the execution of different consequent picture handling operations, like, picture division and object grouping and so forth [1].

During image acquisition and transmission noise produced due to which image quality gets decline. Evacuating of clamor in picture is a fundamental preprocessing operation in numerous optical mechanical applications. In picture handling and machine vision lessening of different sorts of clamor in pictures has been a dynamic zone of research [2]. Medical pictures resembling X-ray, CT, MRI are influenced through noise and its procedure that may be distinguished via utilizing a few strategies. Few other strategies on other hand give the obscuring pictures [3].

In this way, issue of picture de-noising is a critical in the field of picture preparing. The principle objective of picture de-noising is to recoup the first picture from such an uproarious duplicate Discrete wavelet change (DWT) gives a quick, nearby, scanty, and de-corresponds multi-determination examination of signs. It can reproduce top notch pictures. As of late, wavelet shrinkage calculation has generally been utilized as a part of various fields for picture de-noising [4].

Wavelet change (WT) had been propelled from Fourier change (FT). WT can get distinctive scientific outcomes by utilizing the advantages of scaling and moving of mother wavelet and time-recurrence restriction. This has beaten the deficiency of FT and has been utilized generally to process signals, for example, commotion diminishment, edge discovery, pressure, and so on. In the past decades, nonlinear PDE based filters have been widely implemented in image de-noising. However, in general, nonlinear filter needs more computing time than most of the linear filters [5].

Wavelet-based approach has two wide classes:

Attenuation: Wavelet coefficients are constricted representing the flag to-commotion proportion. This approach emerges from the spearheading work of Wiener who contended about the plan of ideal direct channels for Gaussian signals.

Selection Wavelet coefficients are chosen by methods for a widespread limit. This approach is later than the past one, situated to limit the likelihood of holding uproarious coefficients [6].

furthermore, a number of algorithms have been projected and developed to conquer the de-noising problem

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# Neural Signal Compression Using Video Compression Techniques

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***Abstract*- In the biomedical engineering Multichannel neural recording is one of the most important topics. Without degrading the quality the large amount of data is to be easily transfer through wireless transmission. For neural data reduction there are so many techniques that follow different factors. In the field of signal processing Video compression technology is of considerable importance. The paper describes a new approach to the video compression problem. Our method uses the neural network image compression algorithm which is based on the vector quantization (VQ). In this method of image compression two different neural network structures are exploited in the following elements of the proposed system: In order to improve performance of the algorithm a competitive neural networks quantized and a neuronal predictor for the image compression based on this approach it is important to correctly detect scene changes.**

***Keywords* -Multichannel evoked neural signals; biomedicalsignal processing; video signal processing, multiwavelet transform, vector quantization.**

## I. INTRODUCTION:

Recently, in the field of biomedical engineering, neural data recording has gained considerable importance especially by employing neuroprosthetic devices and brain-machine interfaces (BMIs) we know that Neuro is the brain; therefore, _neuro-signal' refers to a signal associated to the brain. A common approachto obtaining neuro-signal Information is an Electro encephalo graph (EEG), which is a method of measuring and recording neuro-signals using electrodes placed on the scalp, so the multichannel neural recording is commonly used and is necessary for bioanalysis. To recording large amounts of data is a challenging task. In this experiment the neural signal is recorded for further processing shown in fig. 1.Before signal processing, we shall modify the neural signal by employing a transform. For this reason the numerical range of neural signals differs from that of video signals. However, the both signals have the similar precision is similar—8 bits [3]. By using multiwavelet transform We transform the neural signal The video compression algorithm can be applied to it.

## II. VIDEO COMPRESSION ALGORITHM:

The design of the compression algorithm described here is based on the existing algorithm described in [9–11] Selected algorithm due to neural network features presents better adjustment to a frame and gives better compression. The extension includes a scene change detection algorithm, which is based on the correlation between frames. The diagram below Fig shows the proposed algorithm Fig. 1. Video compression algorithm 2.1 Neuronal Image Compression Algorithm In the literature several methods for image compression have been proposed. Among them the vector quantization (VQ) technique has emerged as an effective tool in this area of research [12]. A special approach to image compression combines the VQ technique with traditional (scalar) differential pulse code modulation (DPCM) leading to the predictive vector quantization (PVQ). In this paper, we develop a methodology where the vector quantizer will be based on competitive neural network, whereas the predictor will be designed as the nonlinear neural network. We assume that an image is represented by an N1 × N2 array of pixels X = [xn1,n2 ], n1 = 1,2,...,N1, n2 = 1,2,...,N2. The image is portioned into contiguous small blocks Y(k1,k2)=[ym1,m2 (k1,k2)] of the dimension M1 × M2; m1 = 1,2,...,M1, m2 = 1,2, ...,M2:

