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Affiliated to Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu.

CRITERION III

RESEARCH, INNOVATION AND EXTENSION

3.4.4 Books and Chapters in Edited Volumes / Books Published and Papers in National / International Conference proceedings

Academic Year 2020-2021

(Supporting Document)

Submitted to

THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)

August 2022

Sadakathullah Appa College

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3.4.4 Number of books and chapters in edited volumes/books published per teacher during 2020-21

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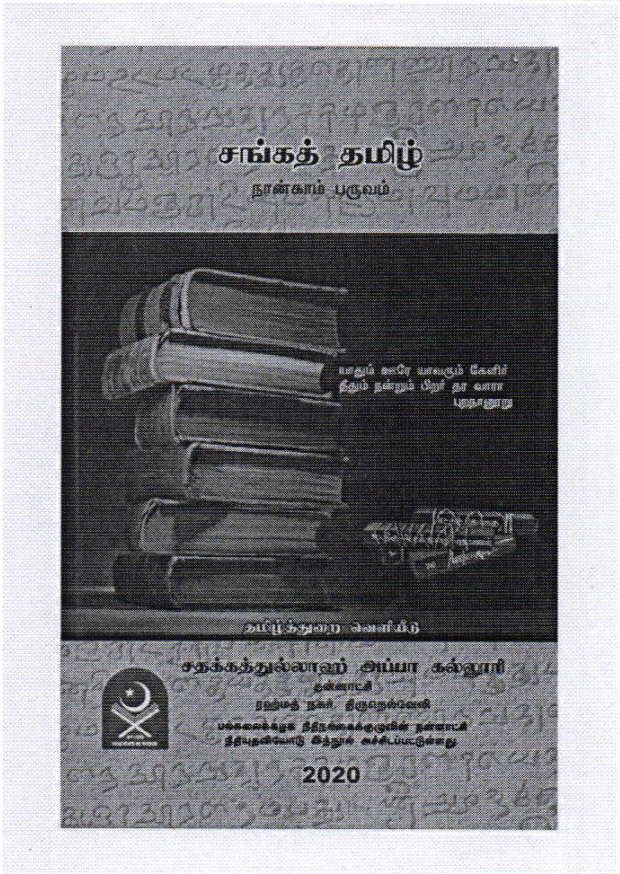
3	முனைவர்.அசே.சேக் சிந்தா	சங்கத் தமிழ்	978-81-9351-98-2-0	



சங்கத்தமிழ்

(தனிச்சுற்றுக்கு மட்டும்)
பல்கலைக்கழக நிதிநல்கைக்குழுவின் தன்னாட்சி நிதியுதவியில் இந்நூல் அச்சிடப்பட்டுள்ளது.

முதல் பதிப்பு : பிப்ரவரி 2020

பதிப்புரிமை : சதக்கத்துல்லாஹ் அப்பா கல்லூரி (தன்னாட்சி)
ரஹ்மத் நகர், திருநெல்வேலி – 627 011.

விலை : ரூ. 62.00

பன்னாட்டு நூல் குறியீட்டு எண் : 978-81-942482-6-2

வெளியீடு : சதக்கத்துல்லாஹ் அப்பா கல்விச் சபை,
சதக்கத்துல்லாஹ் அப்பா கல்லூரி (தன்னாட்சி)
ரஹ்மத் நகர், திருநெல்வேலி – 627 011.

வடிவமைப்பு : காசி கணினிக் கலையகம்
38 தெற்குக் கடை வீதி
பாளையங்கோட்டை – 627 002
அலைபேசி : 94436 14556

அச்சிட்டோர் : தாஜ் பிரிண்டர்ஸ்
சிவகாசி

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நபிகள் பெருமானார் (ஸல்) அவர்கள்

ज्ञान-विज्ञान विमुक्तये

பல்கலைக்கழக நிதிநல்கைக்குழுவின் தன்னாட்சி
நிதியுதவியோடு இந்நூல் அச்சிடப்பட்டுள்ளது.

50 years 1971-2021 Golden Jubilee

Published by
Sadakathullah Appa College (Autonomous)
Rahmath Nagar, Tirunelveli - 627011

ISBN : 9788195433377

11	Dr. M. Mohamed Sathik	Handbook of Deep Learning in Biomedical Engineering: Techniques and Applications/Applications, algorithms, tools directly related to deep learning.	978-0-12-823014-5	**DEPARTMENT OF COMPUTER SCIENCE**
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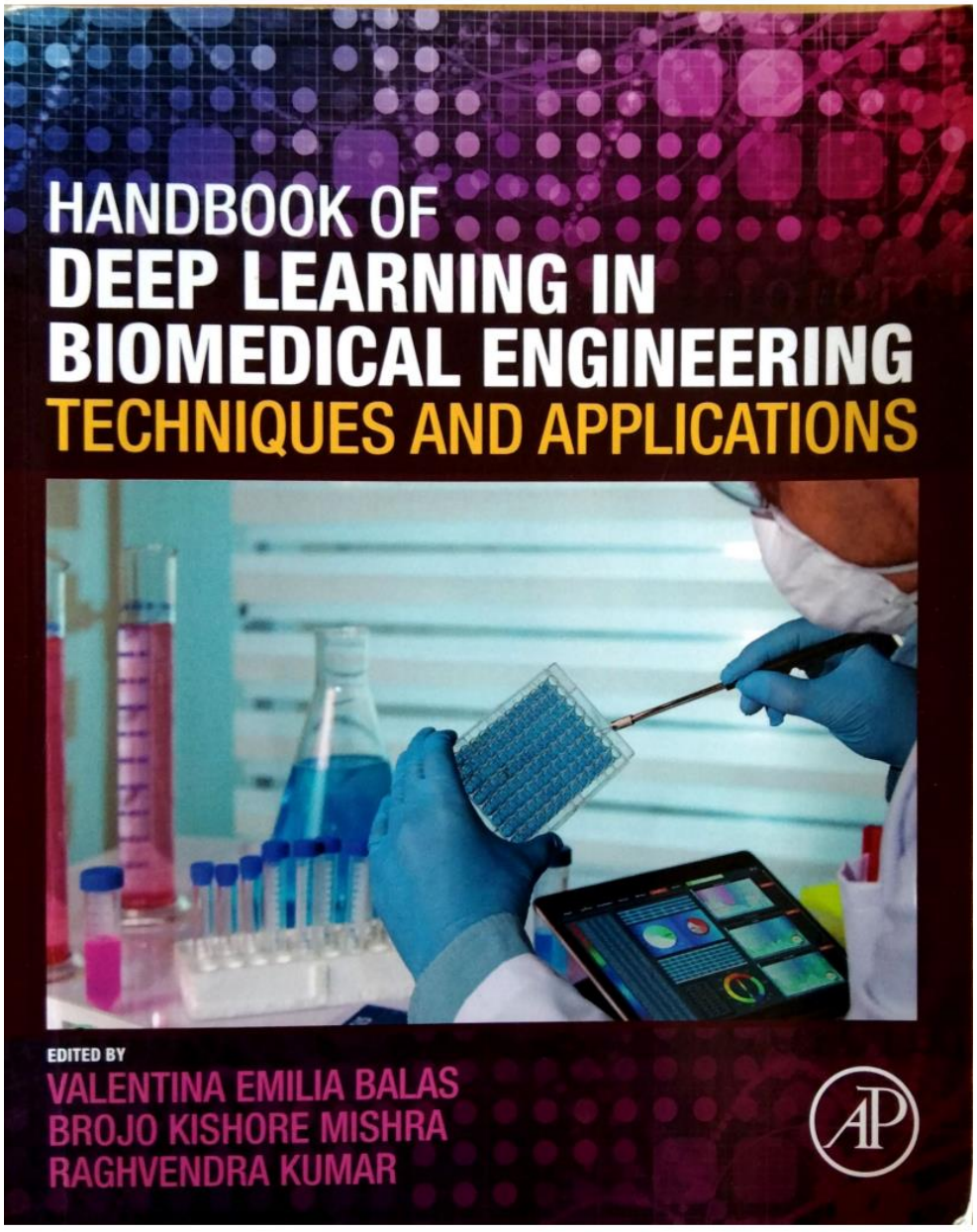

Academic Press is an imprint of Elsevier
125 London Wall, London EC2Y 5AS, United Kingdom
525 B Street, Suite 1650, San Diego, CA 92101, United States
50 Hampshire Street, 5th Floor, Cambridge, MA 02139, United States
The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, United Kingdom

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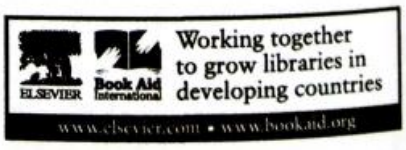
Library of Congress Cataloging-in-Publication Data
A catalog record for this book is available from the Library of Congress

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-0-12-823014-5

Publisher: Mara Conner
Acquisitions Editor: Chris Katsaropoulos
Editorial Project Manager: Fernanda A. Oliveira
Production Project Manager: Niranjan Bhaskaran
Cover Designer: Matthew Limbert

Typeset by TNQ Technologies



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3

Application, algorithm, tools directly related to deep learning

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1. Introduction

Deep learning (DL) is at the pioneer of what machines can do, and developers and business leaders absolutely need to use sense of what it is and how it works. This unique type of algorithm has far bettered any previous benchmarks for classification of various images, text, and voice.

It also powers some of the most impressive applications in the entire world, such as autonomous vehicles and real-time translation. There was certainly a knot of excitement around Google's DL based in the world, but the business applications for this eminent technology are more abrupt and potentially more effectual [1]. The concept of Deep Learning is illustrated in Fig. 3.1 [1].

DL is a specific subcategory of machine Learning, which is also a specific subset of artificial intelligence. For individual definitions:

- Artificial intelligence is the broad edict of creating machines that can think intelligently.
- Machine learning is one way of simplifying things, by using various algorithms to glean insights from meta data.
- Deep learning is a way of doing by using a specific kind of algorithm called a neural network.

Basic three types of scales that drive a DL process are data, computation time, and algorithms. To improve the computation time of the particular network, activation function plays an important role. If sigmoid activation function is used, then graph appears as shown in Fig. 3.2 [1].

Handbook of Deep Learning in Biomedical Engineering. https://doi.org/10.1016/B978-0-12-823014-5.00007-7

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Applications of deep learning in biomedical engineering

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1. Introduction

Biomedical engineering can also be called as bioengineering or BME. It is a multidisciplinary activity applying engineering principles and materials to medicine and healthcare (e.g., diagnostic or therapeutic). It entered the general public conscience though the proliferation of implantable medical devices, such as pacemakers and artificial hips, to more futuristic technologies such as somatic cell engineering and therefore the 3-D printing of biological organs. Biomedical engineering includes the following:

1. The obtaining of new information and comprehension of living frameworks through the inventive and substantive utilization of experimental and analytical methods dependent on the engineering sciences
2. The improvement of new devices, calculations, procedures, and frameworks that advance science and medication and improve clinical practice and health care

Biomedical engineering has developed throughout the years because of headways in science and technology. As clinical practice turns out to be technological based, a dynamic move is happening in industry to fulfill the need. Advancements in science and engineering are progressively being coordinated away from traditional technologies toward those required for medicinal services.

