Role of Machine Learning in Software Project Management

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ABSTRACT: Monitoring and control project work is both critical and challenging. The greatest asset of any organization is its human resource that ensures the success to achieve the goals and objectives of the company. Managers have to manage and organize the team to enhance productivity. The effective human resource enables their employees to contribute effectively and achieve desired growth of an organization. The assignment of role to a process depends on the skills and competence of an individual. If these details of an individual are known to the manager, then it will an added point to him while assigning a new task. It is observed from the previous study that managers spend a lot of time in allocation which is performed according to the experts experience rather than following some specific criteria which lead to inefficient utilization of the resource available, so if a model is developed and trained using machine learning algorithms to handle this routine task so that the manager can spend time in other developmental activities rather than spending time on routine tasks.
Keywords: Resource allocation, Productivity, Machine Learning.

I.INTRODUCTION

According to the Project Management Body of Knowledge (PMBOK), three factors include time, cost, and scope that are used to analyze the quality of work in a project [5][6][7]. However, only these three factors are not always sufficient in a real environment to decide the success of a project as other factors contribute to successful projects like team member's collaboration, their satisfaction with their position in projects [8]. The failure of projects is always due to improper human resource allocation. The main objective of human resource allocation is to decide what work needs to be carried by whom. For organizing and completing a project it is needed to schedule the project carefully. Effective project scheduling provides success. To keep the project on track it is necessary to allocate resources appropriately and manage the quality to reduce errors. This will typically increase the project's productivity and decreases the cost. Ultimately, a machine learning system will save time by efficiently using historical project data for allocation. It provides a service that increases the overall productivity by predicting the right task to the right team member. Early project management software's focused on managing a team by supporting the team in a specific area rather than dealing with complexities involved in managing the project. To provide even more value to a project, project management with machine learning needs to evolve.

Despite the work done on task allocation. Little research has been done to understand the factors that influence human resource allocation, this can be seen in the section 3 of the paper. The main aim of this paper is to identify the factors to be considered while allocating the task which ensures that important points are not missed when considering the human resource allocation in a team.

Smart Intelligent Computing and Applications, Volume 2 pp 43–51

Analysis of Eye Gaze Response to Predict Cognitive and Behaviour Abilities of an Individual to Determine Developmental Disorders

R. Pallavi Reddy, N. Kalyani, R. Sai Usha & G. L. Sai Sree

Conference paper | First Online: 22 May 2022

Part of the Smart Innovation, Systems and Technologies book series (SIST,volume 283)

Abstract

Attention is a behavioural and cognitive activity of selectively concentrating on a distinct element of information, whether subjective or objective, while ignoring other perceptible information. Attention measurement is critical since it underpins a variety of tasks critical to a child's development. This study presents an eye tracker, which is a sensor technology that allows a computer or other device

Smart Intelligent Computing and Applications, Volume 1 pp 177–185

Prediction and Analysis of Vitamin D Deficiency Using Machine Learning Algorithms

Mohammad Ulfath & R. Pallavi Reddy

Conference paper | First Online: 19 April 2022

Part of the Smart Innovation, Systems and Technologies book series (SIST,volume 282)

Abstract

Vitamin D is an important nutrient that has a wide range of effects on the human body. It is more common in those who do not get enough sunlight and do not get enough vitamin D in their diet. Vitamin D deficiency has been linked to a number of auto-immune diseases, including cardiovascular disease, diabetes, and breast cancer. In the current method, only statistical models were employed to estimate the severity of insufficiency in vitamin D

ARTICLE

Detection of Text from Video with Customized Trained Anatomy

Authors: Manasa Devi Mortha, Seetha Maddala, Vishwanadha Raju

Authors Info & Claims

DATA'21: International Conference on Data Science, E-learning and Information Systems 2021 • April 2021 • Pages 12–17 • https://doi.org/10.1145/3460620.3460623

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RESEARCH-ARTICLE

Data Preprocessing for Learning, Analyzing and Detecting Scene Text Video based on Rotational Gradient

Authors: Manasa Devi Devi Mortha, Seetha Maddala, Vishwanadha Raju

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DATA'21: International Conference on Data Science, E-learning and Information Systems 2021 • April 2021 • Pages 1–8 • https://doi.org/10.1145/3460620.3460621

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Comparative Analysis of LSTM based Deep Learning Models for Abnormal Action Prediction in Surveillance Videos

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Abstract:

Video surveillance is being increasingly adopted for ensuring safety and security both in public and private places. Automated prediction of abnormal events like theft, robbery, murder etc from continuous observation of surveillance videos is a multidisciplinary study involving computer vision, deep learning and artificial intelligence. Deep learning based video analysis and categorization is a most researched topic. Many deep learning models based on LSTM (Long Short Term Memory) are proposed for automated prediction of abnormal events. This work does a comparative analysis of four LSTM based deep learning models for abnormal event prediction from surveillance videos. Deep learning models of Resnet, VGG16, VGG19 and 3DCNN are combined with LSTM for prediction of abnormal event from past observation of events in the video stream. These four models are run against different benchmarked abnormal event detection datasets and performance is compared in terms of accuracy, loss and execution time.

Keywords:

Surveillance Videos, Abnormal Action Prediction, Deep Learning Models, LSTM

1. INTRODUCTION

Video surveillance systems are being increasingly deployed in many places like roads, stations, airport, malls etc for public safety. Detecting abnormal events from video surveillance systems is very important for security applications. Detecting abnormal activities can provide better security to the individuals. People and their interactions must be constantly monitored for longer duration and any abnormal activity must be predicted. It is difficult for trained personnel to reliably monitor videos for longer duration and predict abnormal events. With the need to automate this activity with high accuracy, many autonomous abnormal activity detection systems are proposed. The goal of any autonomous anomaly recognition system is to detect/predict any offensive or disruptive activities in the surveillance video in real time. The conventional systems extract various features of appearance, dynamic relationship and interactions between the entities in the video and classify them to detect any abnormal activity. The accuracy is limited in this approach due to insufficiency of hand crafted features to detect the abnormal activity. As abnormality is context dependent, identification of features which represent the activity in the relevant context is challenging. Recently deep learning algorithms are being used for many computer vision problems. Deep learning algorithms learn features automatically and provide better accuracy. Deep learning use discriminative feature representations of both appearance and motion patterns to model the event patterns. In this work, a comparative analysis of four deep learning LSTM based models for abnormal event prediction is presented. With capability of learning long term dependencies and ability to extrapolate temporarily sequential data, long short term memory (LSTM) are best suited for abnormal event prediction. LSTM combined with deep learning event classification can provide a better accuracy of abnormal event prediction. This work explores four different deep learning models of Resnet[1], VGG16[2],VGG19[2] and (3DCNN)3D deep convolutional neural network [3] in combination with LSTM for abnormal event prediction. The performance of these four models is compared against benchmarking datasets in terms of accuracy, loss and execution time.

2. DEEP LEARNING BASED LSTM MODELS

The four deep learning based LSTM models used for abnormal activity prediction is detailed in this section. LSTM is combined with Resnet, VGG16, VGG19 and 3DCNN.

LSTM is an adapted version of recurrent neural networks to solve the problem of vanishing gradient. LSTM has a memory unit. This memory unit encodes the knowledge learnt. It learns when to forget and update hidden states when new information is provided as input. Memory unit functionality is controlled by three gates: input gate(i),

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ICT with Intelligent Applications pp 251–264

Tool for Assessing Intellectual Quotient Among Children

B. Vinitha, K. Rishita, K. Pranavi, R. Pallavi Reddy & N. Kalyani

Conference paper | First Online: 06 December 2021

Part of the Smart Innovation, Systems and Technologies book series (SIST,volume 248)

Abstract

Cognitive assessment (or intelligence testing) is used to evaluate the general thinking and reasoning abilities of a person, often referred to as intellectual functioning or IQ. Higher IQ scores represent higher cognitive performance and lower scores reflect poor cognitive performance. Nevertheless, individual domain scores that provide a more accurate representation of an individual's cognitive ability than the overall IQ score because

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International Conference on Smart Data Intelligence
(ICSMDI 2021)

A Study on Algorithms Towards Data Security Issues in Cloud Computing Environment

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ABSTRACT

This paper involves identification of issues in existing data security algorithms so that a hybrid algorithm can be developed, which will be useful in quantum computing. It has been seen that, data security breaches are increasing, making cloud computing a vulnerable system for online data storage and processing. This paper involves discussion on researches conducted on the aspects of cloud and quantum computing and issues in existing data security techniques. Moreover, it has also been seen that the best cloud-based security framework AES is not going to work effectively with upcoming quantum computing scenario. Hence, it is necessary to keep on reiterating on ideas for enhancing data security features using hybrid algorithm.

Keywords: - Data security, Hybrid algorithm, Cloud computing, Advanced Encryption Standard, Quantum computing, Breaches

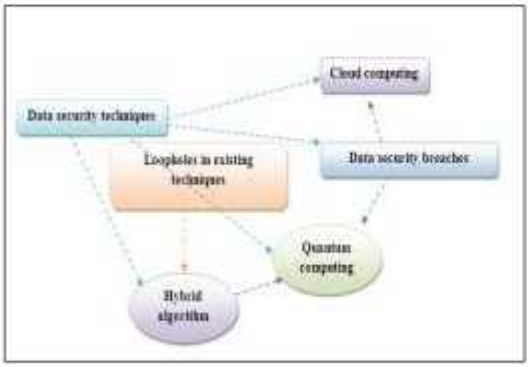
1. Literature Review

A. Introduction

This section has primarily focused upon discussing the significant factors related to hybrid algorithm development. This section covers previous research work corresponding to the topic, which further allows in gaining knowledge on the specific research topic. It also aims to determine various concepts related to the topic, along with illustrating the theories of data security. While sticking to the primary research topic, it determines importance and issues related to multiple aspects of a research.

B. Conceptual framework

Fig.1.Conceptual framework



SMART CITY DATA GENERATION FOR IOT APPLICATIONS USING ESSENTIAL HADOOP FRAMEWORKS

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Abstract:
Utilization of structured data is an essential element for development of urban areas. The extraction of combined data from Internet of Things and Big data in smart cities is a challenging task. This task can be carried out using essential Hadoop tools. In this work distributed frame work tools are adopted for evaluation of real time data in smart cities. In this paper performance of four frameworks like Apache Flume, Apache Storm, Apache Spark Streaming, and Apache Flink are evaluated. The outcome of these streaming process performances depends on how much amount of data has been collected and its characteristics. The results obtained from experiments indicated that Apache Flume, Apache Storm and Flink have very similar performance, and Spark Streaming, has much higher latency, while it provides higher throughput rate.
Keywords: Flume, Spark, Flink, Storm, Hadoop

1. Introduction

Data from various companies, hospitals, institutes and forests sectors are stored in data nodes of data ware houses, in order to improve the performance of data accessing and its evaluation [1]. The integration of Internet of Things and Big data Analytics gives powerful strength for customers to solve their needs and requirements in various aspects. The data outcome may lead from IoT and its dynamic processing and analysis is carried by Big Data Analytics [2]. The millions of data transactions have been carried out daily due to fast increasing of IoT usages in various smart cities. Velocity factor is adopted by author for analysis of big data [3]. Smart city applications are flooded over today and giving lot of information's for real time data. The IoT technologies are widely used with big data and IoT equipment's are placed in various fields of cities. In education system, traffic control system, and home automations system smart city based services are used [4]. Integration of embedded devices with Meta data depends on data accessing performance of Hadoop frameworks. Today, the requirement of big data analysis is showing a tremendous job in connection with Internet of Things (IoT). The valid requirements can be boosted by various types of resources along with big data and IoT. In this digital world to process the real time data

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PAPER TITLE

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AUTHORS

C. Padmaja, B. L. Malleswari

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Performance Analysis of OFDM-IM Using DLD(Conference Paper)

Anusha, C., Anuradha, S.

National Institute of Technology Warangal, Telangana, Warangal, India

Abstract

The proposed work presents an advanced signal detection methods which is a wide challenge to model it for OFDM-IM. However, the complexity at the receiver side is widely increased due to introduction of Index Modulation (IM), and for IM, it also needs to know the Channel State Information (CSI), which increases the complexity and it also results to system overhead. The deep learning-based detector (DLD) improves the system performance and avoids the system overhead, comparing to the tradition detectors like Maximum Likelihood (ML), Greedy Detector (GD), Log Likelihood Ratio (LLR), etc. The proposed deep learning-based detector (DLD) uses deep neural network (DNN) with fully automated connecting layers is used for detecting the data bits at the receiver of OFDM-IM system. Firstly, the deep learning detector (DLD) is trained offline by collecting the data sets of the simulated results for improving the BER performance and accordingly the model gets trained to use it for online detection of OFDM-IM signal at the receiver. The results proves that the deep learning-based detector provides an adequate BER performance with a minimum runtime than the traditional detecting methods. © 2023, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

Author keywords

Channel state estimation | Deep learning | Deep neural network | OFDM-IM | Performance of BER

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LoRa Based Smart City (Long Range)