## III. HOW VIDEO COMPRESSION ALGORITHM WORKS? :

### *A. Multiwavelet Transform*

The spatial redundancy which is present between the image pixels can be reduced by taking transforms which correlates the similarities among the pixels. The selection of the transforms depends upon a number of factors, in particular, computational complexity and coding gain. Coding gain is a measure of how well the transformation compacts the energy into a small number of coefficients. The predicted error frames are frequently encoded using either block-based transforms, such as DCT, or non-blockbased coding, such as Subband



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coding or the wavelet transform. A foremost problem with a block-based transform coding algorithm is the existence of the visually unpleasant block artifacts, especially at low data rates. This crisis is eliminated using wavelet transform, which is usually applied over the entire image. Thus the wavelet transform has been used in video coding for the compression of motion predicted error frames. The wavelet transform is a newly developed mathematical tool that provides a non-uniform division of data or signal, into different frequency components, and then studies each component with a resolution matched to its scale (Huang, 1999).In the analysis of transient signals because of its ability to extract both time and frequency information simultaneously, from such signals. Multiwavelets can be considered as simplification of scalar wavelets. Scalar wavelets have a single scaling function φ(t) and waveletfunctionψ(t) . Multiwavelets have two or more scalingand wavelet functions.

$$\varphi(t) = \sum_k h(k)\,\sqrt{2}\,\varphi(2t-k) \quad (1)$$
$$\psi(t) = \sum_k g(k)\,\sqrt{2}\,\varphi(2t-k) \quad (2)$$

where, {Hk} and {Gk} are 2 x 2 matrix filters distinct as

$$H_k = \begin{bmatrix} h0(2k) & \\ h1(2k) & \end{bmatrix} \quad (3)$$

$$G_k = \begin{bmatrix} g0(2k) & \\ g1(2k) & \end{bmatrix} \quad (4)$$

quantization is built on the competitive learning paradigm, so it is closely related to the selforganizing map model and to sparse coding models used in deep learning algorithms such as auto encoder.

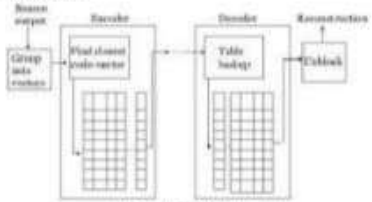
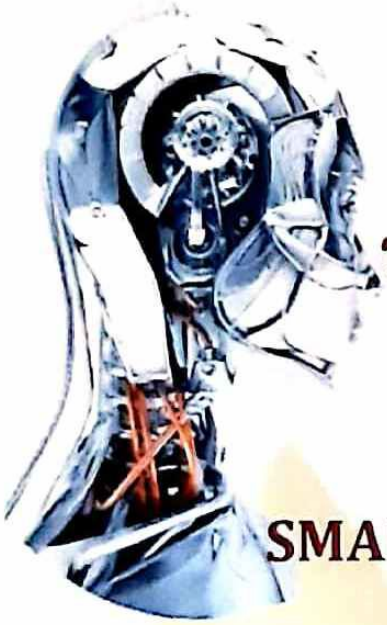


Fig. 1: Basic VQ Procedure

### *C. Motion Estimation and Compensation*

In video compression algorithms, Motion Es
Compensation using motion vector show an imp
providing a high compression rate. The main impa
motion estimation algorithm is to exploit the strong
frame correlation along the temporal dimension. Motion estimation surveys the movement of objects in an image sequence to obtain vectors representing the estimated motion. The mixture of the motion estimation and motion compensation is a key part of the video coding. There are many methods to achieve ME/MC. The flow of Motion Estimation is given in fig

Fig. 2: Flow of Motion Estimation



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# Multimedia System Approach for Development of Web Applications & services for Data Visualization

**Mr.Smeet D.Thakur Mr.Abhishek A.Gulhane Mr. Rupesh M. Hushangabade**

***Abstract* -The basic of computing and communication device such as web services, PDAs, certain other hand held devices known as integrated, battery-operated devices, which is small & enough to carry with us all the time. This device containing variety of multimedia services and communication capabilities and adapt to various operating conditions in an efficient way. The use of real-time multimedia data types like video, speech, animation and music significantly improve the usability, quality, productivity, and enjoyment of multimedia systems. Multimedia applications require the carrying of multiple synchronised media streams. Some of these streams (typically video streams) have high bandwidth and stringent real-time requirements.**

**The objective of this paper is to investigate important issues in web multimedia system approach for development of web computing with the help of data visualization.**

***Keywords*- Web Multimedia System, Data Visualization, Web Computing.**

## I. INTRODUCTION

The communication channels contribute a significant amount of the total energy consumption of a typical web system. The objective behind the design of such type of device may be the utility & convenience. The amount of data available nowadays to scientists, engineers and business managers is vast.