Deep learning (DL), a subset of artificial intelligence (AI), uses a progressive degree of artificial neural networks (ANNs), which empowers machines to process information with a nonlinear approach. Thereafter, DL has been applied in various scope of fields including automatic speech recognition, image

Handbook of Deep Learning in Biomedical Engineering. https://doi.org/10.1016/B978-0-12-823014-5.00008-9

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International Conference on Next Generation Computing Systems (ICNGCS 2021)

Survey on Predicting and Stratifying the Complication of Diabetic Patients using Machine Learning Techniques

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***Abstract*—The advancements in healthcare, biotechnological research and the usage of Internet connectivity have led to an enormous production of Electronic Health Records (EHRs).Nowadays, each individual patient records are gathered, monitored and analyzed to obtain a better treatment practice. The usage of machine learning algorithms, statistical analysis and mining techniques on Electronic Health Records has increased exponentially. Machine learning algorithms helps in transforming the collected information into a valuable knowledge. Diabetes is a chronic disease, in which the human body's ability to produce/respond the hormone insulin is impaired, resulting an abnormal metabolism of carbohydrates and elevates level of glucose in the blood. Existing survey works have only concentrated on predicting the diabetic of the patients. In this present work, a symmetric review on the usage of machine learning, data mining algorithms to predict the future complications of diabetic patient with kidney failure and heart disease is focused.**

***Index Terms*—Diabetic complications; Machine Learning; Diabetic; Retinopathy; Data mining, Healthcare**

I. Introduction

Performing machine learning basedanalysis on the collected healthcare information are in practice over a past two decades[1,3]. The process of identifying, diagnosing, preventing and treatment for diseases using machine learning techniques helps the physicians and healthcare industry to improve the health services. Several surveys in the recent time shows that the modern health care industry based on machine learning algorithms improves the quality and reduces the mortality rate, cost and complications in a considerable amount The Health Information Technology for Economic and Clinical Health Act (HITECH) has been created by the US Government which facilitates the effective utilization of Electronic Medical Records. The collection of healthcare data that are existing in different forms is possible with the advancement in the IT industry. Data is one of the important as well as integral part of health care. Google comments on emerging data by stating that the healthcare data is increasing in a tremendous way which has the potential of 300 billion dollars. This is due to the advancement that emerges in the technology through acquisition of data.

II. Diabetes and Heart Failure

The number of smokers increases day by day which has its direct impact with most of the peripheral artery diseases (PAD)[7]. The metabolic changes that are observed with the diabetes affected persons is clustered with the cardiovascular risk factors which obviously has subsequent level of increase in the vascular inflammation. This has its contribution towards the atherosclerosis and becomes risk for cardiovascular processes[8, 9]. The degree of diabetic control as well as the duration of diabetes are directly related to the PAD severity and incidence. The authors state that the Peripheral neuropathy is associated with this disease which is responsible for later clinical presentationwith severe manifestations, such as critical limb ischemia. It is found that the patient with diabetes have higher PAD prevalence raging from 20 to 30 As per the meta-analysis, they states that the coexistence of PAD and diabetes identified patients have highest risk of mortality. If the patients are affected with diabetes and CLI even worse prognoses is identified. The PAD becomes one of the reason for advanced atherosclerosis, and polyvascular involvement [9]. The atherosclerosis is accelerated by diabetes which increases the platelet activity, inflammatory biomarkers and coagulation factors. The PAD is asymptomatic during its initial stages due to peripheral neuropathy. When the concomitant ischemic heart disease is present in the patients then they lack the typical symptoms of angina. It is observed that the patient with CAD and PAD with the presence of diabetes may lead to sudden death. The analysis says that the highest mortality rate is observed with the patients with CLI than the patients who are affected with PAD. It mostly affects the atherosclerotic burden that is associated with CLI. It is also found that, the Type 1 diabetes was associated with women is 47% greater and excess risk of heart failure than the men. The type 2 diabetes associated with 9% greater excess risk of heart failure in women than men. The sex difference in the association between type 2 diabetes and heart failure was consistent across a range of prespecified subgroups. These findings are in agreement with the previous evidence showing that diabetes has stronger associations with diabetic complications for women than men, and shed light on the importance of a routine sex-specific approach both in research and clinical practice in this field.

III. Diabetics and Kidney Failure

It is estimated that 2•6 million people have received dialysis or undergone kidney transplantation because of the kidney failure during 2010[1, 2, 4]. It is expected that this count may be doubled up by 2030. In most of the countries, more than half of all patients suffering from dialysis have type 2 diabetes which makes this disease a leading cause for kidney failure.

ISBN: 978-93-89515-35-0

Image Reconstruction via Compressed Sensing in MRI

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Abstract:MRI is a viable tissue of an image. But in slow acquisition, MRI generates some artifacts. Compressed Sensing aids the reduced sample data and also reduces the some artifacts in MRI firstly. So MRI has some sparsity image, which is represented by curvelet transformation and reconstructed the noised image. But the defect of curvelet transform is that it could not control the image sparse transform, which is recovered by the proposed curvelet transform (PBDCT). Experimental shows that PBDCT is better than SIDCT based on SNR and Relative RLNE.

Keywords: MRI; Compressed Sensing; CS-MRI; PBDCT; OMP.

I. Introduction

Magnetic resonance imaging (MRI) technology provides the detail about viable tissue of image and has no radioactive harmful effects for the human body, so it is widely used in imaging of human brain, chest, heart and other parts. In heart imaging, abdomen imaging and functional imaging, the slow imaging process of MRI generate artifact. In addition, overlong sampling duration will result in patients' psychological discomfort. MRI data sampling speed and imagining speed are improved by partial Fourier transform and achieved for under-sampling of k space data through non-Cartesian sampling, but the artifact will be caused for some images. Compressed Sensing (CS) [1] [2] breaks the condition of traditional sampling theory for sampling frequency and achieves sampled signal compression during acquiring data. It reduces data sampling quantity, and save computation time and data storage space. CS was first introduced in MRI image collection and reconstruction by [3]. The resultant artifact from random under-sampling of k space is treated as the noise while analyzing MRI sparsity image, and the artifact in MRI image is removed through nonlinear reconstruction of minimized $l1$ norm. The problem of representing the smooth transition of images by Finite difference method, which results in ladder-shaped artifact during under-sampling of MRI image is solved by [4] proposed a method based on high-order total variational method to remove image reconstruction artifact. It can effectively restrain ladder-shaped artifact experimentally. The discrete cosine transform, wavelet transform and total variation have been used to sparsely represent MRI. According to the perceived matrix structure, DeVore [5] used polynomial to construct consistent matrix to meet uncertain features, but for sparse degree K has larger limit. In view of MRI image sparse reconstruction aspect, optimization algorithm and OMP algorithm are mainly used to resolve this problem. Qu et al. [6] take forward MRI image reconstruction algorithm based on joint sparse transform. The algorithm achieves inhibition of another sparse transform through artifact reconstruction with sparse transform, which removes MRI image artifact and improves image reconstruction quality. The hybrid of [7] wavelet domain and Gaussian Model and MRI image under-sampling reconstruction algorithm of Gaussian scale mixture model based on wavelet domain works very well.. The result showed that the algorithm improved 0.5 dB SNR and had good effects, comparing with traditional method.

Recently, block image methods [8] have sparse representations, which can be processed with easy manipulations on block image. At present, sparse transform and representation play an important role in MRI image reconstruction. Curvelet transform has been extensively applied in image processing because it is worked as an important mode of image sparse transform. But, traditional curvelet transform cannot completely control image noise or keep image edge information. The defects of curvelet transform is recovered by proposed compressed sensing reconstruction algorithm of MRI image based on curvelet transform of image block, which is described detail in this article. In this way, MRI image noise is restrained and edge information is retained.

II. Compressed Sensing

Assume that one-dimensional signal is $X \in R^{N\times 1}$. X can be expressed by a group of N × N orthogonal basis $\psi = \{\psi_1, \psi_2, \ldots \psi_N\}$, as shown in Formula (1) [9,10]:

$$X = \sum_{k=1}^{N} \psi_k \theta_k = \psi \theta \quad (1)$$

In Formula (1), $\theta = < X, \psi_k >$, where X, θ are N × 1 -dimensional vectors. When the signal X is on an orthogonal basis ψ , and there are $K << N$ non-0 coefficients θ_k , ψ is sparse basis of the signal X.

During sparse sampling, the signal X can be projected on measurement matrix ϕ, so sampling data Y can be expressed as:

$$Y = \phi X, Y \in R^M \quad (2)$$

Brain Tumor Segmentation and Classification Via FCPPN and RESNET 50

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Abstract:Brain Tumor is a deadly disease. To identify the brain tumor it can be segmented either manually or automatically. To diagnosis the brain tumor, we can prefer MRI Scan which gives detailed description about the tumor than the CT scan. In this paper we segment the brain tumor using FCPPN (FULLY CONNECTED PYRAMID POOLING NETWORK) Technique and to get the accurate area in the tumor we use the classification technique RESNET-50.

Keywords: PSPNET –Pyramid Pooling Network,RESNET-Resiual network,FCPPN-Fully connected pyramid pooling network.

I. Introduction

Brain tumors are mainly formed by the abnormal growth of a cell in the brain. There are two types of brain tumor namely primary tumor and secondary tumor, primary tumor that occur inside the brain and by the tissue of the brain or by the brain surroundings. Secondary tumor occurs from the other parts of the body such as lungs or breast and migrate to other parts of the brain. The segmentation technique is used to identify the affected area of the tumor from the original brain. The segmentation can be done either manually or automatically.

The Manual segmentation is challenging and time consuming task, so there came a automatic segmentation. There are so many automatic segmentation methods. In this paper we use an automatic segmentation called FCPPN and classification technique RESNET 50.

Section 2 deals with the literature survey on various segmentation methods and classification technique. In section 3 deals with our methodology for segmentation and classification technique.

Section 4 deals with the parameter analysis of classification of the segmented tumor. Section 5 deals with the conclusion of the segmentation and classification technique.

II. Literature Survey

FCPPN is a fully automated segmentation technique .It concatenates the work of FCN and PSPNET. This segmentation technique is used identify the affected area from the original tumor [1]. Marcel Prastwa, et. al [2] deals with the comparative study of manual and automatic segmentation methods and finally proved that the automatic segmentation yields a good result than the manual segmentation. Paper [3] presents various segmentation method using MRI Technique

The MRI technique is useful method to diagnosis the tumor. Vijay [4] et al presented a novel segmentation and has a deep fully CNN architecture for semantic pixel segmentation called SEGNET.