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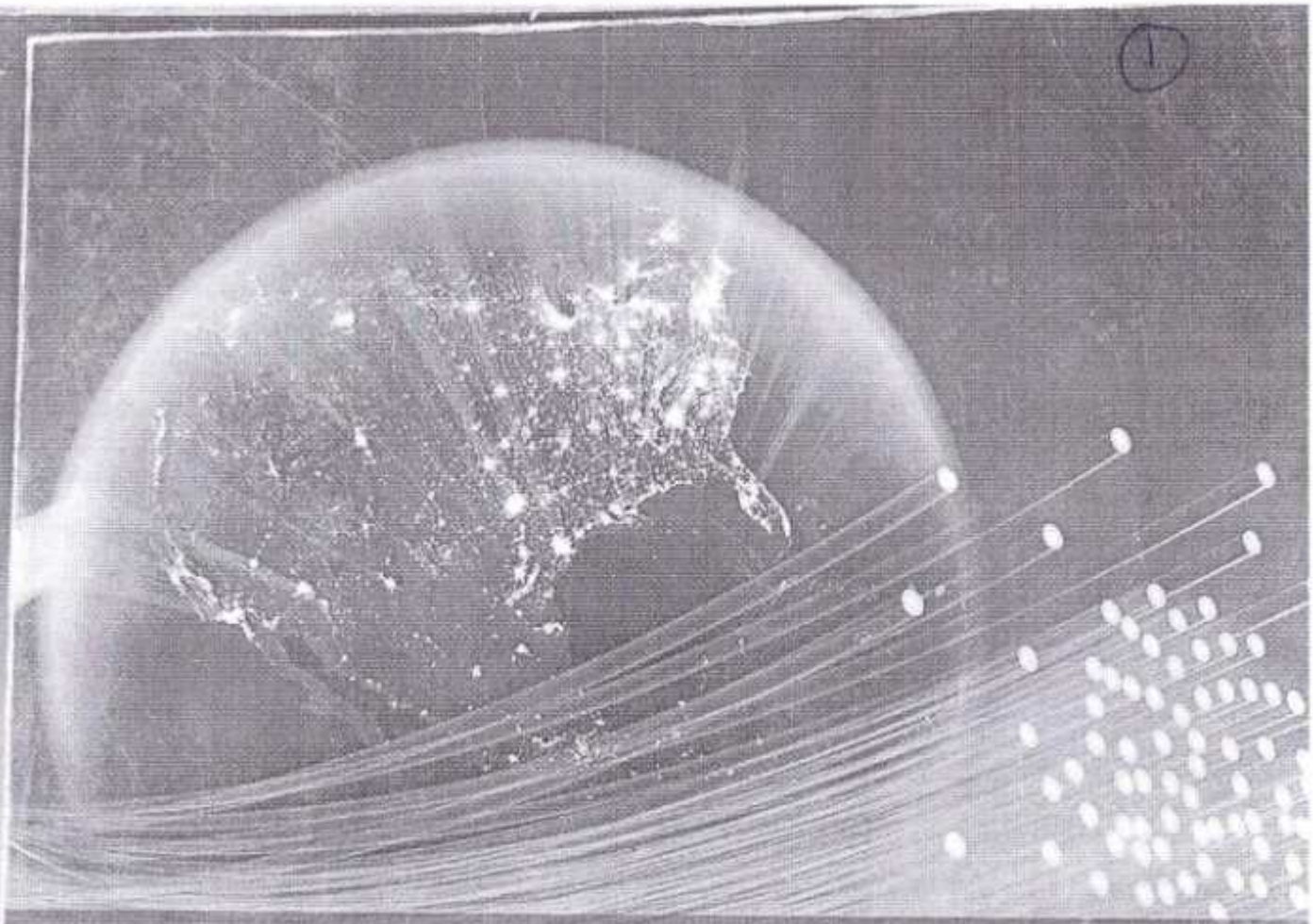
The mission is to trace the placement of the women, children for the purpose of their safety in vicinity with a help of a GPS Module integrated on the carrying device. A Panic button is deployed on the same device, whenever an individual is in urgency the panic button has to be enabled. The transmitter passes info to gateway(pycom) via Lora communication, from pycom information is directed to IBM cloud using Wi-Fi, so the organization can observe the intensely contaminated areas, temperature, humidness working status of street light, geofence, filled status of dust bin and takes proper action. A web-application is developed using Nodered, one of the services provided by the IBM cloud through which admin can monitor the above parameters in pictorial form. The coding used for the transmitter is C which is done in Arduino IDE and for the receiver it is micro-python using Atom software.

Introduction

LoRa is communication network intended to permit long range communications between connected objects like sensors operated with power supply. The distance supported by the LoRa technology is 10 to 15 Kms. It is an exclusive spread spectrum modulation system that is an imitative of Chirp Spread Spectrum modulation (CSS), dealing rate for sensitivity inside a set bandwidth of a channel (3). This expertise also conveys within the sub 1GHz ISM bands. It is assessed that there would be over 55 billion gadgets virtual by the year 2025 (1). On an analogous note, a minimum of 28 billion electronic appliances are interactive on a machine to machine (M2M) intensities are anticipated to be a share of the Internet of things (IoT). In today's world wireless sensor networks are playing a serious role within the processing of big quantities of information. To accomplish the vision of a wise city many WSN are deployed in various domains with a spread of applications so, an outsized quantity of knowledge is being produced on a daily basis (2). The innovative processes and procedures are in need of successful data administration and analysis to provide information which is helpful for managing the employment of resources wisely and dynamically. To attach objects, long range and low power communication technology is needed therefore, LoRaWAN technology has been developed (4).



ADVANCED OPTICAL COMMUNICATION SYSTEMS AND NETWORKS

Dr. A. POONGUZHALI
Dr. M. VIJAYALAKSHMI
Mr. SATHYENDRA BHAT J
Dr. S. M. RAMESH

SPH

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Beamformed Energy Detection in the Presence of an Interferer for Cognitive mmWave Network

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***Abstract*—In this paper, we propose beamformed energy detection (BFED) spectrum sensing schemes for a single secondary user (SU) or a cognitive radio to detect a primary user (PU) transmission in the presence of an interferer. In the millimeter wave (mmWave) band, due to high attenuation, there are fewer multipaths, and the channel is sparse, giving rise to fewer directions of arrivals (DoAs). Sensing in only these paths instead of blind energy detection can reap significant benefits. An analog beamforming weight vector is designed such that the beamforming gain in the true DoAs of the PU signal is maximized while minimizing interference from the interferer. To demonstrate the bound on the system performance, the proposed sensing scheme is designed under the knowledge of full channel state information (CSI) at the SU for the PU-SU and Interferer-SU channels. However, as the CSI may not be available at the SU, another BFED sensing scheme is proposed, which only utilizes the estimate the DoAs. To model the estimates of DoAs, perturbations are added to the true DoAs. The distribution of the test statistic for BFED with full CSI schemes is derived under the null hypothesis so that the threshold of the Neyman-Pearson detector can be found analytically. The performance of both schemes is also compared with the traditional energy detector for multi-antenna systems.**

***Index Terms*—Beamforming, direction of arrival (DoA), energy detection, mmWave, spectrum sensing.**

I. Introduction

With an exponential increase in the number of wireless devices, services, and data usage, the availability of high-quality spectrum has become a bottleneck for the next-generation wireless system. To address these requirements, millimeter wave (mmWave) bands from 30 GHz to 300 GHz with huge bandwidths have been proposed to be a key enabler for 5G [1], [2]. It is most likely that a mmWave network including that of 5G is going to be a heterogeneous network [3], [4]. Also, spectrum sharing is proposed in [3] for different operators in the 5G network on the same frequency. There may also be existing incumbents in mmWave bands such as satellite communications, research, military, and unlicensed operations [3], [4]. Interference coming from heterogeneous mmWave networks sharing the same band can have a negative impact on the achieved throughput and reliability due to the interference even with narrow beams [3]–[5]. Cognitive radio (CR) is a potential technology that can address the problem of interference among the coexisting heterogeneous mmWave wireless systems and improve their performance [4], [6].

Spectrum sensing is an important CR technology that provides spectrum awareness and managing interference among heterogeneous mmWave networks in 5G. Several types of spectrum sensing techniques have been proposed in cognitive radio paradigm: energy, feature, and matched filter-based [7]. However, energy detection (ED) has been widely adopted under fading channel due to its simplicity since the primary user (PU) information is not required. Traditionally, most of the work on spectrum sensing, including ED, has assumed using one or more omni-directional antennas [7]. However, beamforming based sensing can improve the detection performance over omni-directional sensing [8]. The use of beamforming for data transmission is imperative at mmWave frequencies, where the signal undergoes severe propagation loss and travel in a highly directional manner leading to fewer multipaths [1]. Given that a massive number of antennas can be packed in a small form factor at mmWave frequencies, beamforming can be extremely fruitful for spectrum sensing as well.

The existing literature has limited works that are focused on receiver beamforming for sensing [8]–[10]. An eigenvalue-based spectrum sensing algorithm is proposed in [9] using a beamformed received signal. In [10], the angular domain is divided into sectors, and these sectors are then sensed serially using beamforming. Most of the spectrum sensing schemes in the literature, including ED, only assume additive noise at the receiver and ignore any interference caused by a non-cooperating secondary user or unregulated transmission. The presence of interfering node can significantly degrade the detection performance. This issue is even more aggravated in mmWave networks, which are heterogeneous, as explained before. In this context, the works in [11], [12] address spectrum sensing of a PU in the presence of an interferer . In [11], the performance of a sensing node is analyzed in a multi-user environment with the presence of interference from unlicensed users of a non-cooperating secondary network. In [12], several compressive spectrum sensing schemes are compared for detecting PU frequencies in the presence of interference from low-regulated transmissions from unlicensed systems. However, both the sensing algorithms have been suggested for traditional cognitive networks and not for the cognitive mmWave networks. Also, no receiver beamforming is assumed in both sensing schemes. Beamformed energy detection (BFED) in the cognitive mmWave network was recently proposed in [13] to improve the sensing performance over clustered Rician fading channel. However, the impact of interferer is not considered while analyzing the sensing performance.

In this paper, we propose BFED[1] spectrum sensing

[1]Although the results of this paper may be extended to other sensing schemes such as maximum eigenvalue detection, maximum to minimum eigenvalue detection [14], we limit ourselves to the ED for convenience.

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Comparative Analysis on Mulberry Leaf Disease Detection Using SVM and PNN

Y. Rakesh Kumar, P. Satyanarayana Goud, and Sheelam Pravalika

1 Introduction

Agricultural productivity is one of the main contributes to India economy. So detection of plant diseases is a significant task in agriculture field. Automatic disease detection at initial stage is beneficial.

Manual plant disease detection is more laborious task, is less accurate, requires a large team of experts, and costs very high for large farms.

An automatic detection technique is acquired which requires less time, less manual intervention, and accuracy is good. In plants, generally fungal, bacterial, viral diseases, yellow and brown spots are observed.

Image segmentation is used to separate the interest part in different application. There are different segmentation methods which include ROI, clustering thresholding, and advanced deep learning methods. Segmentation is done based on the features like texture, color, shape, and boundary, which are extracted from interested diseased part.

An automatic image segmentation and classification is a main step in computer-aided image processing. This work aims to compare SVM and probabilistic neural networks (NNs) in detecting plant diseases in the classifier stage.

2 Literature Survey

Two feature extraction techniques are presented in [1]. First, 12 texture features are estimated by using Gray Level Covariance Matrix (GLCM) for diagnosis purpose. In second approach, AlexNet, a pretrained deep learning model, is used to extract

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Effect of Various Parameters on Minimum Mean Square Error and Adaptive Antenna Beamforming using LMS Algorithm

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***Abstract*— Adaptive antennas provide superior system capacities by directing main-beam towards the users of interest while nulling interfering signals. In this paper, effect of various parameters on minimum mean square error and adaptive antenna beamforming is analyzed based on the ability of beam steering and nullifying the interferers. This analysis is carried out by considering Least Mean Square algorithm parameters and antenna parameters such as variation in step-size parameter, variation in signal to interferer ratio and variation in signal to noise ratio. All the parameter variations mainly target effectiveness of beamforming, null depth, convergence speed and mean square error. In all the computed results it has been observed that the LMS algorithm implementation with appropriate antenna input parameters lead to effective nulling at the position of the interferers and minimizing the mean square error.**

Keywords*— *Adaptive Antenna, Adaptive beamforming, LMS algorithm, MMSE, Step-size.

I. INTRODUCTION

In today's world, Adaptive antennas play vital role in wireless communication [1]. Antenna is the base element used in wireless communication network which radiates and receives electromagnetic energy. Major categories of antennas used in wireless communication are omni-directional, directional and adaptive antenna. Omni-directional antennas [2] produce radiation equally well in each and every direction allowing users a very small percentage of overall energy to use. To overcome the problems observed from omni directional antennas, directional antennas are used. As the demand for wireless communication is increasing with the increase of users, directive characteristics must be improved thereby reducing the wastage of energy. One way of achieving directive characteristics is using antenna arrays. In order to increase the Quality of Service, increase signal-to-interference ratios, and to meet the user needs adaptive antennas are used. Adaptive antennas use multiple antennas as an array along with a Digital Signal Processor (DSP) which can form the beam in desired direction specified by the Direction of Arrival (DOA) [3]. The corresponding element weights estimated using either fixed beamforming approach or adaptive beamforming approach [4].

Adaptive beamforming approaches can further classified into blind and non-blind type algorithms which employ Least Mean square (LMS), Sample Matrix Inversion (SMI), Recursive Least Square (RLS) and Conjugate Gradient (CG) are the optimizations in the former type, and Constant modulus (CM) is the optimization in the latter type. In the present research work, Adaptive beamforming approach based on LMS algorithm and minimization of Mean Square Error (MSE) is considered.

Figure 1 shows the adaptive antenna system for an N-element linear array with M-interferer signals. Here, $\bar{s}(k)$ = vector of incident signal at time sample k, θ_0 is angle of arrival of incident signal; $\bar{i}_1(k), \bar{i}_2(k) \ldots\ldots \bar{i}_M(k)$ are interferer signals; $\theta_1, \theta_2, \ldots\ldots \theta_M$ are angles of arrival of different interferer signals, $\bar{y}(k)$ is the output of the N-element linear array; $\bar{x}_1(k), \bar{x}_2 \ldots\ldots \bar{x}_N(k)$ are received signals at each array element, $\bar{d}(k)$ is reference signal and $\bar{w}_1^*(k), \bar{w}_2^*(k) \ldots\ldots \bar{w}_N^*(k)$ are the element weights. $\varepsilon(k)$) is the error obtained between the reference signal and output of the array($\bar{y}(k)$).

The corresponding mathematical relations are popularly expressed as [5-7],

$$\varepsilon(k) = \bar{d}(k) - \bar{w}^H \bar{x}(k) \quad (1)$$

$$\bar{x}(k) = \bar{x}_s(k) + \bar{x}_i(k) + \bar{n}(k) \quad (2)$$

where $\bar{x}(k)$ is the signal received by the adaptive antenna , $\bar{x}_s(k)$ is desired signal vector, $\bar{x}_i(k)$ is interfering signal vector, $\bar{n}(k)$ is zero mean Gaussian noise and superscript 'H' represents Hermitian matrix.