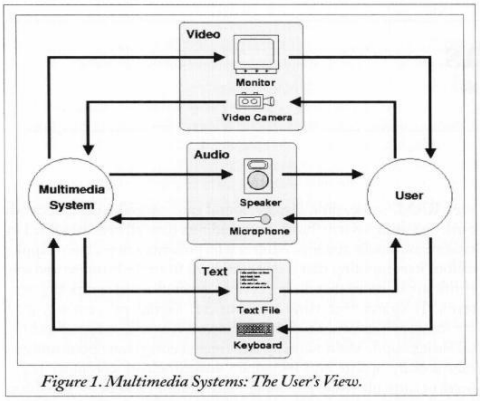


*Figure 1. Multimedia Systems: The User's View.*

Almost all of this data is available electronically, stored in databases and commonly connected via computer networks, intranets or the Internet**.** Web Multimedia applications also include a major amount of user interaction. Web multimedia system is a computer based communication system that delivers heterogeneous and compressed/encrypted content such as text, audio, video, and graphics from storage devices and transfers it over a heterogeneous channel such as internet, wireless network and local area network to end user while maintaining perceptual integrity. This is shown in figure 1.

Multimedia applications & services, that control the growth in web computing, which depends on the availability of a flexible broadband wireless infrastructure. The design of multimedia applications depends on web environment, which having number of special characteristics [1]. Such as

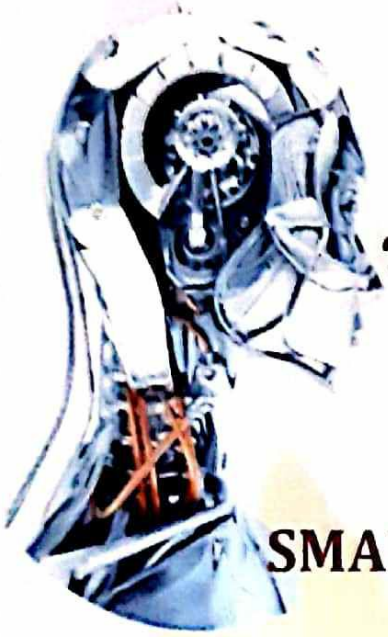
a) *High memory bandwidth* – Many multimedia applications involve huge memory bandwidth for large data sets that have restricted locality.
b) *High network bandwidth* – Streaming data – like video and images from external sources – requires high network and I/O bandwidth.

The wireless network evolution has allowed that the handset technology provides a broad and new set of applications to their users. Several of these applications require DBMS solutions that support their operations.

A Web Multimedia Database Management System is a set of programs that helps Multimedia to store, modify, and extract information or data from a database. The search for knowledge in data is not a new idea, but was of interest even when data was stored in non-electronic form. Examples for pattern finding tools in electronic data sets that have been developed in the past are query functions of data base management systems [4]. It can be describe as below:

*A. Object-oriented Database*

In object-oriented database, having static structure, dynamic behaviour and constraints of the object into a class, each class defines the Corresponding properties, methods and constraints, the nature of the package in the class. Method, that a single operation, the objects



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# IoT Based Smart & Secure Personal Luggage System

**Prof S. V. Kalbande, Prof R. M. Hushangabade, Prof S. D. Thakur**

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Prof S. D. Thakur, Assistant Professor, Department of Information Technology, Prof Ram Meghe Institute of Technology & Research, Badnera
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***Abstract*- The main Idea of the project is to develop a briefcase that is user friendly. The project is more of a briefcase less of a robot. There are a lot of applications to the briefcase but all of them are not controlled from the normal briefcase instead the commands are sent from the mobile phone to the briefcase via Machine to machine communication. The mobile phone has a pre-installed application software with pre-installed set of instructions. They wait for the user to send the commands. After the microcontroller embedded inside the briefcase receives instruction form the user it acts accordingly. This can either be for tracking its location or send it to user. A GPS module is used to track the location of the briefcase and also follow the user but can be activated upon user's commands only. The smart briefcase can be the new trend for people as they can be used to deal with some long-distance travel problem like luggage theft. The smart briefcase will follow the user wherever he goes, via Bluetooth or through the GPS. The proposed system will also detect for the object to which the briefcase can collide, the system will detect the collision and accordingly decide the path. The briefcase will also provide the anti-theft protection to the user. If the bag went away from the user to specified distance, then it will buzz the alarm so that the theft prevention can be achieved. The special feature of these systems is, the briefcase will come to the user when he/she will fire a command through the application. This will be achieved if and only if the briefcase is present within the specified range. With a GPS device, owners can quickly get the location of a stolen case and recover it immediately. The smart briefcase will ensure its safety and builds security for its user. From built-in scales to GPS tracking and mobile apps, these bags won't make hauling stuff any lighter, but they could make the experience less harrowing.**

***Keywords*- Smart briefcase module, GPS module, Ultrasonic sensors, Raspberry Pi, Motor, Motor Driver, GSM module, Battery, Security module.**

## I. INTRODUCTION

Where ever the people travel they used to carry the luggage especially through the airports, railway platforms, etc. all of them are dragging out their heavy luggage. Perhaps trailing of the bag is very difficult task specially for the old people. The people suffer a lot due to heavy luggage while travelling. The system is that, if the bag follows a human by utilizing human following concept, then entire problem gets vanished.