Paper [5] proposes a hybrid architecture of U-NET and SEGNET that is fully a CNN for the improvement of brain tumor segmentation. H. Zhao, j.shi, Xqi and et al [6] presented a PSP NET for a superior framework for pixel level prediction. It has achieved state of art performance and it is performed in various dataset.

In paper [7] the FCN technique is used for semantic and it is fully supervised algorithm. Yi Lu, Yaren Chen et al[8] proposes a graph FCN for image semantic segmentation. Paper [9] deals with a three types of 3D dimensional CNN including SEGNET, PSPNET and U-NET for the automatic segmentation of brain tumor from three different dataset.

In paper [10] deals with various classification methods such as ALEXNET, GOOGLENET, VGG16, RESNET18, RESNET50 for brain tumor classification problem using Transfer learning. Swarnambigya Ayyachamy and et al[11] says about the retrieval of Images with pathology, so they propose CBIR for medical image retrieval using Deep CNN.s approach ,first by using the image Edge detection technique, a ROI is found and they cropped the ROI ,second they provide

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First Impression: August, 2021

International Virtual Conference on Scientific and Technological Convergence

ISBN : 978-81-951315-4-9

Price : ₹ 500

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Published by

Sri Sarada College for Women (Autonomous),
Sarada Nagar, Ariyakulam, Maharajanagar (PO), Tirunelveli- 627 011.
Tamil Nadu, India.
E-mail : srisaradatvl@gmail.com
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ISBN : 978-81-951315-4-9

A STUDY OF FRUIT DISEASE DETECTION USING WATERSHED METHOD

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Abstract

Agriculture is a backbone of India where Farmer cultivates different types of plants which produce grains, vegetables and fruits. Vegetable diseases are primarily responsible for the reduction in production which causes economic losses. In this paper we focus to detect the diseases of tomato at earlier stage. The proposed system shows how different algorithms such as color thresholding segmentation techniques, K-means clustering and Watershed method are used. The Colorthresholder enables to create a segmentation mask of fruit color image based on the exploration of different color spaces like RGB, HSV and La*b. kmeans clustering method is used for conducting image segmentation and disease detection. In this study kmeans clustering algorithm is used for grouping related pixels which helps to detect the disease in fruit image. The watershed is a classical algorithm used for segmentation, that is, for separating different pixel groups in an image. Starting from user-defined markers, the watershed algorithm treats pixels values as a group of local elevation. To do so, one computes an image that is the distance to the background. In watershed algorithm, the seed-level and the garbage volume keep their original functionalities. Compared to Schematic flooding algorithm, the Inverted schematic emphasize flooding method is best for fruit disease detection. In proposed system shows the Watershed method is better than RGB color based color thresholder method and K-means clustering method to detect fruit diseases and its types in earlier stage.

Keywords: Fruit Image, Threshold, Colorthresholding segmentation, K-means Clustering segmentation, Watershed method

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PROCEEDINGS

OF THE

ONLINE INTERNATIONAL CONFERENCE

ON

MATERIALS, MANUFACTURING, ROBOTICS, AUTOMATION,

ARTIFICIAL INTELLIGENCE AND NETWORKING FOR INDUSTRY 5.0

(ICM RAIN-2021)

Sponsored by

All India Council for Technical Education, New Delhi.

28 - 29 Jan 2021

Vol – 1 (ISBN Number: 978-81-951959-0-9)

Organized by:

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EXCEL ENGINEERING COLLEGE (Autonomous)

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CSE001 - Deep Learning Strategies for 2D Ultrasound Foetal Image Segmentation

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Abstract

Ultrasound is one of the most ubiquitous imaging modalities in clinical practice. It is cheap, does not require ionizing radiation, making it the most commonly used imaging technique in pregnancy. Despite these advantages, it also has some disadvantages such as low imaging quality, low contrast, and high variability. Because of these constraints, automating the interpretation of ultrasound images is challenging. Recently, deep learning has emerged, achieving state-of-the-art performance in various research fields, notably medical image analysis involving classification, segmentation, object detection, and tracking tasks. In this review, we present an overview of segmentation methods in deep learning applied to ultrasound in pregnancy, introducing their architectures and analysing strategies. Finally, we discuss the challenges and limitations with current deep learning-based approaches and suggest potential directions for future research.

Keywords: artificial intelligence, deep learning, neural networks, ultrasound image segmentation

1. Introduction

Medical Imaging is an essential part of today's healthcare system for performing non-invasive diagnostic procedures. It involves creation of visual and functional representations of the interior of the human body and organs for clinical analysis. Ultrasound (US) imaging is a safe non-invasive procedure for diagnosing internal body organs. Ultrasound imaging as compared to other imaging tools, such as computed tomography (CT) and magnetic resonance imaging (MRI), is cheaper, portable and more prevalent [1]. Ultrasound imaging has turned into a general check-up method for prenatal diagnosis. It is used to investigate and measure foetal biometric parameters, such as the baby's abdominal circumference, head circumference, biparietal diameter, femur and humerus length, and crown-rump length. Furthermore, the foetal head circumference (HC) is measured for estimating the gestational age, size and weight, growth monitoring and detecting foetus abnormalities [2,18]. Ultrasound imaging is the most preferred tool for medical monitoring, follow up and diagnosis owing to its low cost and reliability. However, ultrasound images suffer from a range of drawbacks including acoustic shadow, motion blurring, and low signal-to-noise ratio, making the identification of standard planes a challenging task for sonographers. This makes the US images very challenging to interpret, which requires expert operators. As shown in US image samples of Fig. 1(a) these images are noisy and blurry with incomplete shapes; furthermore, the foetal skull is not visible enough to detect in the first trimester.

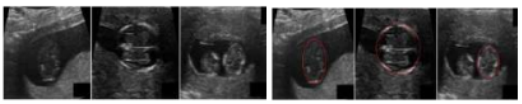

Fig 1. Samples of ultrasound foetal head dataset[1]

a) Original images b) Ground truth provided by a radiologist (red borders).

Recently, deep convolutional neural networks (DCNN) have rapidly become a compelling choice for several image processing tasks such as classification, object detection, segmentation, and registration [11].In this paper, we provide an overview of state-of-the-art deep learning techniques for 2D ultrasound foetal image segmentation To our knowledge, there have been several review papers that presented overviews about applications of DL-based methods for general medical image However, none of them has provided a systematic overview focused on 2D ultrasound image segmentation applications. This review paper aims at providing a comprehensive overview from the debut to the state-of-the-art of deep learning algorithms, focusing on a variety of 2D ultrasound image segmentation.

Deep learning Architectures

Image segmentation is a key topic in image processing and computer vision with applications such as scene understanding, medical image analysis, robotic perception, video surveillance, augmented reality, and image compression, among many others. DLC can process raw image directly which means, there should be no need for pre-processing, segmentation and feature extraction(fig2). However, most deep learning approaches require image resizing due to the limit on input values. While some techniques do require intensity normalization and contrast enhancement which may be avoided if data augmentation techniques discussed later are employed during training. Resultantly, DLC has higher classification accuracy as it can avoid errors associated with erroneous feature vector or imprecise segmentation. Various algorithms for image segmentation have been developed in the literature [13]. Recently, due to the success of deep learning models in a wide range of vision applications, there has been a substantial amount of works aimed at developing image segmentation approaches using deep learning models. [16]

ECE015 - A flavour of Effective SPIHT, SPIHT 3D, LVL-MMC Compressions on Non-sequential Gray Scale Images

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A b s t r a c t

This study is aimed to compress color image using SPIHT and LVL-MMC compression methods in color spaces to get good compression ratio. The need of high compression ratio is to increase storage space and speed. The HAAR Wavelet transform is one of the famous wavelet transforms, which maintains image quality. LVL-MMC compression is a sophisticated true compression method which combine wavelet decomposition and quantization using subband thresholding of coefficients and Huffman encoding. In this paper HAAR wavelet Transform using SPIHT and LVL-MMC compression methods are compared with different color spaces. This framework is applied to compress color images. Hence the proposed compression frame work of HAAR wavelet, morphological eroded SPIHT compression gave improvement than other methods in terms of Compression Ratio, Mean Square Error, Peak Signal Noise Ratio and Bits Per Pixel quality measures.

***Keywords*—** Color Spaces, HAAR Wavelet, Morphological Gradient, Embedded ZeroTrees Wavelet Compression, LVL-MMC

INTRODUCTION

Social Media mesmerizes the world people in sharing data, images or videos. Sametime, maintaining these files in desktop or mobile is a daily routine, which is tedious task for nontechnical people. Another hand, online uploading or downloading data and maintenance is also big work to student or teacher. Alternate way of maintaining these data, image or video can be done by compression techniques. Image compression takes important role in image processing domain. Particularly, in internet when sharing the image from device to device or person to person, it is not possible to do without compression. If the data like text, binary, image, graphics, sound or video effectively compressed then significant improvements in data throughput can be reached. Reducing the amount of data in digital image or medical image is done by removing the redundant data, without loss of information in transmission period. Hence, storage, transmission, faster computation are the main goals of Image compression. The storage and computation speed are not in directly proportional. The redundant data are compressed by suitable compression algorithms like EZW, SPIHT, STW, WDR, ASWDR, SPIHT 3-D, LVL-MMC.

RELATED WORKS

In this section existing papers of image compression are explained in detail. The wavelet remodel [5] is applied to all type of images in common. Wavelet is excellent than Discrete Cosine Transform (DCT) [10]. Similarly, wavelet based compression is best in interpreting and transmission of images for multiresolution nature and degradation tolerance. Luo et al (1996),pointed the Huber–markov random field model in DCT gained better Bpp.

It can be observed that Run Length Coding (RLC) with matrix based totally mapped pair approach is best compression for texts. The performance of RMSE, SNR, PSNR, CR ,Compressed file size has been achieved with tiff, gif, jpeg and textual documents. Khan et al (2016) has performed robustness and compression efficiency in lossless compression [2] technique for color images, EEG information and raster pictures.

Ultimately DCT has been introduced in most video compressions [2]. Moreover, many researchers substantially targeting Discrete wavelet transform (DWT) which is appropriate for human visible gadgets with adaptive spatial frequency. In the same time the another compression algorithm Embedded zero tree does no longer need preknowledge of image. It encoding the data at any location also good in accuracy rate for color images.

Embedded image coding , the usage of zero tree of wavelet coefficient (EZW) is an efficient lossy compression image technique for multimedia devices. Here the technique of transformation most of the coefficients are near zero. An embedded code is produced in the order of importance. It defines a string of binary selections. EZW [17] is the basic method for tree shape approach and it is an effective embedded image compression which generates bit circulation. SPIHT [11] is refinement to EZW and it uses the principle of operation. Compare to EZW, SPIHT is higher in terms of compression parameter [12]. This yields an embedded bits with less MSE. Similarly, SPIHT can be useful to lossless compression [15]. Lossless is a reversible process and no information is lost.