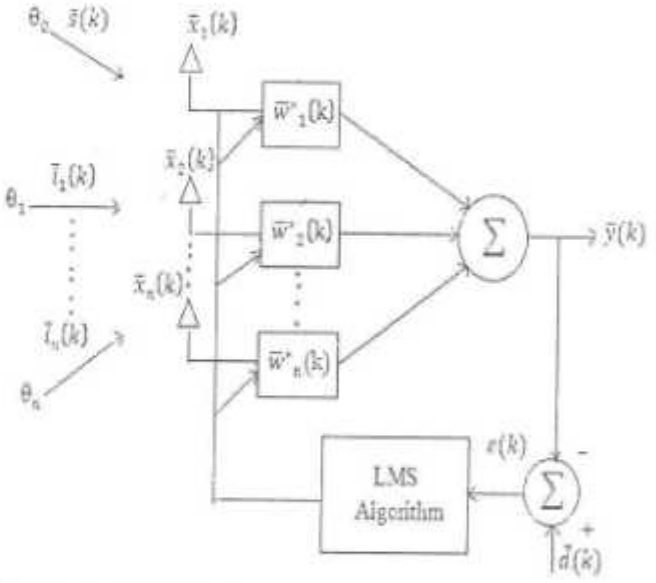

Fig.1: Adaptive antenna system

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INTELLIGENT TRAFFIC LIGHT CONTROL SYSTEM

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ABSTRACT

The traffic lights used now-a-days are pre-programmed to wait for a certain fixed time after every change in signal. The operation of the traffic lights does not depend on the traffic on the roads and remains constant during its operation. A simply way having a clear road is by allocating more time for the vehicles to pass on densest road when compared to other less dense roads. This system uses Intelligent Traffic Light Control System. The system uses a camera to capture the images of the roads that connect in a traffic junction. The pictures captured are then processed to determine the total number of vehicles present on each road at that instant. The system uses Image Acquisition, Image Scaling, Image Enhancement, followed by Object Detection in order to estimate the total number of vehicles on roads to regulate the traffic accordingly. Based on the vehicle count obtained, time is allocated for the vehicles present on the roads to pass. The system is more reliable in prediction of the vehicles presence because it uses actual traffic images. The system functions will be better than those systems that rely on the detection of vehicle's metal content. The system is cost-efficient and does not require any installation of complex machinery to monitor the complete traffic.

Keywords---Image Acquisition, Image Scaling, Image Enhancement, Object Detection, vehicle's metal content

I.INTRODUCTION

Traffic congestion is a severe problem in many major cities across the world and it has become a nightmare for the commuters in these cities. The major cause leading to traffic congestion is the increase in the number of vehicles being used by public, which was caused by the population explosion and the development of economy [1]. The main reason behind today's traffic congestion and traffic jams is the techniques that are used for traffic management. Today's traffic management system has no emphasis on live traffic scenario, which leads to inefficient traffic management systems. The present traffic timers just show the Preset time. This is like using open loop system. Many present-day standard traffic light control systems operate on a timing mechanism that changes the traffic light from red to green or vice- versa after a given interval. A variety of different control systems are used to accomplish this, ranging from simple clockwork mechanisms to sophisticated computerized control and coordination systems that self-adjust to minimize delay to people using the junction. Excessive delay due to time allocated by the traffic signals i.e., since the Existing traffic light system uses timers for the control of traffic, at certain junctions, sometimes even if there is no traffic, people have to wait. Because the traffic light remains red for the predetermined time period, and hence the road users have to wait until the light turn to green. The system allocates same time for both high traffic and less traffic roads, hence the vehicles on the high-density roads have to wait for longer duration which in turn results in heavy accumulation of traffic which ultimately results in Traffic jams as shown in the figure below.

Fig. 1 Traffic Congestion Scenario

A system is proposed to control traffic congestion at the traffic junctions, which makes use of various techniques of image processing. A camera will be placed alongside the traffic light on a road [1]. The camera will capture image sequences, then different techniques of Image processing are used in order to process the captured image sequence [4]. The various image processing techniques include Image Pre-Processing, Image Enhancement, Object Detection and classification followed by Allocation

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Network Technologies and Microcontrollers in Internet of Things (IOT) - A Review

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***Abstract* - Our physical world is transforming at an unprecedented rate into a complex and dynamic system of connected devices. Such dynamics are evident due to COVID-19 making the organisations rethink the way they work and operate. Working digitally and virtually across locations along with partner organisations is the need of the hour. Internet of Things makes such communication possible. The increasing importance of capturing real-time data and acting upon the insights is the driving focus of Internet of Things (IoT) – both in terms of its wider applicability and the path towards achieving scale. Defined as the interaction between the digital and physical worlds, IoT helps the digital world interact with the physical world using a plethora of sensors and actuators. The sensors take data from various devices, convert it into viable actions for human analysis. This paper brings forth Bluetooth, Zigbee, RFID, Z-Wave, Wi-Fi, ANT, 6LoRaWAN, NFC, GSM technology, and Cloud software technologies used by various IoT devices. They aid sensors which collects data from multiple devices. Comparison of these technologies is made on basis of frequency band, range, data rate and modulation type. This paper also discusses microcontrollers namely Arduino Uno, Adafruit Feather Huzzah32, SparkFun ESP8266 Thing, and Raspberry Pi which analyse, and process data based on various settings to perform tasks or provide the data required by industry. Wi-Fi technology embedded on Arduino controller is recommended the deciding factors being security, availability, reliability, mobility, performance, scalability, interoperability, management, and trust.**

Keywords-IoT, sensors, actuators, microcontrollers, comparison, Raspberry Pi, Arduino, Wi-Fi

I. INTRODUCTION

The Internet has become a part of life with a rapid increase in the number of internet users. IoT grants people and things to be connected anytime, anyplace, with anyone, ideally using some network and service [1]. It allows connects organizations and people with the world around them and do more meaningful, higher-level work [2]. Improvements in the availability of low power technology, last-mile connectivity, long-lasting batteries, and cheaper sensors make IoT solutions more affordable and relevant compared to the situations in the past [3].

Internet of things (IoT) is achieved by interconnecting the internet with computing devices embedded into everyday objects, enabling them to send and receive data. Such communication between multiple devices occurs with little human intervention.

II. SENSORS AND ACTUATORS

IoT architecture from a broad perspective has four layers. Figure 1 describes the high-level architecture of IoT having 4 layers. The sensors and actuators constitute the first layer which gathers information to be transmitted over secure channels [4]. Sensors collect information about location, changes in the air, environment, etc. The network layer is the second layer. It carries and transmits data gathered from physical objects through sensors. The medium can be either wireless, or wire based. Since it also connects the network devices and networks with each other, it is extremely sensitive to attacks from the attackers. Technologies like RFID, GSM, Wi-Fi, Bluetooth Low Energy, and ZigBee help transfer data [5]. The sensors are selected as per the requirement of applications. The processing layer is the penultimate layer which receives information that can be stored and analysed [6]. This layer also processes received data, makes decisions, and delivers required services over network wire protocols. The Application Layer, the ultimate layer is the interface between the end IoT devices and the network. Few IoT applications are smart homes, smart health care, smart cities, etc [7].

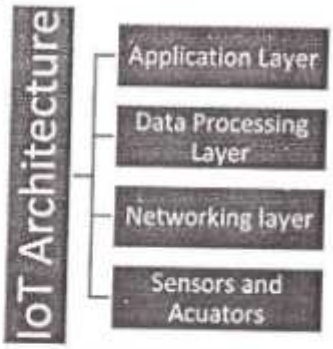

Figure 1: IoT Architecture

Most of the IoT devices used in the first layer, whether they are sensors, actuators, or both, consist of hardware and software. Examples of sensors such as temperature sensors, IR sensors, ultrasonic sensors, pressure sensors, proximity sensors, and touch sensors, and other such devices that monitor their surrounding environments. Switches, valves, locks, and other such devices that perform a physical action can be categorised as actuators. Due to Moore's law and other advancements in technology, even inexpensive IoT devices can be sophisticated with robust microprocessors/microcontrollers that run complete software stacks. These software stacks primarily expose the sensor/actuator to the outside world over wireless or wire-based connection.

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Road Surface detection Using FMCW 77GHz Automotive RADAR using MFCC

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***Abstract*—Road accidents can be avoided to a greater extent by identifying the kind of road surface and thereby alerting the driver in advance. This helps the driver to immediately take decision on the speed of the vehicle. This paper puts forth a technique for automatic identification of road surface type using FMCW 77GHz Automotive RADAR. It is based on the analysis of the backscattered signals of the RADAR using Mel Frequency Cepstral Coefficient and building a Classifier model for the training data. The novelty of this technique is the data integration, feature extraction followed by the road surface type recognition using classifiers like KNN (K-Nearest Neighbors), DT(decision tree) and SVM (Support Vector Machine). This technique identifies five road surface types i.e. dry concrete, grassy, slush surface dry asphalt and sand. The experimental results show accuracy above 97% using SVM classifier. Also the response time of the system is calculated in real time, for various speeds of the vehicle. It is observed the driver is alerted around 19.5m before the point of observation is reached, when the vehicle is moving at the speed of 40kmphr.**

Keywords*— *RADAR backscattering, Mel Frequency Cepstral Coefficients (MFCCs), Road surface detection

I. INTRODUCTION

Technologies such as RADAR, LIDAR, Sonar etc. are used currently to sense the surroundings in modern vehicles [1]. The progress in these technologies have led to the development of various systems like lane alerting, adaptive cruise control, parking assist, collision avoidance and anti-lock braking system[2]. These systems provide comfortable driving experience for driver with more safety.

During 1995 -2005, over 24% of accidents in USA are due to icy road accident [3, 4]. This can be reduced by recognition of road surface in advance and alerting the driver. Further road recognition is important particularly on highways, before and after tunnels and on extremely dangerous curves. Hence recognition and identification of the road surfaces such as icy, snowy, slushy surface, wet grass, sand and other road surfaces would improve safety and reduce accidents. Till date, no effective system has been developed to efficiently identify the type of road surface ahead, and warn the driver in advance to thereby reduce the risk of accidents.

Bystrov A et al. implemented road surface recognition by analyzing the backscattered ultrasonic (20kHz) and microwave signals(24GHz)[2]. This is based on extracting features and doing classification by Neural Networks. The time required for the classification is not mentioned in the work. Vlacic et al.[5] used LIDAR and optical technologies for road surface recognition. Optical and LIDAR sensors exhibit a loss in performance during rainfall, due to the reason that high frequency waves are absorbed by the raindrops. Conventional visual -based technique using image processing is widely used but is ineffective at night and during rainfall [6]. Rasshofer et al.[7] has discussed the influences of LIDAR radar with weather conditions. Ultrasonic sensing of road can also be used to study the road surface [7, 8], but the range covered by the sensor is not large. In this paper, 77GHz FMCW radar technology has been used for road surface recognition. The performance of 77GHz FMCW RADAR is not affected by low lighting and is resistant to adverse weather conditions like rainfall and effective for a detection range of 15 to 40m.

The approach of using FMCW RADAR for road surface identification is discussed in [9, 10]. In [10] FMCW 24GHz signal is used and the objective is only to estimate the road surface friction. Many researchers [11, 12, 13] have worked on road surface identification using image processing techniques i.e., feature classification by SVM and texture feature extraction. The goal is to recommend safe routes and the system has to be trained prior to the query. Thus our work of road surface recognition is in early stages of research and new of its kind in the problem of autonomous driving assistance.

The main contribution of this paper is in two folds. Firstly, the hardware integration and proposing an automatic road surface detection based on analyzing the backscattered signals from FMCW 77GHz RADAR. Secondly, effort was done to find the response time of the system, which is around 40msec. The lesser prediction time is crucial, so that the alert will be available to driver much in advance. Also this proposed system is able to overcome the drawbacks of all the existing works discussed.

The rest of the paper is organized as follows. Section 2 gives an overview of data collection by RADAR backscattered signal, feature extraction and classification methods. Section 3 presents the results obtained for different types of road surfaces using different classifiers and Section 4 provides the conclusions of this work.

II. METHODOLOGY

Process flow of the Automatic Road Surface detection is shown in Fig 1. Initially automotive FMCW RADAR collects the backscattered signal from road surface. Features are

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Pothole Detection Using YOLOv2 Object Detection Network and Convolutional Neural Network

R. Sumalatha, R. Varaprasada Rao, and S. M. Renuka Devi

Abstract Bad road conditions, such as cracks and potholes, can cause passenger discomfort, vehicle damage, and accidents. Condition of roads indirectly effects on growth of the country. Hence, there is a need for such a system that can detect potholes. It would allow vehicles to issue alerts to identify potholes so that drivers can reduce the speed and avoid them and make the ride smooth. Many researchers had developed various algorithms to become aware of potholes on roads. In this paper, the proposed system detects the potholes using You Only Look Once version 2(YOLOv2) and a convolutional neural network (CNN). The predefined CNN, namely resnet50, is used to extract the features of testing images and training images. Kaggle data set is used to evaluate the proposed algorithm. The experimental results are evaluated in terms of precision rate and recall rate. The proposed approach precision rate is 94.04% for test images.

Keywords Potholes · YOLOv2 · CNN · Precision rate · Recall rate

1 Introduction

In rainy season, the roads are occupied with flooded water, so it is not easy to identify the potholes underwater. The existence of potholes on roads is a significant issue for road accidents. By setting up a pothole detection method in vehicles, the accidents are minimized and enhance drivers' security. Detection of potholes is a difficult task compared with object detection like signboards, cars, pedestrians, etc., because potholes have a wide range of geometrics. In our daily life, manual detection of

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Contents/Summary

Contents

- Dengue Outbreak Prediction from Weather Aware Data.- A Dynamic Approach to Identify the Most Significant Biomarkers for Heart Disease Risk Prediction utilizing Machine Learning Techniques.- A Feasible Approach to Predict Survival Rates Post Lung Surgery Utilizing Machine Learning Techniques.- Cardiac Abnormality Prediction Using Multiple Machine Learning Approaches.- COVID-19 Detection from Lung CT Scan Using Transfer Learning Models Nazmus Shakib Shadin.- Statistical Analysis and Clustering of Dengue Incidents and Weather Data of Bangladesh Using K- means Clustering.- AI Reception: An Intelligent Bengali Receptionist System Integrating with Face, Speech, and Interaction Recognition.- A Real-time Junk Food Recognition System based on Machine Learning.- Inference of Gene

Regulatory Network (GRN) From Gene Expression Data Using K-means Clustering and Entropy Based Selection of Interactions.- From competition to collaboration: Ensembling similarity-based heuristics for supervised link prediction in biological graphs.- Mental disability detection of children using Handwriting Analysis.- Electrocardiogram Signal Analysis Based on Statistical Approaches Using K-Nearest Neighbor.- Telekit: An IoT Based Wearable Health Assistant With Machine Learning Approach.- An Empirical Feature Selection Approach for Phishing Websites Prediction with Machine Learning.- New Model to Store and Manage Private Healthcare Records Securely Using Block Chain Technologies.- Secure and Transparent Supply Chain Management to Prevent Counterfeit Drugs.

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Proceedings of Fifth International Conference on Smart Computing and Informatics (SCI 2021)

Editors: Vikrant Bhateja, Suresh Chandra Satapathy, Carlos M. Travieso-Gonzalez, T. Adilakshmi

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Sections

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CIN and Entropy (Q2-WoS journals). He has been awarded in "Catedra Telefonica" Awards in editions 2017, 2018 and 2019 on Knowledge Transfer Modality.