There are a lot of applications to the briefcase but all of them are not controlled from the normal briefcase instead the commands are sent from the mobile phone to the briefcase via Machine to machine communication. The mobile phone has a pre-installed application software with pre-installed set of instructions. They wait for the user to send the commands. After the microcontroller embedded inside the briefcase receives instruction form the user it acts accordingly. This can either be for tracking its location and send it to user. A GPS module is used to track the location of the briefcase and also follow the user but can be activated upon user's commands only.

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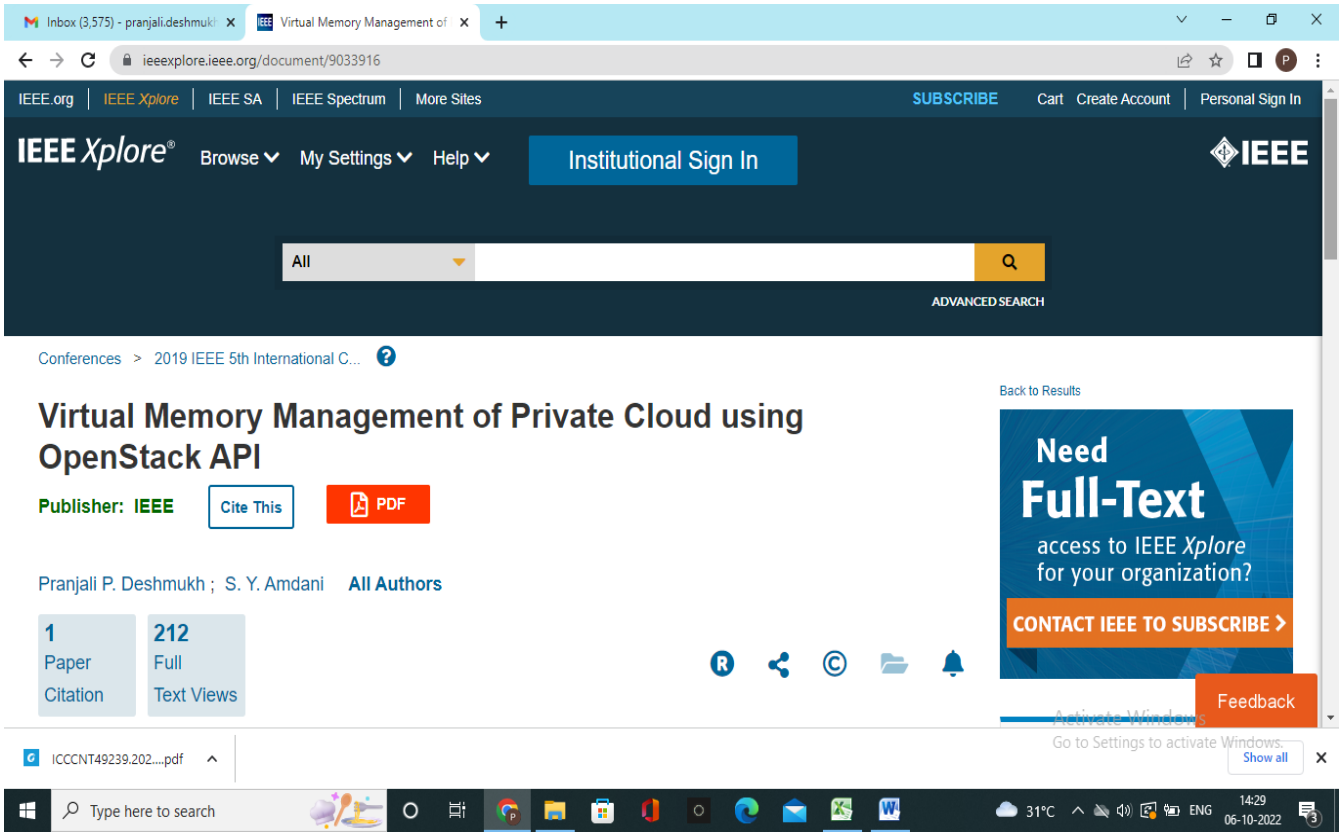
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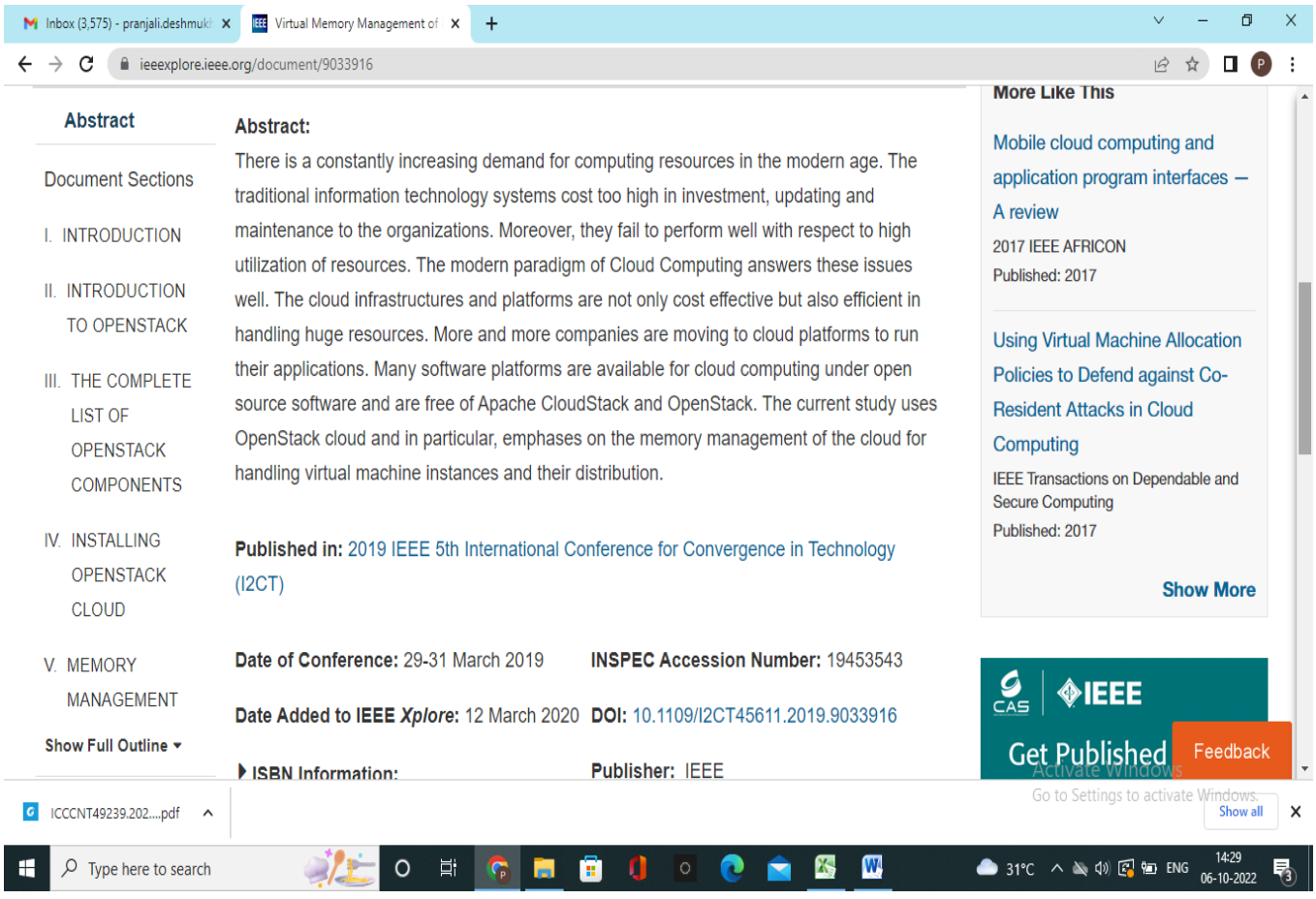
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Abstract:
There is a constantly increasing demand for computing resources in the modern age. The traditional information technology systems cost too high in investment, updating and maintenance to the organizations. Moreover, they fail to perform well with respect to high utilization of resources. The modern paradigm of Cloud Computing answers these issues well. The cloud infrastructures and platforms are not only cost effective but also efficient in handling huge resources. More