The LZW and Huffman image compression strategies are helped to broaden hybrid compression [1] in clinical images. Concatenation of LZW code words and Huffman coding detection techniques are implemented to get size reduction, high compression ratio and high signal noise ratio.

SPIHT algorithm (Set Partitioning into Hierarchical Trees) is a powerful wavelet based image compression algorithm, here tree structure chosen to represent the transformed image which identified by the coefficients for each node. J. Udhaya Kumar ,T. Vengattaraman, P. Dhavachelvan are, pointed that Runlength Encoding employs high reduntant data in loss less compression. Pearlman pointed that SPIHT method is efficient for wavelet image compression [3]. SPHIT uses arithmetic coding to improve image quality. SPIHT has become benchmark algorithm. It is one of the highest wavelet based coding algorithm. 3D SPIHT coding is a excellent technique to color image compression than conventional methods such as EZW, SPIHT always generate local optimal values. 3D SPIHT [11], [19] is the modern octal tree technique for 3-dimensional true color image compression. In this study 3D SPIHT with different color conversion methods are applied to different types of images. SPHIT algorithm applied to nonsequence of images. It is experimented with gray scale images.

The LZW and Run length Encoding compression methods are excellent to png files. Specially LZW is suitable for textual content files. Another technique LVL-MMC could be very appropriate for subband thresholding of coefficients and Huffman Encoding. One of the most important paper on

CSE022- A Review of Supervised Learning Image Classification Algorithms

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Abstract

Object recognition is a method in the computer vision to identify and recognize objects in the picture or video. When humans see photos or watch videos, they can quickly recognize some object like a car, bus, human, cat, food, and other visual artifacts. However, how do we apply it to the computer? *Classification* is the technique or method in *object recognition* that can be used on a computer to distinguish one object from another object contained in the image or video. In this paper, the author proposes about testing some popular image binary classification algorithms used along with the results of the performance matrix of each algorithm, among these are *Logistic Regression with Perceptron*, *Multi-Layer Perceptron (MLP)*, *Deep Multi-Layer Perceptron*, and *Convolutional Neural Network (ConvNet)*. The author uses the Food-5K dataset to distinguish two classes of objects, namely food / non-food, and then try to train and test how accurate the computer is in recognizing food and non-food objects, where it will be useful to anyone who needs to identify a food object using auto recognizing tools. This paper is expected to contribute in the field of computer vision related algorithm that is used to solve the problem in image classification, with the state of optimal *hyperparameter* and validation accuracy level above 90%. From the test results obtained the level of testing accuracy using *ConvNet* reached above 90% and loss function less than 25% while indicating that *ConvNet* has a significant advantage on the *image classification* problem compared to the generic *artificial neural network*.

Keywords: object classification; deep learning; image recognition; machine learning; convolutional neural network

1. INTRODUCTION

Supervised learning is a *machine learning technique* which is we can associate between inputs and *ground truth* in a dataset. In this technique, it aims to test the truth of *hypothesis* or in other words is to construct a compact model of the *class label* distribution used in defining the *class label* on the test data where the prediction features are known, and the label value of the class is unknown (SB Kotsiantis, 2007). In *supervised learning*, we found two types of problems that can we resolve, which are *regression* and *classification*. In general, the process performed on *supervised learning* is shown in Fig. 1. below.

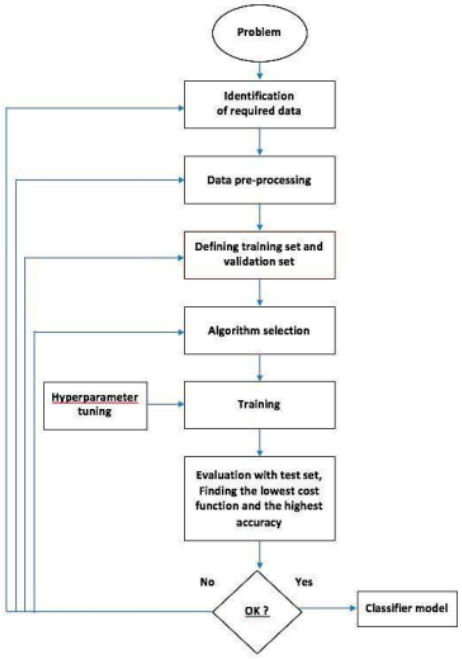

Fig. 1. Flow process of *supervised learning*

Image classification has many roles in some areas, such as an automatic vehicle or pedestrian detection to calculate vehicle density, pedestrian, autonomous self-driving car, and others, which is this attracts a lot of academic and scientist attention to make computers fast and accurate in recognizing an object. (Lee J.D, 1996) has used *optimal linear feature*

CSE019 - Approach of Weight Regularisation using Sparse Autoencoder

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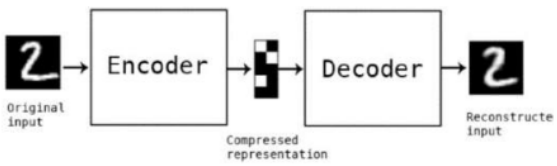
A b s t r a c t

The idea of sparse autoencoders is to impose a constraint on the network such that the representation has the required sparsity characteristics while reconstructing the input at the output layer. In this paper, we proposed sparse autoencoder using L1 of regularisation for weights in feature extraction. It will make the weight value to be zero so there will be no updation further. So sparse autoencoder actually learns better representation than the original autoencoder. When applied to the MNIST, CIFAR-10, the results show that the proposed model guarantees a sparse representation for each input data which leads to better classification results.

I. INTRODUCTION

"Autoencoding" is a data compression algorithm where the compression and decompression functions are data-specific, lossy, and learned automatically from examples rather than engineered by a human. Additionally, in almost all contexts where the term "autoencoder" is used, the compression and decompression functions are implemented with neural networks. Autoencoders are data-specific, which means that they will only be able to compress data similar to what they have been trained on. This is different from, say, the MPEG-2 Audio Layer III (MP3) compression algorithm, which only holds assumptions about "sound" in general, but not about specific types of sounds. An autoencoder trained on pictures of faces would do a rather poor job of compressing pictures of trees, because the features it would learn would be face-specific. Autoencoders are lossy, which means that the decompressed outputs will be degraded compared to the original inputs (similar to MP3 or JPEG compression). This differs from lossless arithmetic compression.Autoencoders are learned automatically from data examples, which is a useful property: it means that it is easy to train specialized instances of the algorithm that will perform well on a specific type of input. It doesn't require any new engineering, just appropriate training data.

To build an autoencoder, you need three things: an encoding function, a decoding function, and a distance function between the amount of information loss between the compressed representation of the data and the decompressed representation (i.e. a "loss" function). The encoder and decoder will be chosen to be parametric functions (typically neural networks), and to be differentiable with respect to the distance function, so the parameters of the encoding/decoding functions can be optimize to minimize the reconstruction loss, using Stochastic Gradient Descent.



II.TYPES OF AUTOENCODER

- a simple autoencoder based on a fully-connected layer
- a sparse autoencoder
- a deep fully-connected autoencoder
- a deep convolutional autoencoder
- an image denoising model
- a sequence-to-sequence autoencoder
- a variational autoencoder

A.Sparse autoencoder

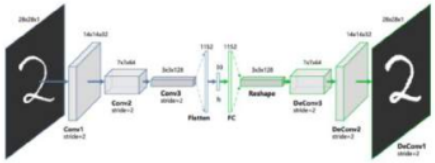
Sparse autoencoders are typically used to learn features for another task such as classification. An autoencoder that has been regularized to be sparse must respond to unique statistical features of the dataset it has been trained on, rather than simply acting as an identity function. In this way, training to perform the copying task with a sparsity penalty can yield a model that has learned useful features as a byproduct.Another way we can constraint the reconstruction of autoencoder is to impose a constraint in its loss. We could, for example, add a reguralization term in the loss function. Doing this will make our autoencoder learn sparse representation of data.

B.Denoising autoencoder

Rather than adding a penalty to the loss function, we can obtain an autoencoder that learns something useful by changing the reconstruction error term of the loss function. This can be done by adding some noise of the input image and make the autoencoder learn to remove it. By this means, the encoder will extract the most important features and learn a robuster representation of the data.

C.Convolutional Autoencoder

Convolutional Autoencoders(CAE) learn to encode the input in a set of simple signals and then reconstruct the input from them. In addition, we can modify the geometry or generate the reflectance of the image by using CAE. In this type of autoencoder, encoder layers are known as convolution layers and decoder layers are also called deconvolution layers. The deconvolution side is also known as upsampling or transpose convolution.



D.Variational Autoencoders

This type of autoencoder can generate new images just like GANs. Variational autoencoder models tend to make strong assumptions related to the distribution of latent variables. They use a variational approach for latent representation learning, which results in an additional loss component and a specific estimator for the training algorithm

23	W.Fathima Farsana	Fetel Ultrasound Image Segmentation for measuring head circumference using enhanced U-Net Architecture	978-93-89515-35-0	**DEPARTMENT OF COMPUTER SCIENCE**

International Conference on Next Generation Computing Systems (ICNGCS 2021)

Fetal Ultrasound Image Segmentation for Measuring Head Circumference Using Enhanced U-Net Architecture

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Abstract— Automatic segmentation of fetal biometrics like head circumference in the 2D ultrasound images are used to monitor growth and evaluate the gestational age. Manual methods are known to be time consuming and not accurate, hence there have been numerous researches on automated methods. Frequent scanning of fetal results in clinical disturbances to the fetal growth and therefore the quantitative interpretation of Ultrasonic images also a difficult task compared to other image modalities .To overcome these difficulties, we propose a deep-learning-based methodology named U-Net that greatly enhances deep neural networks capability of segmenting the ultrasound image. The quality of image in terms of brightness and contrast are improved using image enhancement techniques based on Speckle Reducing Anisotropic Diffusion (SRAD) Filter to denoise the image. This model takes the specified features from the ultrasound images and performs segmentation and acquires the fetal head circumference with higher accuracy and reliability.