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Generating Automatic Ground Truth by Integrating Various Saliency Techniques

Ramesh Cheripelli & A. N. K. Prasannanjaneyulu

Conference paper | First Online: 22 February 2022

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

In general, images contain a lot of salient objects in it, exploring all these objects saliency map technology is very well organized. In the field of cognition-based human computer interaction, numerous researches have been done so far. In order to understand how we perceive the things in the viewing world and automatically took decision to focus our gaze toward a particular object, various

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Research Article

An Efficient Design of Blood Vessel Image Extraction Using LBP Technique

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Abstract

An efficient architecture of blood vessel image extraction is implemented. This system provides both physiological and behavioral characteristics which give the overview of retina, iris recognition, and face detection. The main intent of this project is to detect and measure the blood vessels present in the retina. This is done by using the classifier technique. By using classifier technique, the accuracy of the system will be increased. Image segmentation is applied to divide the number of cells available in the retina. The LBP technique will extract the features of input retinal images. Image feature extraction using LBP will extract the images which are featured. Imaging Library provides the interpreter with image editing capabilities. Hence this blood vessel image extractiongives effective results and this can be observed from simulation results.

Keywords blood vessel image extraction classifier technique image segmentations histogram equalization local binary pattern (lbp)

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Control Plane Efficiency by Load Adjustment in SDN

K. Sridevi & M. A. Saifulla

Conference paper | First Online: 26 October 2021

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 286)

Abstract

The control plane is the heart of the Software Defined Networks, so it is mandatory that the work should go efficiently to increase the performance of the network. The challenge in the distributed control plane using multiple controllers is the even distribution of load among all the controllers. If the total load is distributed equally, the controller response time can be decreased and can achieve maximum throughput. This paper presents a Load Management Algorithm that chooses the required amount of load to shift from the heavy load controller to the light load controllers and allows parallel switch migrations in one cycle rather than multiple cycles. Experimental setup using RYU shows that our approach can decrease the load of heavy load controller and better balance the control plane.

Keywords

Software-defined networking **Load balancing** **Switch migration**

Data plane **Control plane**

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Evading Signature Validation in Digitally Signed PDF

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Abstract— Carefully marked Portable Document Formats (PDFs) are utilized in agreements, contracts, bills, proposals, and arrangements to ensure the genuineness and trustworthiness of their material. A normal client would accept that carefully marked PDF records are conclusive and cannot be additionally altered. Be that as it may, different changes like adding comments to a marked PDF or rounding out structure fields are permitted and do not nullify PDF marks. In this paper, we show that this adaptability permits attackers to totally change a record's substance while keeping the first signature approval status immaculate.

Keywords *— Behavioural Detection; Malware Evasion; Shadow Attack; System Call Obfuscation; Electronic Mail; Authentication; Password; Cross Site Password Reuses.*

1. Introduction

Portable Document Format (PDF) archives are a significant office design. As indicated by Adobe, in excess of 250 billion PDFs were opened in Adobe items in 2019 [1]. Since 1999 PDFs can be secured against controls with advanced marks empowering use-cases like marking contracts, arrangements, instalments, and bills. Along these lines, the need to send printouts by means of mail everywhere on the world is dispensed with. Guidelines like the eSign Act in the USA [6] or the eIDAS guideline in Europe [8] encourage the acknowledgment of carefully marked reports by organizations and governments. Asian and South American nations additionally acknowledge carefully marked archives as an identical to physically marked paper records [9]. Adobe Cloud, a main online help for marking PDF reports, given 8 billion electronic and computerized signature exchanges in 2019 [1]. The exact year, DocuSign handled in the very year 15 million reports every day [2].

Malware, for example, viruses, worms, trojan, spyware, rootkits, and botnets, are a common and extreme danger to Internet security. Researchers have created modern methods to avoid existing mark-based discovery methods. These avoidance procedures incorporate packing, code confusion [20], polymorphism, and transformation [23]. These methods create various variations of a malware program, i.e., each case appears to be unique (grammatically) yet at the same time keeps up a similar capacity (semantically). To invalidate those avoidance methods protectors started to create countermeasures [1][3][12][19][24] that meant to perceive malware dependent on their practices, which are regularly described by arrangements/charts of framework calls since framework calls are unavoidable collaboration interfaces among applications and Operating System. This conduct based arrangement distinguishes malignant practices of malware families by coordinating dubious framework calls with existing malignant conduct details based on certain framework call arrangements or diagrams [1][3][8][30]. Hence this conduct based recognition arrangement is more vigorous and difficult to avoid by utilizing customary assaulting procedures.

2. Representing a Signature in a PDF File

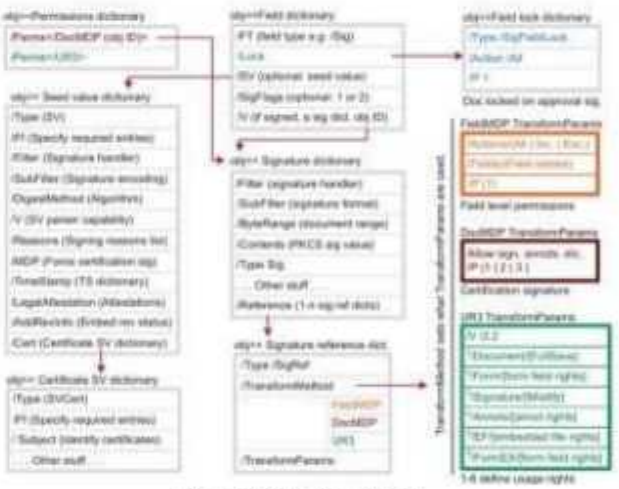

Fig. 1: Signature of PDF

For securing the trustworthiness and the legitimacy of a PDF, computerized marks can be applied. For this reason, a Signature object is made and affixed to the PDF by utilizing IS. It is additionally conceivable to sign a PDF on different occasions (e.g., an agreement), bringing about numerous ISs. The Signature object contains all important data for approving the mark, such as utilized calculations and the marking testament. It likewise characterizes which bytes of the PDF are ensured by the Signature. A common mark begins at the principal byte and finishes at the last

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byte of the trailer 2. When a PDF that contains a PDF Signature is opened, the watcher application consequently approves the mark and gives an admonition if the substance has been altered.

3. Attacks on PDF Signatures

The researchers outline three separate kinds of attack: This attack controls the computerized signature itself, making it outlandish for the watcher to confirm it. All things considered, the watcher actually reports the signature as substantial. This was one of the most ineffective attack, hindered by most watchers, despite the fact that Adobe Acrobat Reader DC and Adobe Reader XI were both gotten out by it.

3.1 Universal Signature Forgery (USF)

This attack controls the computerized signature itself, making it outlandish for the watcher to confirm it. All things considered, the watcher actually reports the signature as substantial. This was one of the most ineffective attack, hindered by most watchers, despite the fact that Adobe Acrobat Reader DC and Adobe Reader XI were both gotten out by it.

Fig. 2: Universal Signature Forgery

3.2 Incremental Saving Attack (ISA)

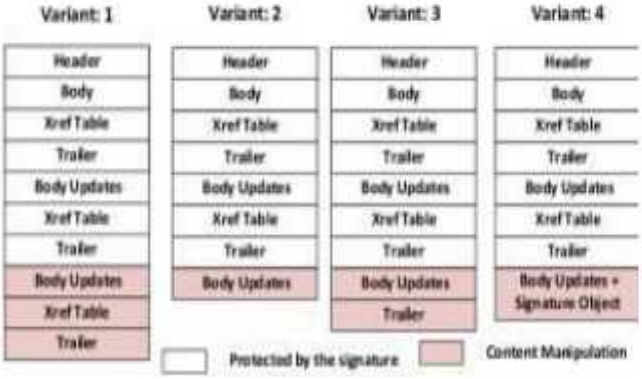

Fig. 3: Incremental Saving Attack

Here a fraudster adds new substance to the furthest limit of a marked PDF utilizing an element of the document design called steady saving. Saving new substance gradually to an all-around marked record is something substantial to do, yet the document watcher should tell clients that the report has been modified. ISA prevents that from occurring by adjusting metadata in the recently saved piece of the document, tricking the watcher into showing the new substance without hailing it as changed.

3.3 Signature Wrapping (SWA)

This was the attack most probably to work across a range of viewers and online file validators. It takes the originally signed content and moves it to a different part of the document, inserting new, fraudulent content at the original position.

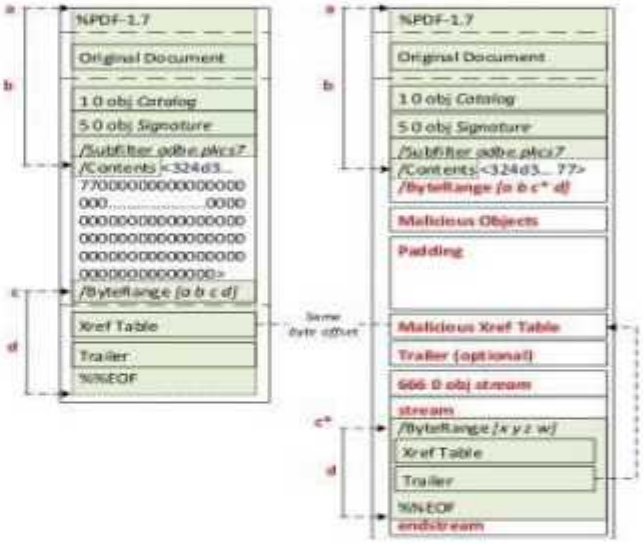

Fig. 4: Signature Wrapping

3.4 Attacker Model

The attacker make the shadowed PDF archive PDF1= createPDF(). They can install self-assertive substance into this record. Self-assertive in this setting implies that the aggressors can insert undetectable substance into the PDF record. The substance can be by the same token imperceptible because of an overlaying content (e.g., a picture), on the grounds that the relating PDF object isn't referred to in the table, or because of some other covering attack procedures. The signers make another archive PDF2 by marking PDF1, for example PDF2 = sign (PDF1). The endorsers can be a human, for instance, accepting PDF1 through email, or an online signing administration, like DocuSign1 or Adobe Document Cloud 2 to which the aggressors transfer the record. Eventually, the assailants get PDF2. They can alter the document once more, for example, the attackers make PDF3 = manipulate (PDF2). The attackers send PDF2 and PDF3 to the people in question.

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The casualties check the two records as indicated by the triumphant condition.

4. Methodology a of PDF Modifications

To complete the assault, a noxious entertainer makes a PDF report with two unique substance: one which is the substance that is normal by the gathering marking the archive, and the other, a piece of concealed substance that gets shown once the PDF is agreed upon. The endorsers of the PDF get the record, audit it, and sign it," the analysts illustrated. "The aggressors utilize the marked record, change it marginally, and send it to the people in question. Subsequent to opening the marked PDF, the casualties check whether the advanced mark was effectively confirmed. Be that as it may, the casualties see unexpected substance in comparison to the endorsers. In the simple world, the assault is comparable to purposely leaving void spaces in a paper report and getting it endorsed by the concerned party, at last permitting the counterparty to embed self-assertive substance in the spaces.

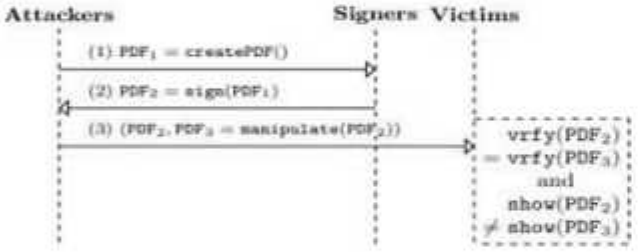

Fig. 5: Attacker Model

It was conceivable to change a current marked report without nullifying its mark, subsequently making it conceivable to manufacture a PDF record. Despite the fact that sellers have since applied safety efforts to fix the issue, the new examination means to stretch out this assault model to determine the likelihood that a foe can alter the noticeable substance of a carefully marked PDF without negating its signature, expecting that they can control the PDF before it's agreed upon. At its center, the assaults influence "innocuous" PDF highlights which don't discredit the signature, for example, "steady update" that takes into account making changes to a PDF (e.g., rounding out a structure) and "intelligent structures" (e.g., text fields, radio catches, and so on) to conceal the noxious substance behind apparently harmless overlay objects or straightforwardly supplant the first substance after it's agreed upon. A third variation called "hide and replace" can be utilized to consolidate the previously mentioned techniques and adjust the substance of a whole record by essentially changing the item references in the PDF. The assailant can assemble a total shadow record impacting the introduction of each page, or even the complete number of pages, just as each article contained

5. Evaluation

We considered our assaults in contrast to two sorts of uses. The commonly known work area applications everybody utilizes on a day by day bases and online approval administrations. The last one is regularly utilized in the business world to approve the mark of a PDF archive restoring an approval report thus. During our examination, we distinguished 21 out 22 work area watcher applications and 5 out of 7 online approval administrations powerless against in any event one of our assaults. In Any case, it isn't applicable in reality. Talking about agreements endorsed by different people would cause issues since a various marked PDF .For this reason, we extend the validation algorithm as follows:

1) Take the input PDF and split it into its revisions P = PDFrev1 , . . . , PDFrevn according to its Incremental Savings.
2) Find the first signed revision PDFrevi P with i 0.
   a) If no signature is found, it returns false.
3) For j = i, . . . , n
   a) If PDFrev j has no signature, return false
   b) Verify PDFrev j , i.e., true = vrfysingle (PDFrev j) , or return false
4) return true Our algorithm is a composition. It uses an algorithm vrfysingle (), which can verify a PDF that contains precisely one signature,

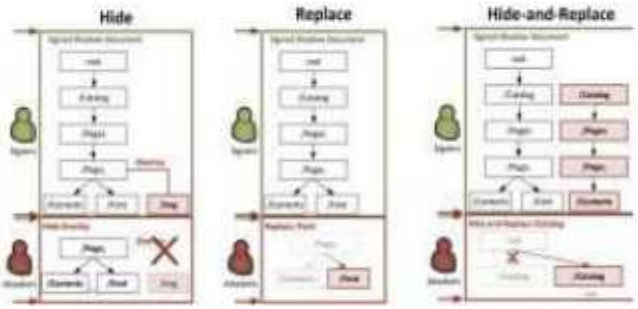

Fig. 6: Methodology a of PDF Modifications

6. Conclusion

We've given a short outline of the various kinds of assaults on Pdf's distinguished by the researchers, and addressed their visual nature. This is basically what sets the shadow assaults separated from the prior arrangement of cryptographic weaknesses. The substance of this sort of assault is to send out vindictive conduct determinations from a malware program to numerous shadow measures. We executed a compiler-level model instrument to exhibit its achievability. Our

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primer outcomes show that changed malware could avoid or counter existing conduct investigation devices. A few exploration issues stay open. For instance, from assault perspective, how to dispatch ideal shadow append regarding insignificant number of cycles, asset utilization, and correspondence cost. All the more critically, from safeguard perspective, how to proficiently and successfully protect against this new danger actually requires further examination.