and more companies are moving to cloud platforms to run their applications. Many software platforms are available for cloud computing under open source software and are free of Apache CloudStack and OpenStack. The current study uses OpenStack cloud and in particular, emphases on the memory management of the cloud for handling virtual machine instances and their distribution.
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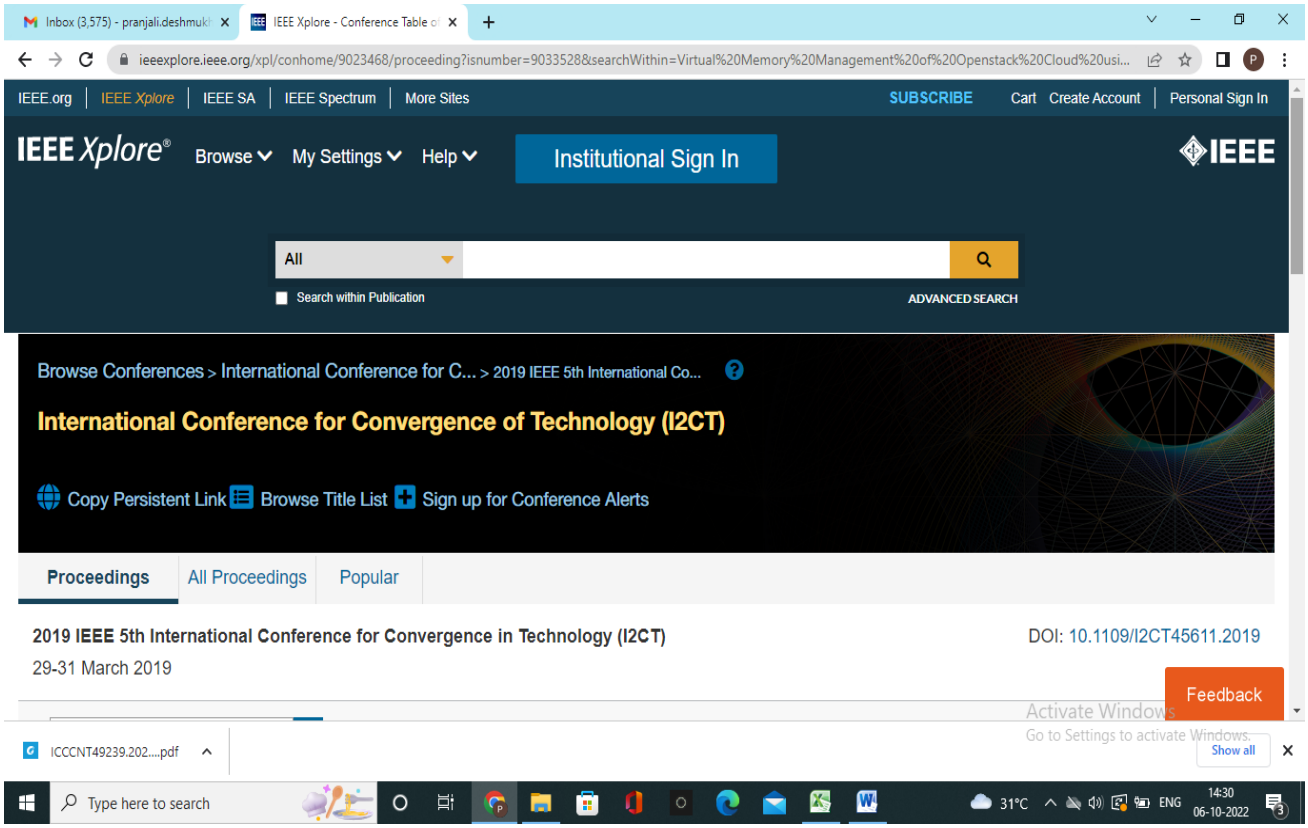
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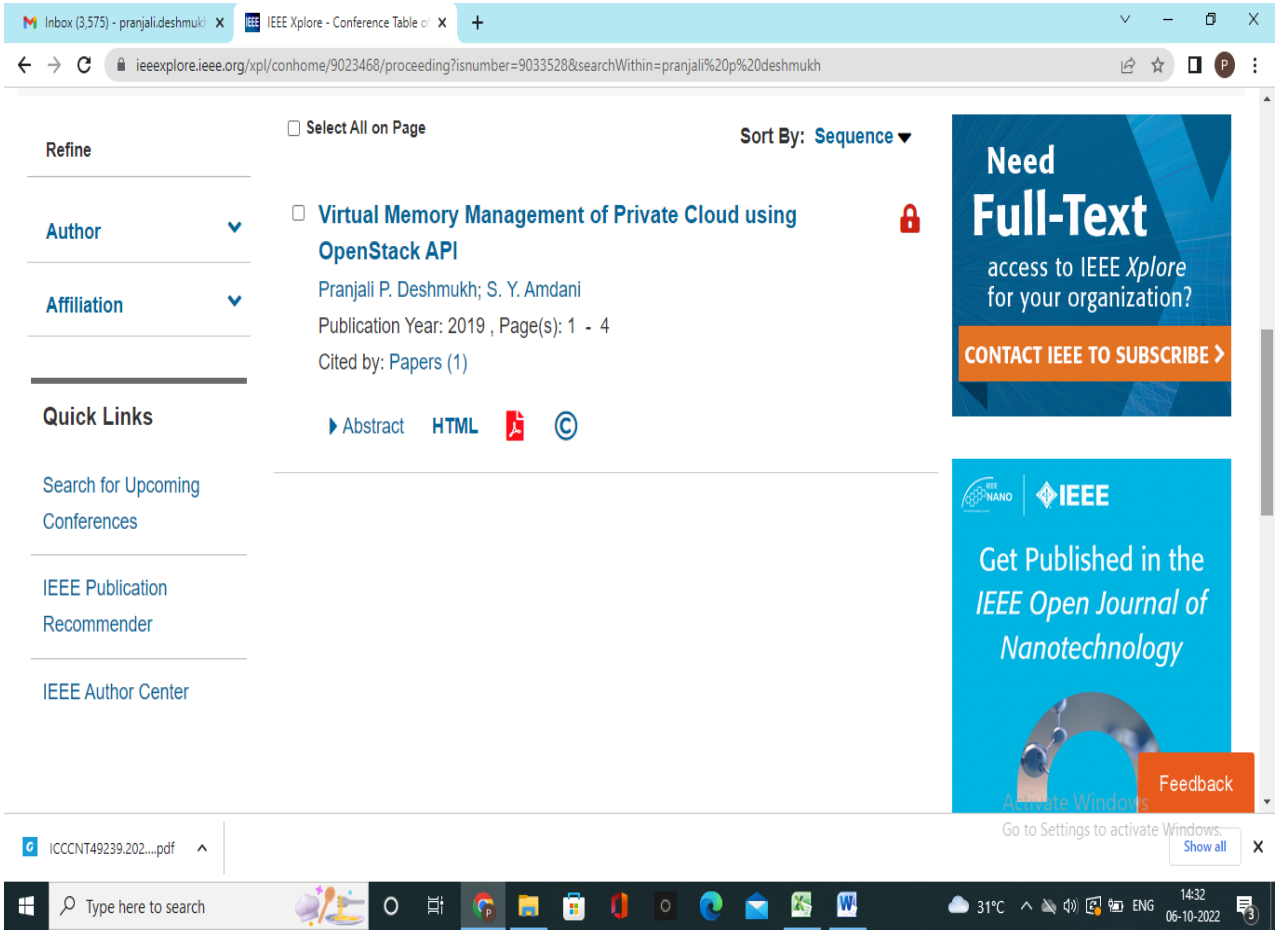
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# Data Security Model in Cloud Computing for Privacy and Risk Management