Keywords— ***Keywords: Ultrasound image , Fetal Head Circumference,(FHC) Deep Learning Neural Network, U-NET Architecture***

I. INTRODUCTION

Ultrasound (US) imaging may be a safe non-invasive procedure for diagnosing internal body organs. Ultrasound imaging as compared to other imaging tools, like computerized tomography (CT) and resonance imaging (MRI), is cheaper, portable and more prevalent [1]. Ultrasound imaging has became a general checkup method for diagnostic procedure . It is used to investigate and measure fetal biometric parameters, like the baby's abdominal circumference, head circumference, biparietal diameter, femur and humerus length, and crown-rump length. Furthermore, the fetal head circumference (HC) is measured for estimating the gestational age, size and weight, growth monitoring and detecting fetus abnormalities [2]. Ultrasound imaging is the most preferred tool for medical monitoring, follow up and diagnosis owing to its low cost and reliability. However, ultrasound images suffer from a variety o f drawbacks including acoustic shadow, motion blurring, and low signal-to-noise , making the identification of ordinary planes a challenging task for sonographers. This makes the US images very challenging to interpret, which needs expert operators. As shown in US image samples of Fig. 1(a) these images are noisy and blurry with incomplete shapes; furthermore, the fetal skull is not visible enough to detect in the first trimester.

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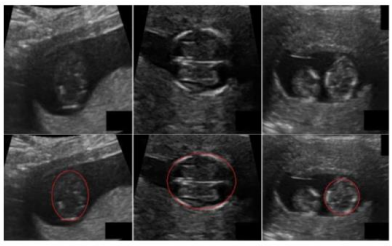

Figure 1. Samples of ultrasound fetal head dataset1 a) Original images b) Ground truth provided by a radiologist (red borders).

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II. RELATED WORK

In the last decade, automatic methods for fetal biometric measurements are investigated. Development of these automated methods has improved the work flow efficiency by reducing the examination time and number of steps necessary for standard fetal measurements. Generally, deep learning is that the most opted approach within the field of medical imaging. In the last decade, there has been a lot of automated methods that were adapted to estimate the fetal biometrics. Development and intense research of these automated methods has improved the workflow efficiency by reducing time constraints [3]. Past studies have used various methods for HC measurement like randomized Hough transform [4], semi supervised patch based graphs[5], multilevel thresholding circular shortest paths [6], boundary fragment models[7], Haar-Like features [8], active contouring [9], or compound methods like [10] which apply Haar-like features to coach a random forest classifier so as to locate the fetal skull. Then, Head Circumference (HC) was extracted by using Hough transform, dynamic programming and ellipse fitting[16]. Although these methods provided inaccurate results, they were assessed on small datasets of particular pregnancy trimesters. Recently, deep convolutional neural networks (DCNN) have rapidly become a compelling choice for several image processing tasks such as classification, object detection, segmentation, and registration. More recent researches on fetal ultrasound image analysis specialize in using DCNN. Another research

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Virtual International Conference on Recent Trends in Multi-Disciplinary Research

Thoothukudi, Tamil Nadu, 8th and 9th April, 2021

Image Denoising Techniques Based on Threshold Wavelet Transform for 2D Ultrasound Fetal Image

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Dr.Kowsalya.N, Assistant Professor, Department of Computer Science, Sri Vijay Vidyalaya College of Arts and Science , Nalampalli ,Dharmapuri

Abstract:-

Ultrasound imaging is a good examination mechanism during pregnancy that can be used for measuring specific biometric parameters towards prenatal diagnosis and estimating gestational age. In medical image processing the images acquired are usually affected from various noise such as gaussian noise, salt and pepper noise, speckle noise, periodic noise etc. Therefore, acquisition of images without noise is nearly a difficult task. Various filtering techniques are used to reduce the noise for further analysis of medical images. In this paper, the quality of image in terms of brightness and contrast are improved using image enhancement techniques based on new wavelet threshold method to denoise the image..The quality of image in terms of brightness and contrast are improved using image enhancement techniques based on new wavelet threshold method to denoise the image.

Keywords:-

Ultrasound image, image denoising, threshold, wavelet transform

Virtual International Conference on Recent Trends in Multi-Disciplinary Research

Thoothukudi, Tamil Nadu, 8th and 9th April, 2021

TB Diagnosis Using Machine Learning Classifiers

Dr. Piramu Kailasam.S, Assistant Professor, Department of Computer Applications, Sadakathullah Appa College,(Autonomous) Tirunelveli

Abstract:-

This study attempts to model a classification problem to examine the machine learning approach for medical diagnosis by different classifiers. To get detailed analysis in terms of accuracy, the machine learning approach is used. The model is illustrated using tuberculosis patient's minimum level features to find the problem of TB disease diagnosis. In this paper, a Neural Network Model for classification of medical data set and is used to develop predictive model for classification. The Model is developed with PCA for feature selection and classified with Ensemble KNN Classifiers. The data is transferred into the knowledge that the symptoms are the significant ones in diagnosis Tuberculosis. The presented results showed that Ensemble KNN classification accuracy for TB diagnosis is 90.2 % and training time is 1.4661s, also analyzed with ROC curve method.

Keywords:-

Tuberculosis, Neural Network, Machine learning classifiers, Classification

ISBN : 9789380 430348

Virtual International Conference on Recent Trends in Multi-Disciplinary Research

Thoothukudi, Tamil Nadu, 8th and 9th April, 2021

CNN Based Food Identification and Calorie Measurement from Food Image

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Dr. Kother Mohideen .S, Associate Professor & Head, Department of IT, Sri Ram Nallamani Yadava College of Arts & Science, Tenkasi, Tamilnadu

Abstract:-

The ease with which food is being delivered at our doorsteps has lead to an outbreak of a major chronic disease known as obesity. As the necessity of the food arose among people, the apprehension related to their diet also simultaneously increased. In this paper we propose a calorie measurement system whereby the user is made to upload the image of food item and as a result, number of calories present in the uploaded food image will be predicted. It is a multi-task system which also displays the weekly statistics on how much calorie is consumed by the user and how more/less calories must be consumed to avoid obesity related diseases such as heart attack, cancer etc. We built a dataset of food images collected from existing datasets to detect complex images consisting of 20 classes and each class containing 500 images each. We have curated our own Convolutional Neural Network architecture of 6 layers to extract the features and classify the images. Our experimental results on food recognition showed 78.7% testing accuracy with 93.29% training accuracy.

Keywords:-

Virtual International Conference on Recent Trends in Multi-Disciplinary Research

Thoothukudi, Tamil Nadu, 8th and 9th April, 2021

Automatic Segmentation of Fish Using Segnet-Architecture

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Dr. Merriliance.K, Associate Professor ,Dept of MCA, Sarah Tucker College,Tirunelveli, India

Abstract:-

Recent find outs in the computer vision community have led to the development of efficient deep learning techniques for end-to-end segmentation of underwater images. .Due to the result of global climate changes to marine biology and aquaculture, researchers start to look into the deep ocean environment and living circumstances of rare fish species. Segmentation of color fish images with a complex background in water considered a big challenge. Different species of fishes have various texture, color and shape features in their body parts (head, abdomen, and tail). Formerly most of the work, in fish image domain has been done using global features. This work claims that fish image retrieval system using local features can produce better results as compared to global features. This is because of the fact that fish image has dissimilar features in its body parts. In this research, a Seg-Net architecture is proposed to extract fish object from its background and then separate fish object into three distinguished body parts, i.e. head, abdomen, and tail.The results revealed that the Seg-Net architecture has achieved an accuracy of 87.5% on fish image segmentation and demonstrated the effectiveness of local features over global features.

ISBN : 9789380 430348

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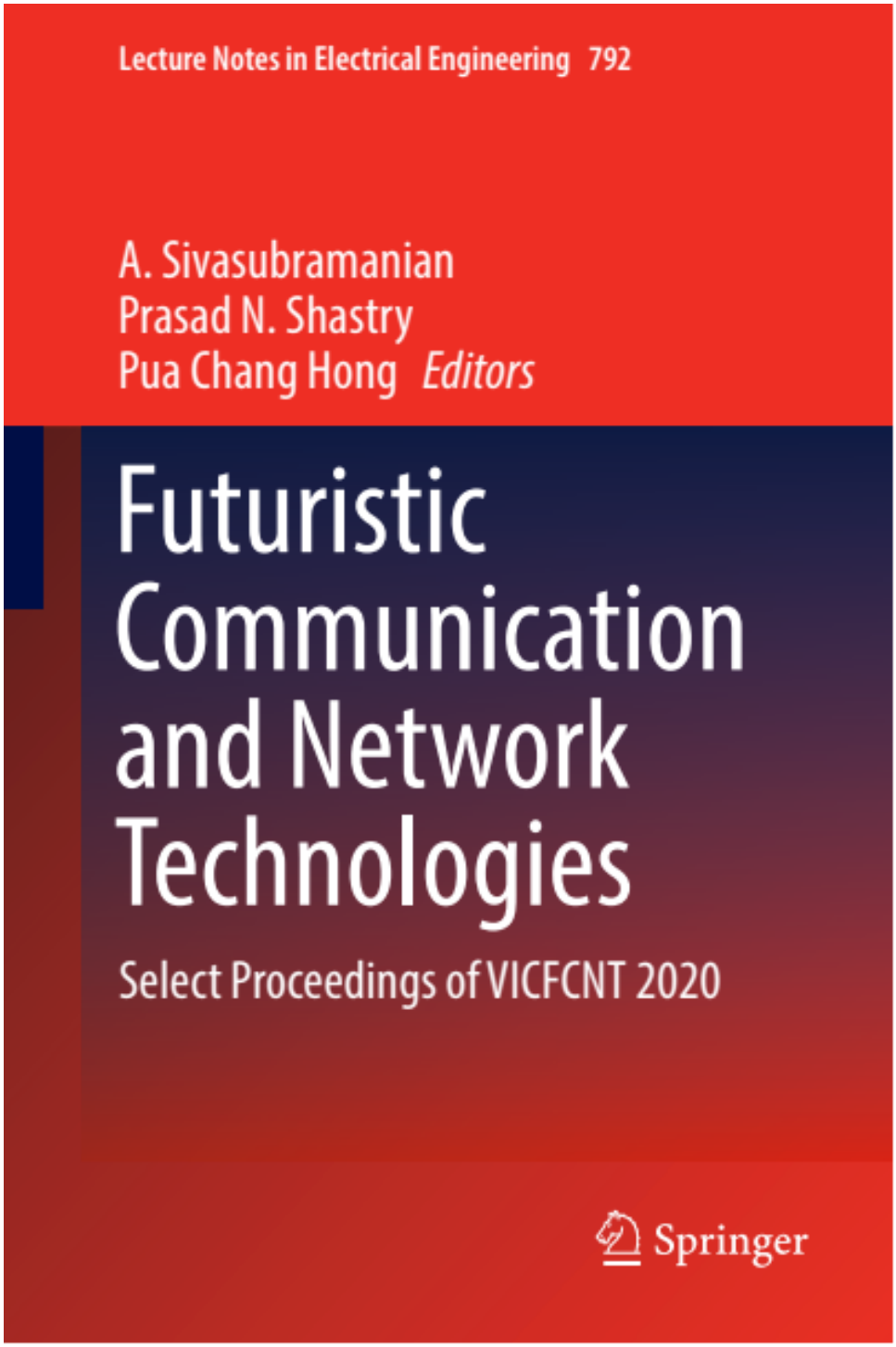

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ISSN 1876-1100 ISSN 1876-1119 (electronic)
Lecture Notes in Electrical Engineering
ISBN 978-981-16-4624-9 ISBN 978-981-16-4625-6 (eBook)
https://doi.org/10.1007/978-981-16-4625-6

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

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Comparative Analysis on Frequent Itemset Mining Algorithms in Vertically Partitioned Cloud Data

M. Yogasini and B. N. Prathibha

Abstract Frequent itemset mining and Association Rule Mining are the extensively utilized data analysis techniques for a transactional database concerned with a trade-off. Data owners wish to acquire knowledge in these data analysis techniques to protect their sensitive data from additional data proprietor and third parties. This work emphasizes on privacy-preserving frequent itemset mining on a vertically partitioned database. An efficient homomorphic encryption scheme is designed to assure data privacy. Cryptography is a part of encryption that is used to guard information against third parties. In this work, frequent itemset mining algorithms such as Eclat, apriori, and FP-Growth are taken for analysis in terms of computation time and scalability of data. The analysis result shows that apriori algorithm is less time-consuming to generate rule in the cloud, irrespective of the number of transactions.