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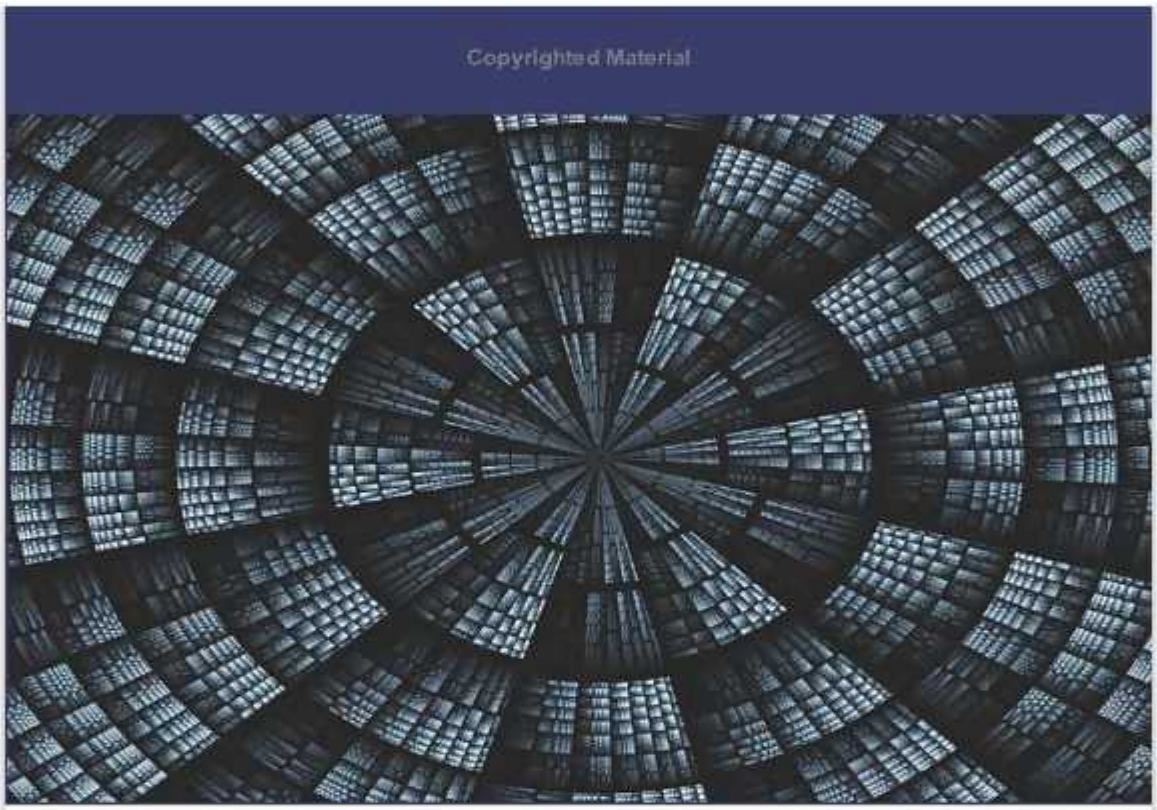

Ramesh Cheripelli

IMPROVED KEY GENERATION AND ENCRYPTION MECHANISMS

Using Identity Based Techniques

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Zugl. / Approved by: IMPROVED KEY GENERATION AND ENCRYPTION MECHANISMS USING IDENTITY BASED TECHNIQUES

Ramesh Cheripelli

IMPROVED KEY GENERATION AND ENCRYPTION MECHANISMS: Using...

The increasing use of the Internet by the users in their daily routines highlights the great success of the Internet. The need for secure data transmission has become very essential. Attacks by hackers and viruses in the data stored and transmitted have been of great concern .This has led to the study of methods to protect data and resources from disclosure to guarantee the authenticity of data and messages and to protect systems from network based attacks. Cryptography is one of the mechanism to fight against these attacks. The main challenge faced in this the management of the keys, which involves generation, distribution, revocation, storage and verification of keys. In this context Identity Based Encryption is a solution to the key management problem of public key cryptosystems. Identity based encryption is the one in which the key is derived directly from certain aspects of the users identity for example an IP address belonging to a network host or an email address associated with the user.

Dr Ramesh Cheripelli completed his Ph.d from Jawaharlal Technical University in Information Security. Possess 15+ years of experience in Teaching and Software Industry. Published papers in reputed journals and participated in various conferences. Guided and supported Post graduate and Bachelor's degree students in successful completion of projects.

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IoT Based Protection of Microgrid With Grid-Connected and Islanded mode Using Wavelet Approach

Publisher: IEEE

K.V. Dhana Lakshmi ; G.Ravi Kumar ; JBV Subrahmanyam **All Authors**

Abstract: Now a days microgrid is one of the most widely used method in power network to reduce system losses as well as improve the reliability in the field of electrical systems.... **View more**

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Abstract:

Now a days microgrid is one of the most widely used method in power network to reduce system losses as well as improve the reliability in the field of electrical systems. Integration of power projects typically involves adding new distributed energy sources with and without compensating devices to an existing power system network. It is essential to design new protection scheme due to changes in the topology and dynamic behaviour of the system. Now fast fault detection algorithmic approaches are necessary to integrate different types of generating sources and loads under smart environment. The protection scheme must provide physical monitoring as well as para-metrical with the help new technologies. Internet-of-things(IoT) is one of the source to monitor electrical systems under various environmental conditions of the system. Wavelet (WT) basically investigates the fault transient signals of different frequency and divides the waveform into different approximate and detailed coefficient values, which provides the important knowledge about the classification and location of fault. The detection of faulty-line and the location of fault by implementation wavelet detailed coefficients of Bior1.5 mother wavelet. This proposed method provide fault analysis of

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Computational Vision and Bio-Inspired Computing pp 121–133

Identification of Insomnia Based on Discrete Wavelet Transform Using Time Domain and Nonlinear Features

P. Mamta & S. V. A. V. Prasad

Conference paper | First Online: 15 June 2021

Part of the Advances in Intelligent Systems and Computing book series (AISC,volume 1318)

Abstract

Insomnia is a type of sleep disorder that affects both the psychological and mental state. Conventionally, clinicians diagnose insomnia with a clinical interview that is subjective and suffer from personal error decision. The aim of this study is to identify insomnia subjects from normal subjects by using an electroencephalogram (EEG) signal, which is

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Significance of Wavelet and IOT Techniques in micro-grid based Power System Protection

Publisher: IEEE

K.V. Dhana Lakshmi ; S.S Tulasi Ram ; JBV. Subbrahmanyam ; G. Ravi kumar **All Authors**

Abstract: Micro-grid is developed for enhancement in reliability and stability of the structure. Due to the penetration of distributed energy resources, their intermittent nature w... **View more**

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Abstract:
Micro-grid is developed for enhancement in reliability and stability of the structure. Due to the penetration of distributed energy resources, their intermittent nature will result in faults in the micro-grid. The micro-grid needs to be protected in both grid-connected and islanded mode of operation. Recently, with the advent of signal processing techniques, frequency domain analysis has become an important aspect and has a number of applications in the area of micro-grid protection. Wavelet transform is a technique used to decompose the current or voltage signals into components known as wavelets to fetch the detailed coefficients of the signal to detect the faults. Exceptionally in electrical engineering it is used for protection in power systems and in recent days it is applied for micro-grid-based power system protection. Internet of things (IoT) is the fastest growing technology that can be applied to the micro-grid. So IoT technique can be used in the power system protection. This paper introduces wavelet transform methods and IoT techniques in micro-grid-based power system protection.

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Performance Enhancement Of Training Based ChannelEstimation In MIMO-OFDM System

Vijayalakshmi M
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***Abstract*— The MIMO and OFDM systems are combined for enhancing the received signal quality without increasing the channel bandwidth in a multi path fading environment. In a fading environment, CSI is required to reconstruct the data at the receiver section of the MIMO-OFDM systems. For estimating the channel effects, pilot symbols are mixed with the data symbols and transmitted. The performance of training-based channel estimation technique depends on the positions of pilot carriers. In the proposed work, Adaptive ABC optimization technique is used for finding the best positions of pilot signals such that the performance of MIMO-OFDM system is improved when compared to the fixed positions of pilot signals. The performance metrics used in this paper are BER, MSE. According to simulation results, LS channel estimation with Adaptive ABC optimization technique outperforms than the fixed pilot positions.**

Keywords—MIMO: Multiple Input Multiple Output, OFDM: Orthogonal Frequency Division Multiplexing, ABC: Artificial Bee Colony, LS: Least Square

I. Introduction

The demand for wireless communication is increasing every day but the available spectrum is limited and costly. The MIMO system enhances the channel capacity without increasing the bandwidth such that more number of users is accommodated within the available band width. OFDM system reduces the ICI and ISI effects in a multipath fading wireless environment. By combining MIMO and OFDM technologies, channel capacity increases with high robustness to ISI so as to provide a reliable transmission. In wireless communication apart from transmitter and receiver, communication channel plays key role for better performance and estimation of channel characteristics are very important in reconstructing the signal at the receiving end. In Literature many techniques are proposed for estimating the channel characteristics like training-based channel estimation[5], blind channel estimation and semi blind channel estimation[6] etc. In training-based channel estimation methods, channel characteristics are estimated by sending pilot symbols along with the data symbols. In this technique the positions of pilot carriers play significant role in effective estimation of channel effects such as fading, delays etc.

MIMO-OFDM using CPSO technique approach performance of MMSE technique and also it requires a sma number of iterations to reach target MSE value. Muham Nuri Seyman et al [3] proposed ABC algorithm for opti placement of training-based symbols for estimating char coefficients in Least Square algorithm of MIMO-OF systems. In this method upper bound of MSE in LS estimat for fitness function is estimated by using Gerschgorin theorem. The performance of this method is enhanced w compared to that of random, orthogonal and PSO based p placement techniques for different Doppler shifts. In this pa Adaptive ABC optimization technique is proposed for find the optimum positions of pilots for estimating the char characteristics in MIMO-OFDM system. In this paper Bl diagram of MIMO-OFDM system with channel estimatio described in section II and proposed technique for optimiz the pilot placement is explained in the section III. Results conclusions are discussed in sections IV and V.

II. MIMO-OFDM System with Channel Estimation

The MIMO-OFDM system with CSI estimation block diagr is shown in Figure 1. In the combined system of MIMO OFDM, 'n_t' number of antennas are used for transmitt information; 'n_r' number of antennas are used for receiving information, 'N' number of orthogonal subcarriers used in system and 'M' number of subcarriers are reserved for pil At the input of the transmitter QPSK modulation is used modulate the serial data and after that pilots are inserted in optimum positions which are obtained from Adaptive A optimization technique. These serial data symbols along w pilots are converted into parallel symbols then perform IF for converting into time domain symbols. Cyclic prefix added to each OFDM symbol for reducing ISI effects. In simulation process, multipath Rayleigh fading channel considered and AWGN is added to the received signal [4].

The receiver receives the distorted signal due to noise an removes cyclic prefix. The FFT is performed and channe estimated with LS technique. The channel effects compensated with the equalizer and demodulated reconstructing the original data.

Lecture Notes on Data Engineering
and Communications Technologies 59

Jennifer S. Raj
Abdullah M. Iliyasu
Robert Bestak
Zubair A. Baig *Editors*

Innovative Data Communication Technologies and Application

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Data Optimization-Based Security Enhancement in 5G Edge Deployments

S. Sree Lekshmi, Satwik S. Bandodkar, Vikas Vippalapalli, Alekhya Susarla, and Seshaiah Ponnekanti

Abstract Recently, edge computing and data analytics have been recognized as some of the key technologies to deliver low latency, high data rate services using the 5G networks. The 5G edge infrastructure is likely to cater to a mix of cellular and non-cellular devices mainly covering the Internet of things (IoT) and miniature sensor devices. The network vulnerability and threat mitigation at the edge become utmost important to protect the network from upstream attacks originating from the sensors. In mobile network deployments, the app data from multiple user devices can be collected at the mobile edge analytics server residing on the network side. These app data feeds can be processed at the edge server to dynamically build network quality maps. The quality analysis can be utilized to precisely monitor the experience of the users. Further, the serving cells or base stations serving those users within the edge can also be identified on the maps. This can help to pinpoint the real-time traffic variations per user in each cell. The user traffic trends, derived from the app-based quality analysis, can also help to identify security anomalies that may be taking place at the edge. In this paper, a novel framework to couple the traffic analysis and security monitoring at the mobile edge has been proposed with an example

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Diabetic Retinopathy Detection at Early Stage Using a Set of Morphological Operations

N. Ramakrishna & Vinayadatt V. Kohir

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Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 702)

Abstract

Diabetic retinopathy is one of the major causes of blindness in the world. The computer-based approaches play a vital role in early detection and diagnosis to avoid future complications and loss of vision. This paper discusses techniques to localize microaneurysms and exudates, the early signs of the disease. The retina fundus images are pre-processed

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Implementation of MIMO-OFDM system using V-BLAST ZF and V-BLAST MMSE detection algorithms

S. Mujeeb, M. Jyothana • Published 7 January 2021 • Computer Science, Business • Materials Today: Proceeding

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Precision Agriculture for a Sustainable India – A Review

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ABSTRACT

Monitoring, managing and maintaining large expanses of agricultural land is a labour intensive and time consuming process when the farmers adhere to traditional agricultural techniques. Switching to precision agriculture entirely or at least partly could offer a humongous advantage to the farmers as well as the consumers. Precision agriculture is a farm management concept that involves technology for efficient and sustainable farming. The integration of the accessible technologies like Global Positioning System, satellite and aerial images, Internet of Things, sensors, WiFi, Robots, Drones, Artificial Intelligence, etc.. into farming can greatly improve the yield, reduce losses, decrease pesticide load without the indiscriminate use of fertilizers and the wastage of water. Despite the apparent benefits that Precision agriculture offers, the farm owners refrain from implementing it due to the heavy capital investment and the lack of technological expertise. In extensive crop canopies, the advantages offered by automating the agricultural process, outweigh the initial expenditure incurred in procuring the technologically advanced equipment.