Mr. H. D. Kale [1], Dr. V. M. Thakare [2]
*Department of Computer Science and Engineering, SGBAU,Amravati,Maharashtra,India*

***Abstract:*** *Cloud storage technology has been paid additional and additional attention as an rising network storage technology that is extended and developed by cloud computing concepts. Cloud computing setting depends on user services like high-speed storage and retrieval provided by cloud ADP system. Meanwhile, knowledge security is a crucial drawback to resolve desperately for cloud storage technology. knowledge security is taken into account because the constant issue leading towards a hitch within the adoption of cloud computing. knowledge privacy, Integrity and trust problems area unit few severe security considerations resulting in wide adoption of cloud computing. the appearance of the projected model has comfortable functionalities and capabilities that ensures the info security and integrity. the aim of this paper is to attain knowledge security of cloud storage and to formulate corresponding cloud storage security policy. Those were combined with the results of existing educational analysis by analyzing the safety risks of user knowledge in cloud storage and approach a theme of the relevant security technology, that supported the structural characteristics of cloud storage system.*

***Keywords:*** *Cloud Computing, Cloud storage technology, Data security, Security Assessment Model.*

## I. Introduction

Cloud computing has been unreal because the next generation info technology (IT) design for enterprises, because of its long list of unprecedented benefits within the IT history: on-demand self-service, present network access, location freelance resource pooling, speedy resource physical property, usage-based rating and transference of risk [1]. A cloud computing realizes the vision of computing as a utility, suppliers area unit developing a shared pool of configurable computing resources, that customers will dynamically provision and unleash in keeping with their dynamical wants.1 Thus, each teams benefit: suppliers will recycle computing resources, and users scale back prices through on demand resource provisioning [2]. Cloud computing provides completely different layers of computing utilities, from storage and networking to tools and applications, through 3 main service models: code as a service (SaaS), platform as a service (PaaS), and infrastructure as a service (IaaS). The models trust existing technologies for support—in specific, virtualization provides on-demand resource provisioning and multitenancy. Access management is one amongst the foremost vital measures to confirm the protection of cloud computing. Early access management technology can't solely guarantee traditional access necessities of valid users, stop invasions of unauthorized users, however it may also solve security issues caused by valid users' misoperation. Cloud computing surroundings may be a typical distributed environment; thus the distribution, dynamism, and namelessness of knowledge resources and services area exceptional options of cloud computing surroundings [3].