Keywords Frequent itemset · Encryption · Eclat · Apriori · FP-Growth · Association Rule Mining

1 Introduction

A transaction database consists of many transactions. Each transaction in a transaction database is categorized by an ordered pair as (TID, list of items), where TID is a transaction identifier. Original database from various data owners is stored as a joint database in the cloud and is crumbled as horizontal partition and vertical partition. Vaidya et al. [1] and Kantarcioglu et al. [2] address the privacy issues in the horizontal and vertical partitioned database. This work emphasizes vertically partitioned data in the cloud. Frequent itemset mining algorithms like apriori, Eclat, and FP-Growth are intended for the centralized database. Let "*I*" will be an itemset. It is considered

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A. Sivasubramanian et al. (eds.), *Futuristic Communication and Network Technologies*,
Lecture Notes in Electrical Engineering 792,
https://doi.org/10.1007/978-981-16-4625-6_38

29	G Gomathi	Ventrical and Myocardium segmentation of Cardiac MRIusing traditional and deep learning methods	978-93-9113-130-2	

ICRISET/T1007

VENTRICLE AND MYOCARDIUM SEGMENTATION OF CARDIAC MRI USING TRADITIONAL AND DEEP LEARNING METHODS

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ABSTRACT

Segmentation is the process of distinguishing the representation of an image into various sections for better understanding and easy accessibility. For diagnosing cardiac diseases, various parameters such as stroke volume, ejection fraction, and myocardial wall thickness are required. Amidst of them, the Left Ventricle (LV), Right Ventricle (RV) and Myocardium segmentation of cardiac MRI are vital. Manual segmentation is a tiresome burden for physicians. Automatic segmentation of the ventricle region is consequential to detect the clinical parameters. Deep learning arose to surplus attention in computer vision as it is achieving the highest accuracy than traditional methods. It is being prominent in the field of medical science. This study experimented with the most widely used clustering methods(KMEANS, MEANSHIFT) and deep learning method (UNET). The results are determined according to the metrics accuracy, precision, recall, dice coefficient,f1 score, and Intersection over Union (IOU).

Keywords: Cardiac MRI, LV, RV, Segmentation, Deep learning

30	P. Mohammed Buhari Saleem	Management Principles, Processes, Practices	978-81-948141-4-6	**DEPARTMET OF COMMERCE**

Management
Principles, Processes and Practices

First Edition

ISBN: 978-81-948141-4-6

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Published By

AGAR

AGAR Saliha Publications, Tamil Nadu, INDIA.

First Edition: 2020

ISBN: 978-81-948141-1-5

ASSOCIATION OF GLOBAL ACADEMICIANS AND RESEARCHERS PUBLICATIONS [AGAR]
(Formerly SALIHA PUBLICATIONS)

Vaniyambadi, Tirupattur District, Tamil Nadu, INDIA
https://salihapublications.wordpress.com/
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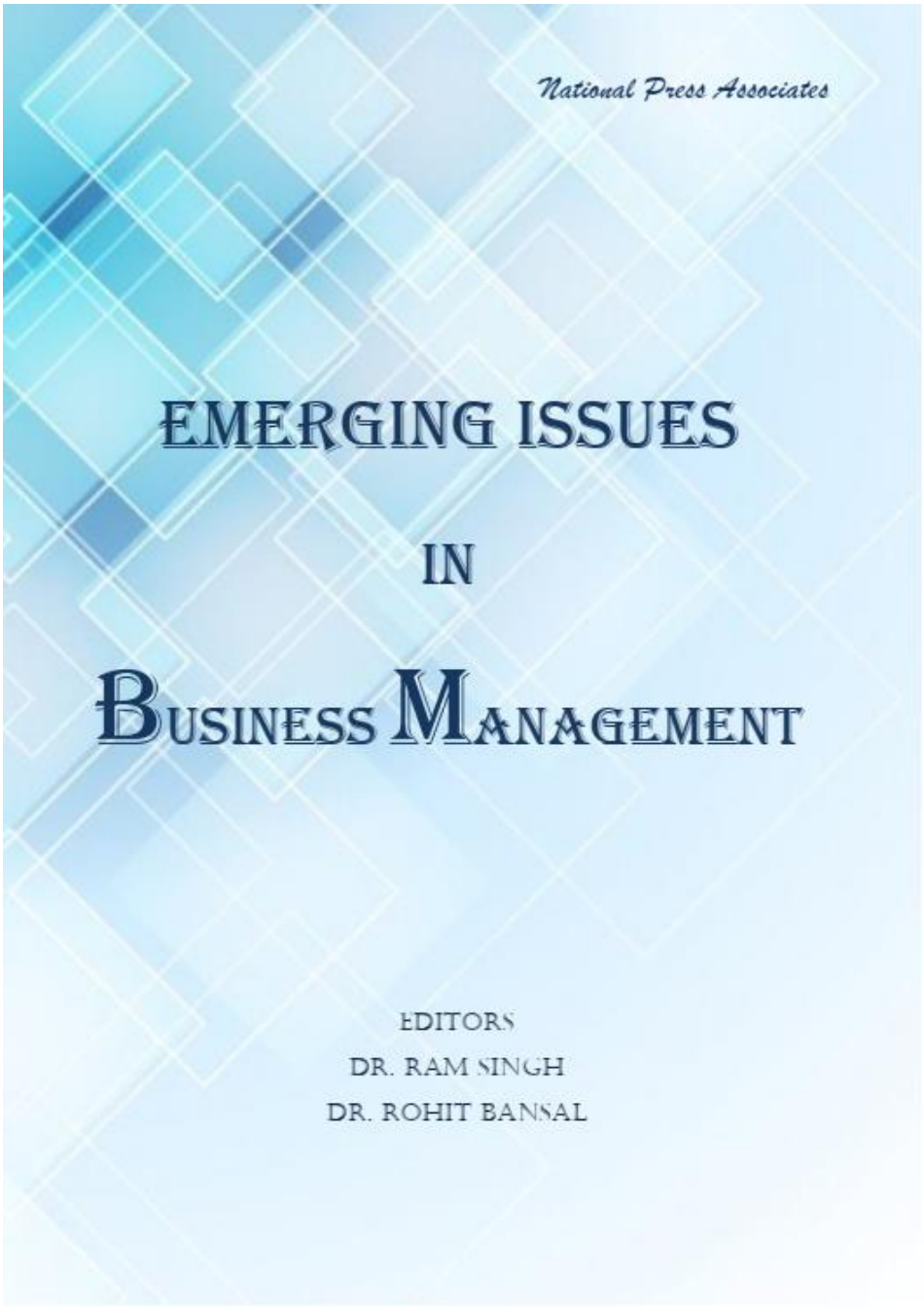

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ISBN No: 978-81-944303-9-1

Published By:
National Press Associates, New Delhi
www.npapublishing.in

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IMPLEMENTATION OF ELECTRONIC CUSTOMER RELATIONSHIP MANAGEMENT (E-CRM) ACTIVITIES ARE THE KEY INDICATOR FOR IMPROVED ORGANIZATION PERFORMANCE

Mr. P. Mohammed Buhari Saleem

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ABSTRACT

Customer relationship management (CRM) is the term simply we referred to as the principles, guidelines, and practices that an organization follows when interacting with their customers. From the organizations perspective, the entire relationship comprises direct interactions with potential customers, such as sales and service-related processes, forecasting, and the analysis of customer trends and behaviors, and so on. Customer Relationship Management serves to improve the overall customer' experience. Progressively, the term Customer relationship management is being used to refer to the technology systems companies can engage in to manage their external interactions with their customers at all levels during the customer lifecycle.

Electronic customer relationship management (E-CRM) is inspired by easy internet access through various online platforms and devices like laptops, desktop Personal Computers, Television sets, and mobile gadgets. It is not software, however, but rather the utilization of Web-based technologies to interact with their customers, understand and ensure customer satisfaction and experiences.

Typically, E-CRM strategy includes collecting customer data, transaction history, information about products and services, contents information, and click stream.

Electronic Customer Relationship Management (E-CRM) provides an avenue for better interactions between businesses, its customers, and its employees through Internet-based technologies. The E-CRM process integrates software, hardware, processes, and management's commitments geared toward supporting enterprise-wide CRM business strategies.

KEYWORDS: Interactions, Customer' experience, Internet access, Customer data, Management's commitments

INTRODUCTION

Electronic Customer Relationship Management or E-CRM, is an integrated internet sales, marketing efforts, and service strategy that is used to identify, attract, and retain an organization's customers. It expounds improved and increased communication between an organization and its clients by creating and enhancing customer interaction through innovative internet technology. Electronic CRM software offers profiles and histories of each interaction the organization has with its potential and prospective customers, making it an important tool for all small and medium businesses.

MEANING OF ELECTRONIC CUSTOMER RELATIONSHIP MANAGEMENT (e-CRM)

Electronic customer relationship management (e-CRM) includes the integration of Web(Internet) channels into the overall organization customer relationship management(CRM) strategy to drive consistency within all channels relative to sales, customer service and support (CSS) and marketing efforts. And it can support seamless customer experience, improve customer satisfaction, enhance customer loyalty, and revenue.

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Perspectives on Business Management & Economics
Volume I • June 2020
ISBN: 978-81-946245-3-0

ANALYTICAL CUSTOMER RELATIONSHIP MANAGEMENT AS AN OPPORTUNITY FOR ENHANCING ORGANIZATIONAL GROWTH

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ABSTRACT

In today's business world, enhanced organizational growth is an essential element that often eludes even the biggest of businesses. Achieving organizational growth is often the sum-total of different factors. Businesses can manage its sales pipeline usually with a good customer relationship management platform. Analytical Customer Relationship Management (Analytical CRM) can make a significant impact on organizational growth by shifting the focus from product to customer, streamlining the offer to what the customer needs rather than want the organization can make.