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G.Pullaiah College of Engineering and Technology (GPCET) ia promoted by Sri Sai Krishna Educational Society, a society registered on 15-02-2006 under A.P Societies Registration Act No 35 of 2001 and is the dream project of renowned educationalist sri G. Pullaiah and his son Sri G.V.M Mohan Kumar. The college is located in a hamlet Venkayapalli, within a close proximity from kurnool on the state highway and is well connected to all major cities in and around the state. The college established in the year 2007, works with the Motto " Pioneering Innovative Education" and strives to provide the student community, the modern technology supported by Comprehensive library, state of art laboratories along with necessary computational Skills. GPCET has obtained Autonomous status from the year 2018 besides being accredited by NAAC of UGC and NBA of AICTE , New Delhi. GPCET is approved by AICTE, New Delhi and has also been granted Permanent affiliation under Jawaharlal Nehru Technological University Ananthapur. Also, it is an ISO 9001-2015 certified Institution besides recognized by UGC under 2(f) and 12(B). It offers 7 UG programs in Civil Engineering(CE), Computer Science and Engineering(CSE), Computer Science and Engineering - Artificial Intelligence (CSE-AI), Computer Science and Engineering - Internet of Things (CSE-IOT), Electronics and Communication Enginnering (ECE), Electrical and Electronics Engineering (EEE) and Mechanical Engineering (ME) besides 4 PG programs in Computer Science and Engineering (CSE), Digital Electronics and Communication Systems (DECS), Electrical Power Systems (EPS) and Master of Business Administration (MBA) with a total annual intake of 816. The college has also been recognized as a Full Time Research Center in ECE, EEE under JNTUA. The college consists of well-designed infrastructure and is ably supported by well qualified, reasonable blend of experienced and young faculty who involve themselves in teaching and research. The overall ambience of the college provides best place for teaching-learning experience. Further, all the stake holders of GPCET work in the framework of its well-defined Vision, Mission and Quality Policy.

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Pros and Cons of Virtual Learning on Students during Covid-19

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Abstarct

Due to COVID-19 pandemic, the conventional face-to-face classroom lectures have shifted to online setting.Duringthis pandemic period, governments around the world have closed all the educational institutions to control the spread of the virus, and as a result, over 1.2 billion children are out of the classroom globally (Chandra, 2020; Li & Lalani, 2020). The sudden shift from the physical classroom to virtual space creates a disruption among students, educators, and institutions (Chandra, 2020). This has brought far-reaching changes in all aspects of our lives. Social distancing and restrictive movement policies have significantly disturbed traditional educational practices. Reopening of schools after relaxation of restriction is another challenge with many new standard operating procedures put in place. This present paper is an attempt to discuss the pros and cons of online learning on students during the pandemic period.

Key Words: Pandemic, Governments, Social distance, physical classroom

I. Introduction

Learning is the part of human existence. Each day of a man's life, he learns new things to survive in a changing world. This is an informal learning in that as man interacts with his environment at any stage in time, he learns new things. But in a formal learning situation, learning starts at home in a credle format, continues in the school, college, universities, workplace (Singh, 2011).The school learning environment offers opportunities for teachers and students to come together for institutional teaching/learning process. In this learning process, various technological gadgets are employed to facilitate the process. Such advanced technologies include internet, e-mail, website, mobile phone, ipodetc (Mangal and Mangal, 2009). These advanced technologies are variable tools for rendering valuable assistance and good alternative to traditional method of education. This alternative could be in form of virtual classroom.

Since the outbreak of COVID-19, educational institutions of the affected countries across the globe have stopped taking classes physically and shifted to online mode in order to contain the spread of the virus. Although different forms of online learning have been there in the scenario for quite some time, the current situation of a full-scale online learning can have certain consequences. Previous studies suggest that

About Editors

Sruthi. S, MA (Economics), M.Com., NET, SET is working as Managing Editor in Journal of Exclusive Management Science. She had participated in more than 150 National and International Conferences and presented Research papers in 102 International / National Conferences. She had published many Research Papers in National and International Books having ISBN and also in many International Peer Reviewed and Refereed Journals including UGC CARE listed and Scopus indexed Journals. She authored 3 academic books with ISBN.She received Global Educational Awards 2020 titled "Best Researcher" for remarkable achievements in the field of Research and Publications and also received Global Professionals- Educationalist Awards titled "International Star Excellence Award" in the year 2020 from Sarojini Research and Development Council, New Delhi. She edited more than 28International and National Books having ISBN.

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Contents

Gender Discrimination and Social Inequalities in Women Empowerment in India

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Abstarct

Women's empowerment is multidimensional and it is very difficult to measure. It comprises the entire complexities of interactions, roles, rights and status that surround being male versus being female in a given society or culture (Mason, 1997). However, in our study we have tried to measure women's empowerment in the domestic sphere by making women empowerment index. Here we construct the index of women empowerment (IWE) where several indicators have been used to assess the extent of women empowerment. The most commonly used indicators are women political participation, work participation rate, literacy and average daily earnings. The present paper is an attempt to know the Women Empowerment, gender discrimination at house and workplace etc. Gender sensitized technologies in the field of home, workplace, education, health etc are not only helpful for day to day chores but make women self-reliant and confident. Women have successfully played their role in families and if given proper guidance they can progress society too with their intelligence and incredible leadership power. Feminism is not just a need for women but it is a need for worldwide progress (Sherin Shah). The Present paper discuss on gender discrimination and social disparities in women empowerment in India.

Key Words: Empowerment, Social disparities, Gender Discrimination, literacy

I. Introduction

Empowerment is a multi-dimensional process that helps individuals gain control over their own lives. Empowerment is the process of increasing the degree of autonomy and self-determination in individuals that enable them to represent their interests in an authorized manner. A sense of empowerment reflects an increase in personal value that comes out of real-life influence in some areas of life. It's a process of maintaining the benefits available to women at an individual, household and community level by boosting her status through education, training and raising awareness. It's also a process in favour of women where gender roles are redefined and this allows women to acquire the ability to choose between alternatives which previously, they were restricted from (Sherin Shah).

Women play a pivotal role in the overall progress of a country as they constitute half the human resources of a nation. The economic wealth of a country is

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Contents

National Education Policy 2020 – A New Paradigm Shift in Education

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Abstract

The new education policy must provide to all students, irrespective of their place of residence, a quality education system, with particular focus on historically marginalized, disadvantaged, and underrepresented groups. Education is a great leveler and is the best tool for achieving economic and social mobility, inclusion, and equality. Initiatives must be in place to ensure that all students from such groups, despite inherent obstacles, are provided various targeted opportunities to enter and excel in the educational system.

This National Education Policy 2020 is the first education policy of the 21st century and aims to address the many growing developmental imperatives of our country. This Policy proposes the revision and revamping of all aspects of the education structure, including its regulation and governance, to create a new system that is aligned with the aspirational goals of 21st century education, including SDG4, while building upon India's traditions and value systems. The National Education Policy lays particular emphasis on the development of the creative potential of each individual. It is based on the principle that education must develop not only cognitive capacities - both the 'foundational capacities 'of literacy and numeracy and 'higher-order' cognitive capacities, such as critical thinking and problem solving – but also social, ethical, and emotional capacities and dispositions.

Key Words: 21st Century, cognitive capacities, imperatives, governance

I. Introduction

Education is fundamental for achieving full human potential, developing an equitable and just society, and promoting national development. Providing universal access to quality education is the key to India's continued ascent, and leadership on the global stage in terms of economic growth, social justice and equality, scientific advancement, national integration, and cultural preservation. Universal high-quality education is the best way forward for developing and maximizing our country's rich talents and resources for the good of the individual, the society, the country, and the world. India will have the highest population of young people in the world over the next decade, and our ability to provide high-quality educational opportunities to them will determine the future of our country.

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Distance Education - Pros and Cons of E- Learning and Virtual Classes

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Abstarct

Distance education is a field of education that focuses on, technology and incorporated in delivering education to students who are not physically "on site" to receive their education (Potashnik & Capper, 1998). Distance education is going to become more popular and accepted approach for education in the modern age. Several considerations have led to wide acceptance and sustained growth of distance education in all over the world. First, it is recognized that education is a key factor in economic development and social change (Rashid & Elahi, 2012). Distance education activities are designed to fit the specific context for learning, the nature of the subject matter; need and goals of the learner, the learner's environment and instructional technologies methods. E-learning is regarded as a dynamic and immediate learning environment to improve the quality of knowledge acquisition and transfer. It provides the opportunity for learners to interact with each other, accessibility to materials and services for interaction and collaboration (Docimini & Palumbo, 2013). This contrary to the traditional classroom setup where time and space serves as a restriction to the communication between students and teachers in the learning and teaching processes (Zhang et al. 2012). The online virtual classroom has another advantage as interactions which are learner-content, learner-instructor, and learner-learner in the online environment (Hillman et al., 1994; Miltiadou & Savenye, 2003; Moore, 1989; Riel & Harasim, 1994). Synchronous technologies can add value to teaching and learning models, either as a supplement or replacement for face-to-face or asynchronous learning (Schullo et al., 2007). The present paper is an attempt to discuss the Pros and Cons of E-Learning and Virtual classes on the studies.

Key Words: Distance Education, E-Learning, Virtual Classes, learner-instructor, education

I. Introduction

Use of the web based instruction for educational purposes is widespread and rapidly growing. Thousands of university courses have been developed for delivery entirely via the web. This approach accelerates more colleges and universities urge faculty to create online versions of their courses (Dutton et al., 2002). Online course is one of the most dynamic and enriching forms of distance learning that exist today. Online course is a subcategory of distance education, which has been defined as the formal delivery of instruction in which time and geographic location separate students

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STUDY ON COVID-19 VACCINATIONS

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ABSTRACT

The period beginning in December 2019 will be remembered forever in human history as the victim of the unique COVID-19 pandemic. Causing distress to every country it touches, it has created damaging economic, political, social and health impacts that will leave behind everlasting scars. Despite the use of numerous strategies by governments around the world, just a few have succeeded. The new outbreak of COVID-19 has recently become a serious threat to the health of people around the 250 countries. SARS-CoV-2, a single-stranded positive-sense RNA virus that causes infection and respiratory failure and has killed thousands of people, is the causem of COVID-19. Vaccines are needed to protect the human race from COVID-19. Vaccines that induce large quantities of high-affinity virus-neutralized antibodies may optimally

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About the Editor

Dr. Kaptain K. Bajpayee got his research training in the field of Ethnomedicobotany, Medicinal Plants and Phytotherapy leading to the award of Ph.D. degree from Rohilkhand University in 2004 under the able guidance of Dr. S. C. Sharma. Soon after the completion of doctoral degree, he joined the Department of Botany, Dr.R.M.L.P.G. College, Allipur, Hardoi. Dr. Bajpayee starts his research career just after the completion of his Master Degree in(1994) Botany from G.F. College, Shahjahanpur and Published a number of Research Papers in the field of Medicinal Plants. Today, Dr. Bajpayee is an eminent researcher of interdisciplinary subjects like Phytotherapy, Medicinal Plants, Ethnomedicobotany, Plant Antimicrobials and published more than 30 research articles.He is the Member of Editorial Board Team in more than 50 Research Journals of National and International origin. He published several Chapters in National and international Books of global repute.Now a days Dr. Bajpayee is the Head of Centre for Research in Ethno and Medico Botany, and Principal at M.G. College, Marhpura, Kannauj Uttar Pradesh. Under his able guidance four doctoral student and 8 M.Phil. student completed his research Degree in the field of Medicinal Plants, Phytotherapy and Ethnomedicobotany. He is the Life member of Indian Science Congress Association, Kolkata., Indian Ethnobotanical Society., Excel Research Management Association., BioLeagues Worldwide., and a number of World fame institutions. With unexhausted academic and research activities Dr. Bajpayee completed Master Degrees in more than 7 subjects and NET of UGC in two subjects. He is working scientist on the original innovative interdisciplinary fields in the Medical Sciences, Medicinal Plants, Plant Antimicrobials etc. His dedication to the subject will revolutionize the future theories in the field of Phytotherapy , Phytopharmacy and Medicinal Plant's studies.

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Chapter - 12

IMPACTS OF COVID - 19 ON MAN AND ENVIRONMENT IN INDIA – A REVIEW

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ABSTRACT

Mankind has observed various pandemics throughout the history where some of were more disastrous than the others to the humans. We are observing a very tough time once again fighting an invisible enemy; the novel COVID-19 coronavirus. Initially observed in the Wuhan province of China, now fastly spreading around the world. China, has quickly spread to various countries, with many cases having been reported worldwide. As of July 15th, 2010, in India, there are around 3, 11, 00,000 positive cases have been reported. India, with a population of more than 1.34 billion—the second largest population in the world—It was very tough time to India during April and May months 2021 with

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2.

Transformation of Regular Teaching Learning Process Into Moodle

Dr. K Syamala Devi*
V. Vijaya Lakshmi**
Dr. M. Aparna***

Introduction

Traditional teaching methods, with teachers in front of a blackboard giving long hours of lectures do not "work" with today's students and certainly will not work with the students of tomorrow. By using ICT (Information and Communication Technologies) the teacher's role is being transformed from a traditional profession to an intermediate supporter towards the facilitation of the students to conquer knowledge (Kalogiannakis 2010). King(1993).

Active learning is defined as the process of engaging students in activities in such a way that they are supported to reflect upon idea sand how these ideas are being executed (Michael 2006). We

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RESEARCH TRENDS IN

MULTIDISCIPLINARY SUBJECTS

VOLUME - 3

RESEARCH TRENDS IN MULTIDISCIPLINARY SUBJECTS: VOLUME-3

Edited by: Sruthi S, Kishor Kumar Dash, Dr. Bipin Chandra Pant, Y Suryanarayana Murthy & Nisha Joseph

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25 | WOMEN EMPOWERMENT IN INDIA – GENDER DISCRIMINATION AT HOUSE AND WORKPLACE

V. Vijaya Lakshmi, Dr. K. Syamala Devi & Dr. M. Aparna

ABSTRACT

The empowerment and autonomy of women and the improvement of their political, social, economic and health status is a highly important end in itself. In addition, it is essential for the achievement of sustainable development. The full participation and partnership of both women and men is required in productive and reproductive life, including shared responsibilities for the care and nurturing of children and maintenance of the household. In all parts of the world, women are facing threats to their lives, health and well- being as a result of being overburdened with work and of their lack of power and influence. In most regions of the world, women receive less formal education than men, and at the same time, women's own knowledge, abilities and coping mechanisms often go unrecognized. Women's empowerment is multidimensional and it is very difficult to measure. It comprises the entire complexities of interactions, roles, rights and status that surround being male versus being female in a given society or culture (Mason, 1997). However, in our study we have tried to measure women's empowerment in the domestic sphere by making women empowerment index. Here we construct the index of women empowerment (IWE) where several indicators have been used to assess the extent of women empowerment. The most commonly used indicators are women political participation, work participation rate, literacy and average daily earnings. The present paper is an

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technology. It has also become important to enhance transparency in order to eradicate the evils like poverty, differences, regional differences, unemployment, red tapism, resistance to change etc. However, it is not easy to bring a diversified country like India on one platform. Various schemes are launched in different states in order to promote e-governance. Present government is putting so much stress on the concept of digital India i.e. e-governance, its acceptance and successful implementation.