Cloud computing surroundings could be a typical distributed environment; thence the distribution, dynamism, and obscurity of knowledge resources and services are exceptional options of cloud computing setting . Therefore, the standard centralized access management model has apparently cannot satisfy the safety needs of cloud computing. The implementation of access management in cloud computing setting can face a series of challenges [4]. because the development and progress of engineering, the net has been changing into associate integral a part of one's life. The user-demands of net use haven't solely restricted to browse the portal however additionally to the event of web application services leading to explosive growth of net knowledge [5]. Facing huge knowledge, the ISPs desires a lot of process units and storage devices to confirm the regular operation of the corresponding system functions. However, it's still associate pressing issue to unravel for ISPs that the high price of memory devices, personnel management, and instrumentality maintenance.

## II. Background

At present, as Associate in Nursing rising network storage technology extended and developed by cloud computing ideas, cloud storage technology is important with the widespread popularization of Cloud Computing. Cloud storage technology uses cluster applications, network technology or distributed file systems, etc. Cloud storage technology makes full use of the present completely different storage devices within the system to produce users with information storage, information retrieval, information backup and different

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# LRS Bianchi Type II Cosmological Model With Binary Mixture of Perfect Fluid and Dark Energy in Lyra Manifold

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**Abstract:**

*In this paper, we have studied the solutions of locally rotationally symmetric (LRS) Bianchi type II cosmological models filled with perfect fluid and dark energy (DE) components in Lyra manifold. The exact solution of Einstein's field equations are obtain by assuming the expansion scalar ($\theta$) in the model is proportional to the shear scalar ($\sigma$). It has been found that the displacement vector $\beta$ behaves like cosmological term $\Lambda$ in the normal guage treatment and the solutions are consistent with recent observations.*

**Keywords:** Dark energy, LRS Bianchi type II models, Lyra's manifold.

## Introduction:

The accelerating expansion of the universe is driven by mysterious energy with negative pressure known as Dark Energy (DE). This was observed by SNe Ia (Perlmutter 1999), WMAP (Bennett 2003), SDSS (Tegmark 2004a, 2004b) and X-ray (Allen 2007). This acceleration is triggered by more than 70% of dark energy. There are many proposals to explain the dark energy (DE). The nature of dark energy as well as dark matter is unknown and many radically different models have been proposed, such as, a tiny positive cosmological constant, quintessence (Caldwell et al. 1998; Steinhardt et al.1999), DGP branes (Dvali et al. 2000; Deffayet 2001), the non-linear E(R) models (Capozziello et al. 2003; Carroll et al. 1992; Nojiri and Odintsov 2003). Since the observation of small anisotropies in the microwave background radiation (CMB) (Dunkley 2009) and the large scale structures (Tegmark 2004a) it becomes clear that a pure Friedmann-Lemaitire-Robertson-Walker (FLRW) cosmology could not explain all the properties of universe. It is therefore natural to consider anisotropic cosmological models that allow FLRW universes as special cases.

Einstein proposed his general theory of relativity, in which gravitation is described in terms of geometry; it motivated the geometrization of other physical fields. One of the first attempts in this direction was made by Weyl (1918) who proposed a more general theory in which gravitation and electromagnetism is also described geometrically. Later Lyra (1951) suggested a modification of Riemannian geometry by introducing a gauge function which removes the non-integrability condition of the length of a vector under parallel transport. Halford (1972) pointed out that the constant displacement vector field $\phi$ in Lyra's geometry plays the role of a cosmological constant in the normal general relativistic treatment. Halford (1974) showed that the scalar-tensor treatment based on Lyra's geometry predicts the same effects,

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# University of Mumbai

## DEPARTMENT OF COMMERCE

## *Paper Presentation Certificate*

This is to certify that

~~Dr.~~ / ~~Mr.~~ / ~~Mrs.~~ / Ms. Madhuri Sadar, Assistant Professor;
of Department of Management Studies,

has attended and participated in the 16th International Commerce and Management Conference On "Global Economy, Insolvency and Bankruptcy Code" organised by the University Department of Commerce, University of Mumbai on Thursday, 04th and Friday, 05th October, 2018 at "Kavivarya Kusumagraj", Marathi Bhasha And Sahitya Bhavan", University of Mumbai, Vidyanagari Campus, Kalina, Santacruz (East), Mumbai - 400098.

~~He~~ / She has presented paper titled Globalization Of Financial Sector & Its Impact on Finarcial Services in India.

Dept. of Commerce ★ Vidyanagari Mumbai - 98 ★ University of Mumbai

**October 05, 2018**
**Mumbai**

**Professor Vivek Deolankar**
**Director of the Conference**
Head, University Department of Commerce,
Ex-Dean, Faculty of Commerce,
University of Mumbai.