In the context of marketing and sales, there are many areas where Analytical CRM can enhance revenue, quality, and profit. Analyzing product queries shows where the most likely problems will occur. It is a powerful tool designed to analyze deeply the customer's data and unwrap or disclose the essential convention and intention of behavior of customers on which capitalization can be done by the organization.

KEYWORDS: organizational growth, convention, intentions, competencies, beliefs

JEL CLASSIFICATION: D23

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MARKETING IN 2021

Sruthi.S
Bhawana Raghav
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Archers & Elevators Publishing House

Bangalore – 560 090 India.

ARCHERS & ELEVATORS PUBLISHING HOUSE

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Hesaraghatta Main Road

Bangalore-560090(INDIA)

Mob: + 91 9164362263

E-mail: archerselevators@gmail.com

Website: www.aeph.in

Marketing in 2021

Archers and Elevators Publishing House

First Edition 2020

ISBN: 978–81–946245–1–6

Price: Rs. 850/-

PRINTED IN INDIA

A & E printers, Bangalore-90

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DIGITAL MARKETING: CHANNELS AND STRATEGIES

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ABSTRACT

While modern-day digital marketing is an enormous system of channels to which marketers simply must onboard their brands, advertising online is much more complex than the channels alone. To attain the true potential of digital marketing, marketers have to dig deep into today's vast and intricate cross-channel world to discover strategies that make an impact through engagement marketing. Engagement marketing is the method of forming meaningful interactions with potential and returning customers based on the data you collect over time. On another level, digital marketing refers to advertising delivered through digital channels such as search engines, websites, social media, email, and mobile apps, and so on. Using these digital media channels, digital marketing is the method by which companies endorse products, services, and brands. Consumers heavily rely on digital means to research products. The cost of online marketing varies greatly based on the business size, revenue, and goals. Smaller businesses will often start with a basic strategy and develop intermediate or advanced methods down the road. Finally, it is about every business can make and implement a digital marketing strategy that meets their needs and budget.

KEYWORDS: Advertising, Digital Marketing, Social Media, Brands, Business

MEANING OF DIGITAL MARKETING

Digital marketing is another form of marketing for promoting and selling products or services on the Internet. It's the process of leveraging different online marketing channels like search engines, social media networks, and email to reach your target audience.

With the help of digital marketing, the business can find people interested in their offering, and they can interact with them, and build trust with companies brand.

Digital marketing has several types, the most important are website marketing, search engine optimization, content marketing, PPC advertising, social media marketing, email marketing, video marketing, and affiliate marketing.

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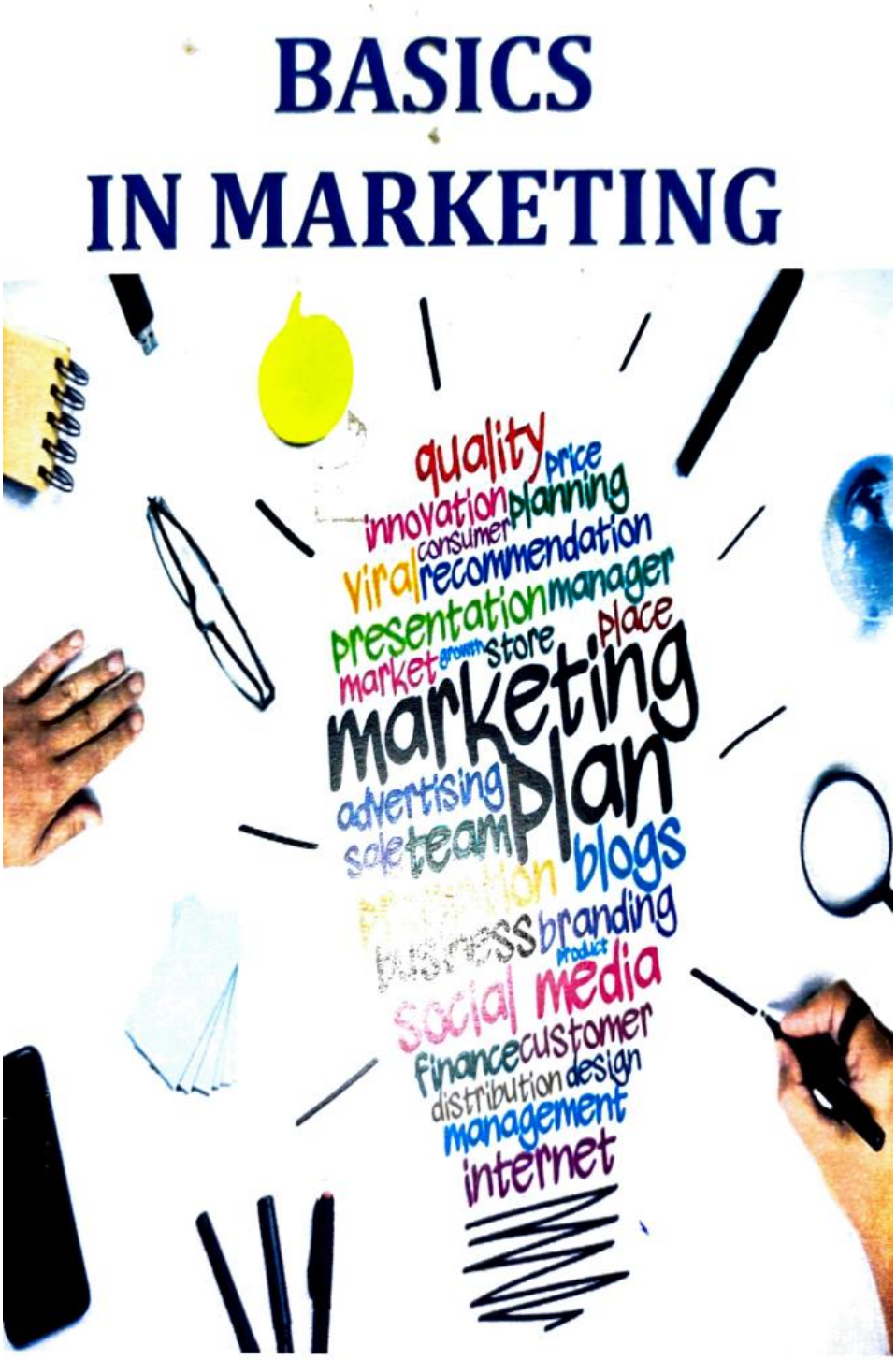

First Edition: 2021

ISBN: 978-81-948141-9-1

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ISBN No: 978-93-90863-23-5

Published By:

National Press Associates, New Delhi

www.npapublishing.in

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INFLUENCING FACTORS IN CUSTOMER [illegible] TOWARDS ONLINE SHOPPING

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ABSTRACT

Customer perception plays an essential role, from understanding the customers to communications, advertising, their buying decisions, their loyalty, the extent to which they promote a brand, and, even more, their advocacy efforts. Consumer perception improved on several levels, their emotional expectations grew, as well, engaging customer experiences, creating and deliver content, coming up with advanced technologies that build our lives better, and still get involved in social matters and in shaping our environments. Despite the boom in online shopping in India, the majority of the public continues to have more faith in the neighborhood brick & mortar stores for shopping as they prefer feeling and touching the products and negotiating discounts and offers over-the-counter, before buying. Nevertheless, many Indian shoppers known to be price-conscious and traditional as a part of their value system, are generally not attracted to making quick decisions based on promotions and advertisements. Furthermore, online customers, many-a-times, come across problems concerning product delivery timelines and customer support services. Customers' perception of risk towards online websites is worsened due to the inferior IT set-up used by several online retailers, resulting in the hacking of personal information.

Keywords: Communications. Advertising, Loyalty, Expectations

. MEANING OF CUSTOMER PERCEPTION

ustomer perception is the customer's overall preference, thought, opinion, feelings, and awareness about a mpany and its product and service offerings. Customer perception is also mentioned as Consumer perception ustomer perception means the process by which a customer chooses, organizes, and interpret formation/stimuli inputs to create a meaningful picture of the brand or the product.

STAGES OF CUSTOMER PERCEPTION

stomer Perception is a three-stage process that interprets raw stimuli into meaningful information.

ch individual understands the meaning of stimulus in a manner consistent with his/her own unique biase ds, and expectations. Perception has 3 stages. They are exposure, attention, and interpretation

simpler terms, it is how a customer sees a particular brand with whatever he or she has been able erstand by watching the products, their promotions, feedback, etc. It is the concept of that particular brand mind of the customer.

IMPORTANCE OF CUSTOMER PERCEPTION

mer Perception is very essential for an organization or brand as it tells them how their potential custom about them. It is very significant because if the customer forms a negative perception then no amount

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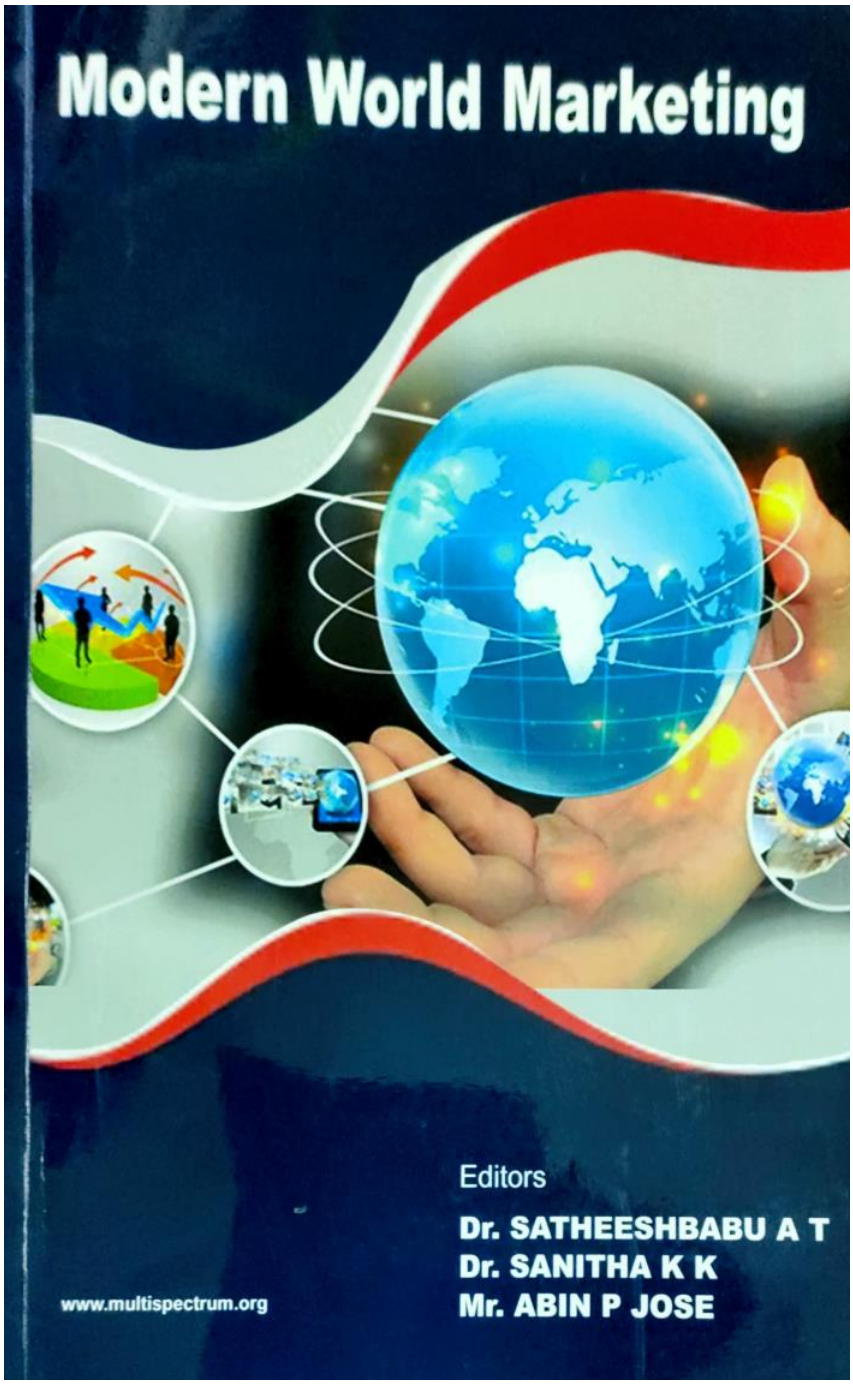