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GROUNDWATER POLLUTION AND REMEDIATION

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MERCURY CONTAMINATION IN SHALLOW GROUNDWATER DURING MONSOON SEASON, CENTRAL GANGA ALLUVIAL PLAIN, NORTHERN INDIA

Garima Upreti[1], Vandana Devi[1], Sonu Kumar[2], Mohammad Mohsin Atique[1], Ashwani Raju[3], Sudhir Kumar[4], Sandeep Singh[5], Narendra Kumar[6], and Munendra Singh[1]

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ABSTRACT

Mercury contamination in the shallow groundwater of Mallihabad (Lucknow) in the central Ganga Alluvial Plain was assessed with daily rainfall data, Land-Use-Land-Cover study and oxygen isotope analysis. Thirty-one groundwater samples were collected from Jehta village (26° 55' 15'' N; 80° 50' 21''; 119 m amsl) during the Monsoon season having the variable rainfall intensity during July and August 2019. Total mercury analysis was performed by using Flow Injection Atomic Absorption Spectroscopy-Mercury Hydride System. Total dissolved mercury concentrations range in the three orders of magnitude high (>1200 ng/L) emphasizing the importance of mercury transportation in the unconfined sandy aquifer, the primary source of drinking water. The observed depletion of oxygen isotopic ratios in the groundwater suggests significant precipitation-based recharge of the shallow aquifer along with mercury transportation from the surface environment. Land-Use-Land-Cover study suggests that mercury contamination may be linked to the Mango orchard-related agrochemical used in the monitoring area.

During onset of the Monsoon season, the increasing intensity of monsoon precipitation favorably compare with the mercury contamination in the shallow groundwater. First high-intensity rainfall event is followed by the peak of mercury concentration with a week lag-time. Mercury contaminant was initially flushed to the shallow groundwater, then no contamination was subsequently observed as nearly 50% samples were reported mercury concentration below the detection limit. The present study confirms that the combination of Land-Use-Land-Cover study and oxygen isotope measurements represents a valuable approach to identify source and transportation of the mercury contamination in the Ganga Alluvial Plain region.

GROUND WATER POLLUTION AND CONTAMINATION IN INDIA - A REVIEW

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ABSTARCT

Ground water is an essential and vital component of our life support system. In India, groundwater is used intensively for irrigation and industrial purposes, a variety of land and water-based human activities are causing pollution of this precious resource. Ground water is attracting special attention as it has become a critical resource for socioeconomic development of our country. During recent years

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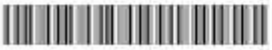

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A REVIEW ON NATIONAL EDUCATION POLICY IN INDIA- A HOPE FOR FUTURE

M. Sreevalli[1], B. Mrinalini[2]

ABSTRACT

Education is fundamental for achieving full human potential, developing an equitable and just society, and promoting national development. Providing universal access to quality education is the key to India's continued ascent, and leadership on the global stage in terms of economic growth, social justice and equality, scientific advancement, national integration, and cultural preservation. This National Education Policy 2020 is the first education policy of the 21st century and aims to address the many growing developmental imperatives of our country. This Policy proposes the revision and revamping of all aspects of the education structure, including its regulation and governance, to create a new system that is aligned with the aspirational goals of 21st century education.

Key Words: *Education, NEP, 21st Century, governance*

INTRODUCTION

The National Education Policy 2020 (NEP 2020), which was approved by the Union Cabinet of India on 29 July 2020, outlines the vision of India's new education system. The new policy replaces the previous National Policy on Education, 1986. The policy is a comprehensive framework for elementary education to higher education as well as vocational training in both rural and urban India. The policy aims to transform India's education system by 2021. The language policy in NEP is a broad guideline and advisory in nature; and it is up to the states, institutions, and schools to decide on the implementation. The NEP 2020 enacts numerous changes in India's education policy. It aims to increase state expenditure on education from around 4% to 6% of the GDP as soon as possible.

Phases of New Education Policy (NEP):

The phases of the new education policy are divided into four phases. In the new policy, it has been completely abolished. The old education policy was organized on a 10 + 2 formula, but the new education policy is based on the 5 + 3 + 3 + 4 formula. The new pattern includes 3 years of schooling and 12 years of schooling. It has been made mandatory for government and non-government

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About the Editor

Dr. Kaptain K. Bajpayee got his research training in the field of Ethnomedicobotany, Medicinal Plants and Phytotherapy leading to the award of Ph.D. degree from Rohilkhand University in 2004 under the able guidance of Dr. S. C. Sharma. Soon after the completion of doctoral degree, he joined the Department of Botany, Dr. R.M.L. PG. College, Alipur, Hardoi. Dr. Bajpayee starts his research career just after the completion of his master Degree in 1994. Botany from G.F. College, Shahjahanpur and Published a number of Research Papers in the field of medicinal Plants. Today, Dr. Bajpayee is an eminent researcher of interdisciplinary subjects like Phytotherapy, Medicinal Plants, Ethnomedicobotany, Plant Antimicrobials and published more than 30 research articles. He is the member of Editorial Board Panel in more than 50 Research Journals of National and International origin. He published several Chapters in National and International Books of global repute. Now a days Dr. Bajpayee is the Head of Centre for Research in Ethno and Medicobotany, and Principal of M.G. College, Mathpawai, Kannauj Uttar Pradesh. Under his able guidance for doctoral students and MPhil student completed his research Degree in the field of Medicinal Plants, Phytotherapy and Ethnomedicobotany. He is the life member of Indian Science Congress Association, Kolkata, Indian Ethnobotanical Society, Excel Research Management Association, Biologyan Worldwide, and a number of World fame institutions. With unobstructed academic and research activities Dr. Bajpayee completed Master Degrees in more than 7 subjects and NET of UGC in two subjects. He is working scientist on the original taxonomic interdisciplinary fields in the Medical Sciences, Medicinal Plants, Plant Antimicrobials etc. It is dedication to the subject will reveal more on the future theories in the Fields of Phytotherapy, Phytopharmacy and Medicinal Plant's studies.

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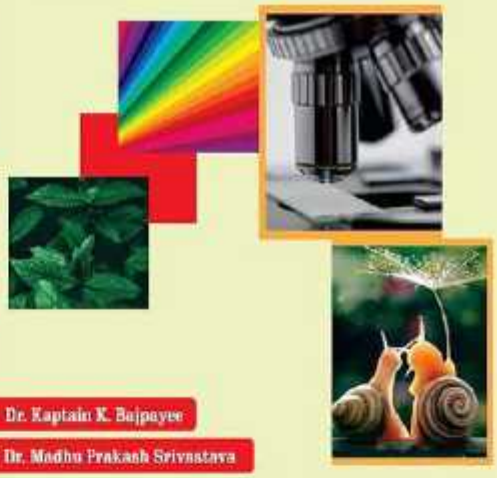

Dr. Kaptain K. Bajpayee
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Chapter - 2

STUDY ON COVID-19 VACCINATIONS

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ABSTRACT

The period beginning in December 2019 will be remembered forever in human history as the victim of the unique COVID-19 pandemic. Causing distress to every country it touches, it has created damaging economic, political, social and health impacts that will leave behind everlasting scars. Despite the use of numerous strategies by governments around the world, just a few have succeeded. The new outbreak of COVID-19 has recently become a serious threat to the health of people around the 250 countries. SARS-CoV-2, a single-stranded positive-sense RNA virus that causes infection and respiratory failure and has killed thousands of people, is the causem of COVID-19. Vaccines are needed to protect the human race from COVID-19. Vaccines that induce large quantities of high-affinity virus-neutralized antibodies may optimally

Chapter - 12

IMPACTS OF COVID - 19 ON MAN AND ENVIRONMENT IN INDIA – A REVIEW

– DR. K.SYAMALA DEVI

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Dept of Basic Sciences

– DR. M. APARNA

Associate. Professor,
Dept. of Humanities and Basic Sciences

– V. VIJAYA LAKSHMI

Asst. Professor,
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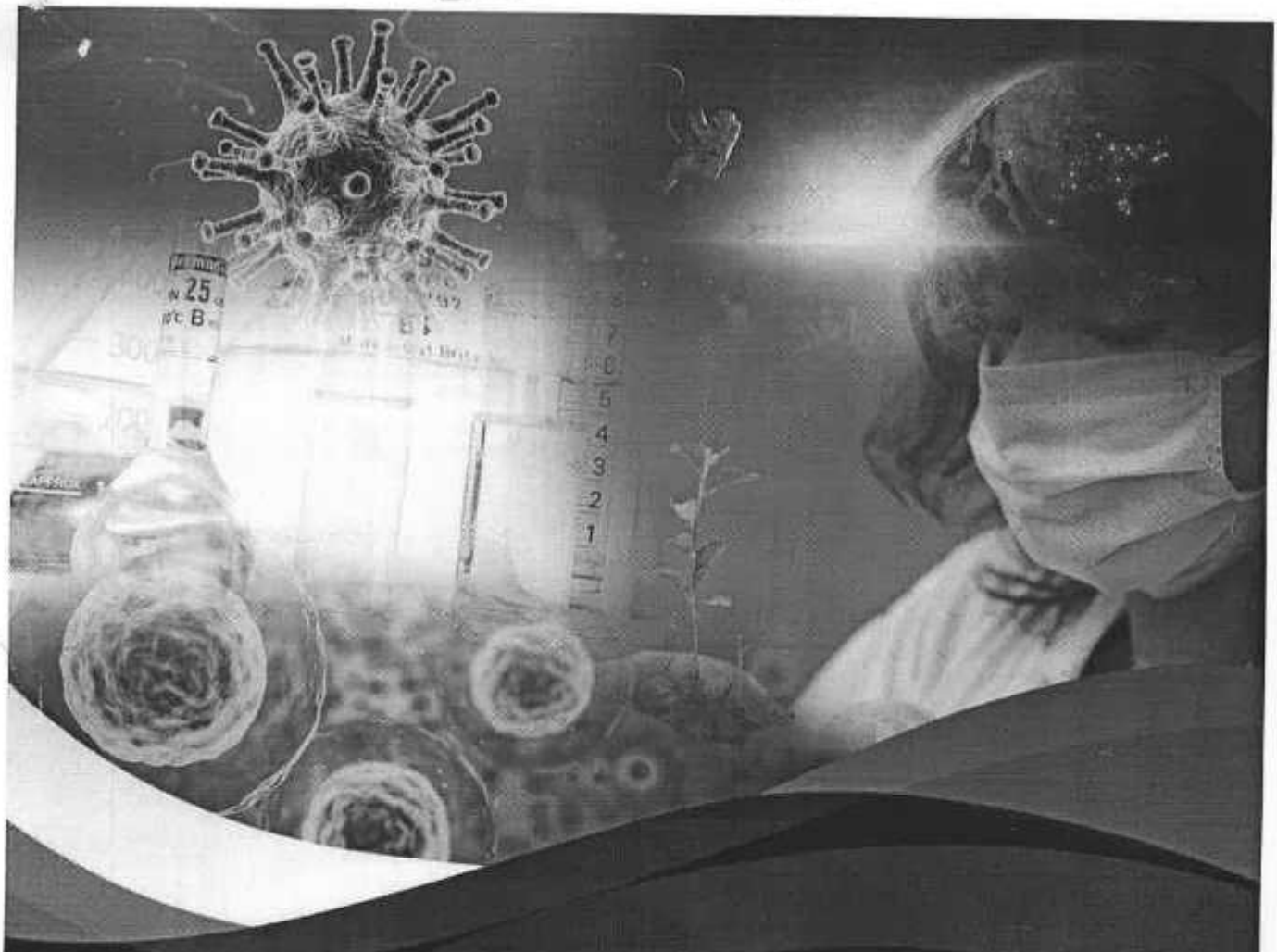
G. Nayanamma Institute of Technology and Science, Hyderabad

ABSTRACT

Mankind has observed various pandemics throughout the history where some of were more disastrous than the others to the humans. We are observing a very tough time once again fighting an invisible enemy; the novel COVID-19 coronavirus. Initially observed in the Wuhan province of China, now fastly spreading around the world. China, has quickly spread to various countries, with many cases having been reported worldwide. As of July 15th, 2010, in India, there are around 3, 11, 00,000 positive cases have been reported. India, with a population of more than 1.34 billion—the second largest population in the world—It was very tough time to India during April and May months 2021 with



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RESEARCH TRENDS IN MULTIDISCIPLINARY SUBJECTS

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RESEARCH TRENDS IN MULTIDISCIPLINARY SUBJECTS

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V. Vijaya Lakshmi, Dr. K. Syamala Devi & Dr. M. Aparna

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RESEARCH TRENDS IN MULTIDISCIPLINARY SUBJECTS: VOLUME-3

Edited by: Sruthi S, Kishor Kumar Dash, Dr. Bipin Chandra Pant, Y Suryanarayana Murthy & Nisha Joseph

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Gender Discrimination and Social Inequalities in Women Empowerment in India

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Abstarct

Women's empowerment is multidimensional and it is very difficult to measure. It comprises the entire complexities of interactions, roles, rights and status that surround being male versus being female in a given society or culture (Mason, 1997). However, in our study we have tried to measure women's empowerment in the domestic sphere by making women empowerment index. Here we construct the index of women empowerment (IWE) where several indicators have been used to assess the extent of women empowerment. The most commonly used indicators are women political participation, work participation rate, literacy and average daily earnings. The present paper is an attempt to know the Women Empowerment, gender discrimination at house and workplace etc. Gender sensitized technologies in the field of home, workplace, education, health etc are not only helpful for day to day chores but make women self-reliant and confident. Women have successfully played their role in families and if given proper guidance they can progress society too with their intelligence and incredible leadership power. Feminism is not just a need for women but it is a need for worldwide progress (Sherin Shah). The Present paper discuss on gender discrimination and social disparities in women empowerment in India.

Key Words: Empowerment, Social disparities, Gender Discrimination, literacy

I. Introduction

Empowerment is a multi-dimensional process that helps individuals gain control over their own lives. Empowerment is the process of increasing the degree of autonomy and self-determination in individuals that enable them to represent their interests in an authorized manner. A sense of empowerment reflects an increase in personal value that comes out of real-life influence in some areas of life. It's a process of maintaining the benefits available to women at an individual, household and community level by boosting her status through education, training and raising awareness. It's also a process in favour of women where gender roles are redefined and this allows women to acquire the ability to choose between alternatives which previously, they were restricted from (Sherin Shah).

Women play a pivotal role in the overall progress of a country as they constitute half the human resources of a nation. The economic wealth of a country is

Distance Education - Pros and Cons of E- Learning and Virtual Classes

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Abstarct

Distance education is a field of education that focuses on, technology and incorporated in delivering education to students who are not physically "on site" to receive their education (Potashnik & Capper, 1998). Distance education is going to become more popular and accepted approach for education in the modern age. Several considerations have led to wide acceptance and sustained growth of distance education in all over the world. First, it is recognized that education is a key factor in economic development and social change (Rashid & Elahi, 2012). Distance education activities are designed to fit the specific context for learning, the nature of the subject matter; need and goals of the learner, the learner's environment and instructional technologies methods. E-learning is regarded as a dynamic and immediate learning environment to improve the quality of knowledge acquisition and transfer. It provides the opportunity for learners to interact with each other, accessibility to materials and services for interaction and collaboration (Docimini & Palumbo, 2013). This contrary to the traditional classroom setup where time and space serves as a restriction to the communication between students and teachers in the learning and teaching processes (Zhang et al. 2012). The online virtual classroom has another advantage as interactions which are learner-content, learner-instructor, and learner-learner in the online environment (Hillman et al., 1994; Miltiadou & Savenye, 2003; Moore, 1989; Riel & Harasim, 1994). Synchronous technologies can add value to teaching and learning models, either as a supplement or replacement for face-to-face or asynchronous learning (Schullo et al., 2007). The present paper is an attempt to discuss the Pros and Cons of E-Learning and Virtual classes on the studies.

Key Words: Distance Education, E-Learning, Virtual Classes, learner-instructor, education

I. Introduction

Use of the web based instruction for educational purposes is widespread and rapidly growing. Thousands of university courses have been developed for delivery entirely via the web. This approach accelerates more colleges and universities urge faculty to create online versions of their courses (Dutton et al., 2002). Online course is one of the most dynamic and enriching forms of distance learning that exist today. Online course is a subcategory of distance education, which has been defined as the formal delivery of instruction in which time and geographic location separate students

EMERGING TRENDS IN ONLINE MARKETING IN INDIA

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ABSTRACT

Online Marketing is the avenue of electronic communication which is used by the marketers to endorse the goods and the services towards marketplace. Online marketing means using digital technologies help to sell your goods or services. These technologies are a valuable complement to traditional marketing methods whatever the size of your company or your business model. The supreme purpose of the digital marketing is concerned with consumers and allows the consumers to intermingle with the product by virtue of digital media. Indian market is significantly changing with the massive use of Internet and information technology.E-Marketing is being used in different ways for marketing activities. The pace of change continues to be rapid with digital channels constantly growing in volume and strength. Day by day growing Digital Market in India is an evident that theDigitization is taking place with a high speed. E-commerce website are providing all the goods and services through online portals online today. Therefore, this paper has focused on understanding the growth of digital marketing in India and what are the current and future trends in digital marketing.

Key words- Online Marketing, Social media, Growth, Opportunities and Challenges

INTRODUCTION

E-commerce provides the capability of buying and selling products, information and services on the Internet and other online environments. E-Marketing is also known as web marketing, online marketing and internet marketing. E- Marketing is a management process. The aim of e-marketing is marketing is establish maintain and long-term relationship with customers. Online Marketing includes identify unmet needs, producing products and services to meet those need and pricing, distributing and promoting those products and service to produce a profit. Search engine is the best technique of online marketing.

E-marketing is "moving elements of marketing strategies and activities to a computerized, networked environment such as the Internet. Internet marketing is "the process of building and maintaining customer relationships through online activities to facilitate the exchange of ideas, products and services that satisfy the goals of both parties. E- Marketing is a mixture of all the activities of advertising, promotion publicity deciding the look and feel of the product, how it will be sold and sent to the customer etc.

The massive Indian market is changing fast. Internet access is mainstreaming among professionals and the use of mobile is intensifying. The pace of change continues to be rapid with digital channels constantly growing in volume and strength. More people spend more time online in India every year, and the digital tools and sites they use play an ever-growing role in their lives. Smart marketers keep on top of the scale of change and ensure their marketing strategies and touch point's mirror where the consumer is spending their time. These notes give a sense of the scale of change we have seen so far and imply the scale of what is coming.

METHODOLOGY

Primary Data: The research is done through observation and collection of data through questionnaires.
Secondary Data: Secondary data is collected from journals, books and magazines to develop the theory.

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Wakil Kumar Yadav

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23. Impact of Technology on Education: Transition to the Normal Pedagogical Practices to fully online flipped classrooms

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Abstract:

Due to COVID-19 Physical gathering in Higher Educational institutions is restricted and they acquainted with digital technologies to support the teaching learning process. Technology advancement promotes a redefinition of traditional instructional methodologies as well as the role of teachers and learners towards an efficient e-learning ecosystem. To data all existing roles are combined with the conventional face to face learning process. However, the latter can be unexpectedly hindered in some emergency cases, like the Corona Virus pandemic. To handle such an expected scenario This study describes how we successfully addressed this crisis by transforming two conventional flipped classes into fully online flipped classes with the help of a cloud-based video conferencing app. As in a conventional flipped course, in a fully online flipped course students are encouraged to complete online pre-class work. But unlike in the conventional flipped approach, students do not subsequently meet face-to-face in physical classrooms, but rather online. This study examines the effect of fully online flipped classrooms on student learning performance in two stages. In Stage One, we explain how we drew on the 5E framework to design two conventional flipped classes. The 5E framework consists of five phases—Engage, Explore, Explain, Elaborate, and Evaluate. In Stage Two, we describe how we transformed the two conventional flipped classes into fully online flipped classes. Quantitative analyses of students' final course marks reveal that the participants in the fully online flipped classes performed as effectively as participants in the conventional flipped learning classes. Our qualitative analyses of student and staff reflection data identify seven good practices for videoconferencing-assisted online flipped classrooms.

Introduction:

Present situation of education sector faces many challenges including ability to meet the teaching and learning needs of diverse students and student retention. These challenges often linked to how institutions design their learning environments and engage students in their learning. . Computers and the Internet have become an indispensable part of human's personal and professional lives, and are quasi omnipresent in all domains. Throughout the years, the use of Information and Communication Technologies (ICT) has fundamentally altered the practices and procedures of nearly all forms of endeavors in business and governance. As far as education is concerned, methods of teaching and learning have considerably changed due to the adoption of technology. As such, ICT played an important role in modern education by promoting more independent, motivated, and autonomous learners. To this end, several online teaching (e-learning) solutions emerged (Kats, 2010). They are used as an important complementary tool that should work together with the conventional face-to-face classes. It is asserted that the usage of ICT learning settings and instruments in educational processes shall denote radical changes both in the role of teachers and learners, leading to the upbringing of new teaching and learning environments and methodologies (e-Learning, Web-based Learning, Open and Distance Learning), as well as new training modalities (on-line training, on-site training, Blended-Learning, Instructor led Learning/Training, and Classroom Training) (Pieri & Diamantini, 2009).

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Digital Transformation for Sustainability

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Digital Transformation for Sustainability
By : *Dr. Maninder Kaur*
Dr. Ekata Gupta

CONTENTS

2.

Transformation of Regular Teaching Learning Process Into Moodle

Dr. K Syamala Devi*
V. Vijaya Lakshmi**
Dr. M. Aparna***

Introduction

Traditional teaching methods, with teachers in front of a blackboard giving long hours of lectures do not "work" with today's students and certainly will not work with the students of tomorrow. By using ICT (Information and Communication Technologies) the teacher's role is being transformed from a traditional profession to an intermediate supporter towards the facilitation of the students to conquer knowledge (Kalogiannakis 2010). King(1993).

Active learning is defined as the process of engaging students in activities in such a way that they are supported to reflect upon idea sand how these ideas are being executed (Michael 2006). We

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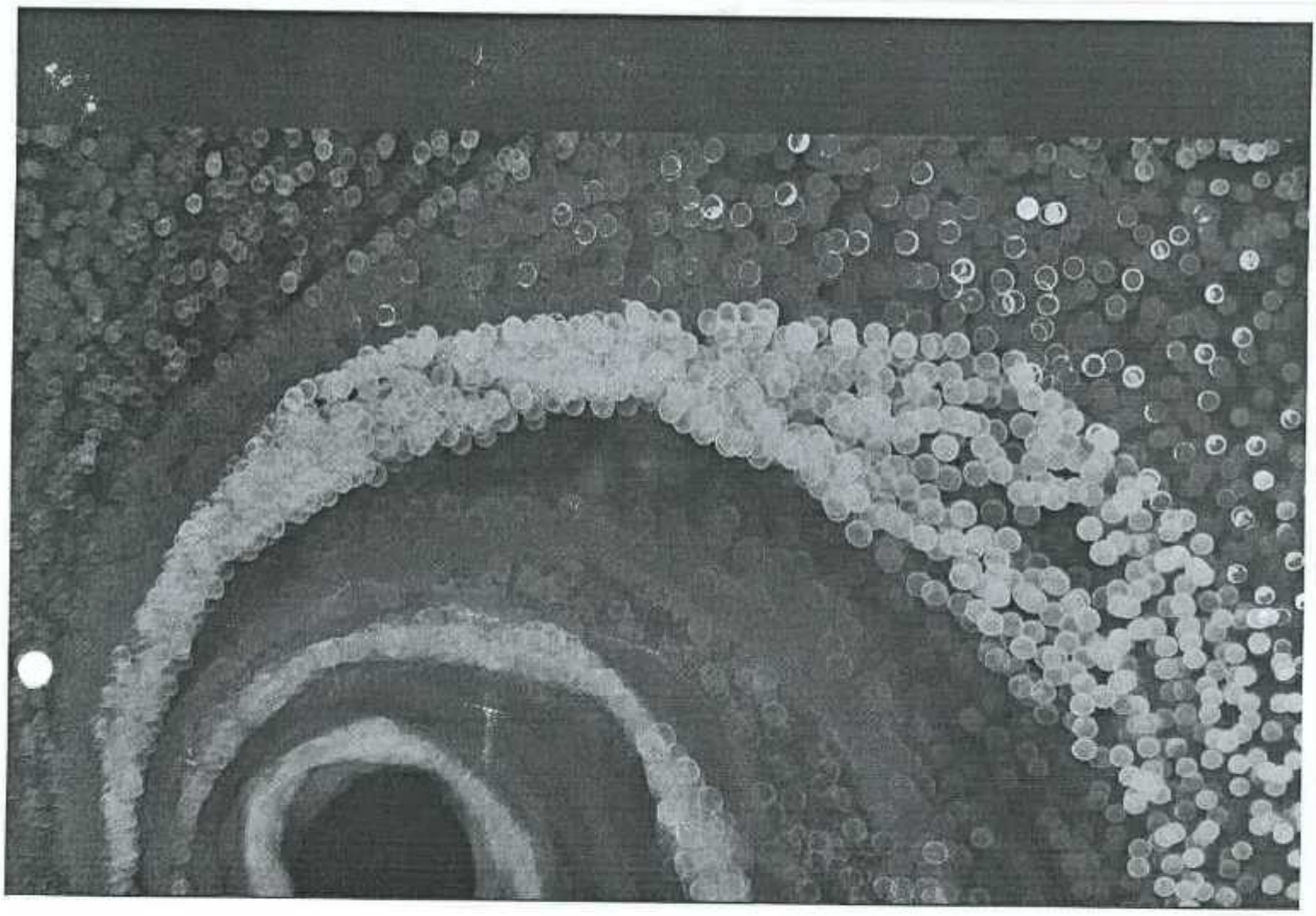

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STUDY SKILLS FOR STUDENTS' ACADEMIC ACHIEVEMENT

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Abstract

The study aimed at identifying various study skills used by the learners; to ascertain which study skill is more related to academic achievement and to examine the use of soft skills through study skills. The findings indicate significant relationship of time-management skills, reading and note-taking skills with academic achievement and the use of soft skills through study skills.

In compliance with the requirements of academic tasks; the ability of a student to know suitable strategies and the methods for study, while utilizing his/her time and resources efficiently is referred to as Study skills. Capable students in all classes may experience difficulty in school; not because of they lack ability but because they lack good study skills

.

Key words: *Study skills, note taking skills, time management, stress management*

Introduction

The term 'study skills' refers to the conscious and deliberate use of the processes of learning to achieve effective study practices. The term 'learning how to learn' is used to denote a similar idea. There is a great deal of overlap between what one will find in an up-to-date textbook or web site on study skills and a similarly up-to-date textbook or web site on learning to learn. Both deal with the idea that pupils and students can and should be helped to develop conscious, deliberate control over the mechanisms of their own learning.

. The most obvious study skills are:

- Reading
- Writing
- Note-taking
- Time-management
- Working with others
- Engaging in critical and analytical thinking
- Revising and remembering.

Effective study skills are associated with positive outcomes across multiple academic content areas and for diverse learners. The purpose of this paper is to describe the three study skills that are effective in helping students to improve their study skills that are experienced by us in our teaching experience.

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DESIGN THINKING AND ITS APPLICATIONS

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Abstract

Design Thinking is a user-centered way to conceive of and create a successful product, service, or process. It is a mindset, a systematic way of approaching a problem you want to solve. Design thinking can solve any problem and works everywhere and anywhere. In this paper, we discuss the importance of Design thinking, its importance and applications in the real world

***Keywords**: Design thinking, designers, innovation, brain storming.*

Introduction

Design Thinking is a non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test. In simple words, Design Thinking is finding out solutions to any feasible problems which are specific to a field.

According to Tim Brown, CEO of IDEO, "Design Thinking is human centered-approach to innovation that integrates the needs of people, the possibilities of technology, and the requirements for business success."

Some key principles of Design thinking:

- Empathy for the end user.
- Curiosity
- An openness to failure
- Rapid prototyping
- Cross functional collaboration.

Design Thinking Process

Design thinking is a five-step process to come up with meaningful ideas to solve real problems for particular group of people. The process is taught in design and business schools around the world. It has brought business a lot of happy customers and taught entrepreneurs around the world to solve problems with innovative and new solutions.

Various steps involved in Design thinking:

1) Empathize
2) Define
3) Ideate
4) Prototype
5) Test

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