Edition: First

Year: 2021

ISBN: 978-81-947114-8-3

Rs 350/-

Publisher:

Multi Spectrum Publication
No13/66, Thiruninarkurichy,
Ammandivillai Post – 629204,
Kanyakumari,Tamilnadu,India.
Phone :+917868917740
www.multispectrum.org

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SUSTAINABLE DEVELOPMENT: GREEN MARKETING- OPPORTUNITIES AND CHALLENGES

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ABSTRACT

Green marketing is generally practiced by companies that are committed to sustainable development and Corporate Social Responsibility(CSR). Most of the companies are making an effort to implement sustainable business practices. Organizations recognize they can produce their products more attractive to consumers, while also decreasing the expenses in packaging, water usage, transportation, energy, and more. Green marketing begins with a company implementing and practicing sustainable business methods. Organizations risk being labeled as dishonest if their business exercises don't match their green marketing messages, so they must ensure they're practicing what they're preaching. Authenticity is essential in green marketing. Green marketing includes several different things, such as creating an eco-friendly product, using eco-friendly packaging, adopting sustainable business practices, and focusing marketing efforts on messages that communicate a product's green benefits. For green marketing to be successful, it has to fit with companies brand. Having a single green product when the rest of the companies' products are not, for instance, can make customers wonder about the company's environmental commitment.

KEYWORDS: Sustainable development, business practices, Eco-friendly, Marketing efforts, Environmental Commitment

GREEN MARKETING-INTRODUCTION

"Green marketing" or Environmentally responsible is a business practice that takes into account consumer concerns about promoting preservation and conservation of the natural environment. Green marketing campaigns highlight the superior environmental protection characteristics of a company's products and/or services. The sorts of characteristics usually highlighted include such things as reduced waste in packaging, the increased energy efficiency of the product in use, decreased release of toxic emissions, reduced use of chemicals in farming, and other pollutants in production.

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SHODHHIMALAYA: NEW PERSPECTIVES ON ARTS, HUMANITIES AND SOCIAL SCIENCE RESEARCH

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Multi Spectrum Publications
www.multispectrum.org

Edition: First

Year: 2021

ISBN: 978-81-953842-8-0

Rs 750/-

Publisher:
Multi Spectrum Publication
Kanyakumari, Tamilnadu,India.
Phone :+91 7868917740
E-Mail:editor@multispectrum.org
www.multispectrum.org

IMPACT OF GREEN HRM PRACTICES IN ORGANISATION PERFORMANCE

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ABSTRACT

Green Human Resource Management(G-HRM) is now the most important issue in the modern world for many reasons such as excess consumption of natural resources, raw materials by different commercial organizations and industries. The G-HRM is based on green movement related to the Protection of Environment and protects the planet Earth from future disasters caused by the organizations to accomplish their sole objective of profit maximization. The impact of our day-to-day activities on the environment and the desire to go green has extended from just individuals to organizations. Most of the companies are volunteering to operate in a more environmentally responsible way. The theory of green HR practices is obtaining traction in the corporate, as leaders discover ways to encourage sustainability in the company. Using environment-friendly HR practices as an organizational strategy assists in increase competitive advantages in the present business scenario. Most efficient business processes, practices, and improved product or service quality also improve from green HR.

KEYWORDS: Consumption, Green movement, Environment, HR practices, Corporate

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Edited by:

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Department of Commerce
University of Mumbai, Mumbai, India

GAURANG PUBLISHING GLOBALIZE PRIVATE LIMITED, MUMBAI
CIN No. U22130MH2016PTC287238
UAN - MH19D0008178

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ISBN: 978-81-953844-1-9

SOCIAL MEDIA MARKETING: SUSTAINABLE BUSINESS GROWTH

33

P. Mohammed Buhari Saleem

ABSTRACT

With the deep invasion of internet connectivity among people, in India, the number of social media users has been growing regularly. The Indian government-sponsored Digital India scheme has also offered greatly to this growth. In, the year 2020, which came under the grip of the pandemic Covid-19, saw many opportunities to social media to collect information or to show themselves and several distinct topics and conversations began trending in social media in India. Social media marketing is a powerful technique for businesses of all sizes to influence prospects and customers. Customers are already communicating with brands through various social media applications, such as Instagram, Facebook, Twitter, Telegram, and Pinterest. Social Media Marketing (SMM) can bring remarkable achievement to business, formulating devoted brand advocates and even driving leads and sales. Nevertheless, not all businesses are aware of the benefits of social media marketing. Most of the small businesses aren't using social media to improve their business. Today's buyers rush to browse social media when they want to understand more about an organization or product because that's where they'll find others talking about that business.

Keywords: *Social Media, Digital India, Social Media Applications, Brand*

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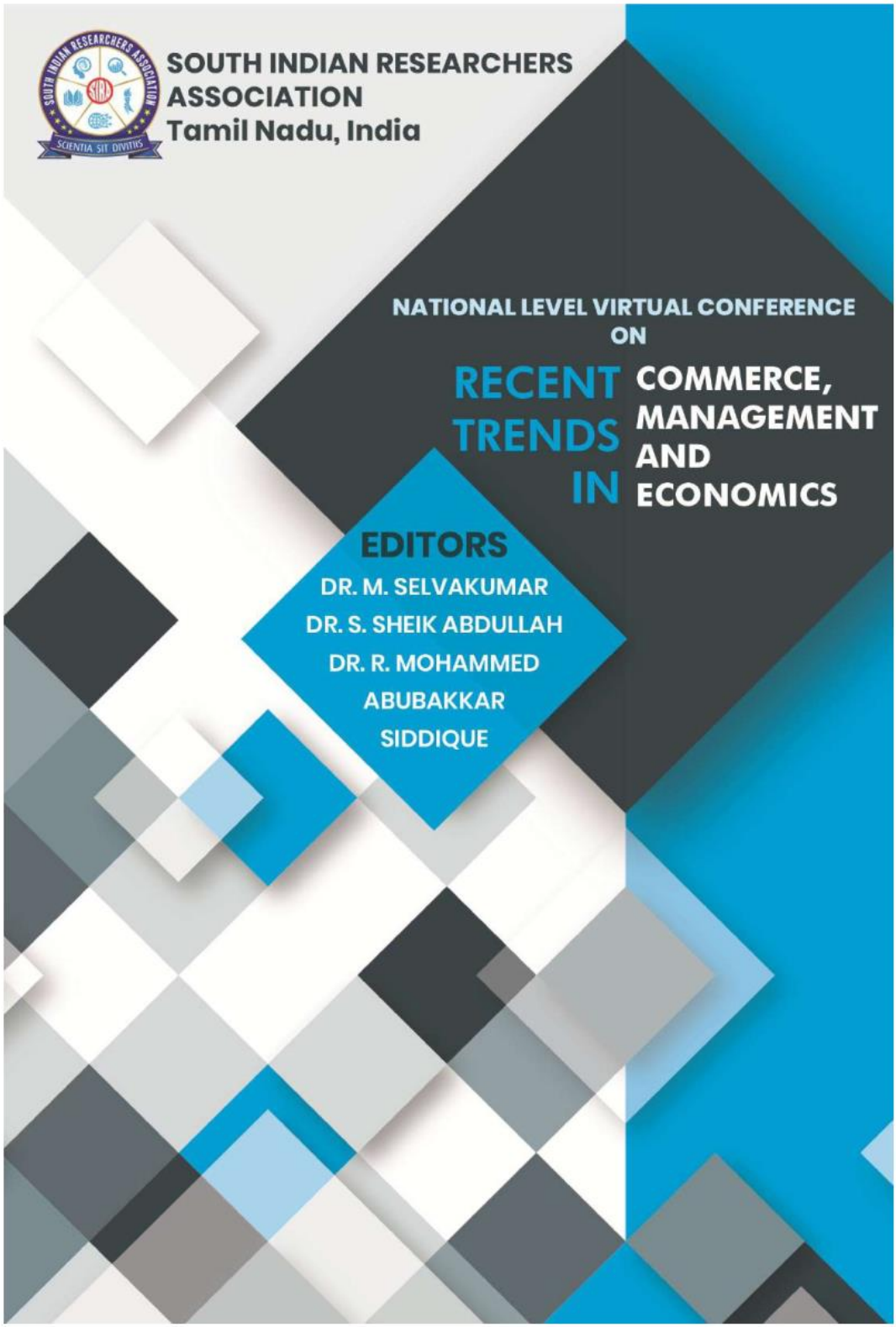

SOUTH INDIAN RESEARCHERS ASSOCIATION

Tamil Nadu, India

NATIONAL LEVEL VIRTUAL CONFERENCE

on

RECENT TRENDS IN COMMERCE, MANAGEMENT AND ECONOMICS

Editors

Dr. M. Selvakumar
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Dr. R. Mohammed Abubakkar Siddque

A Unit of

Bharat Ratna Dr. APJ Abdul Kalam Social and Educational Society, Sankarankovil

Tamil Nadu, India

Registered under the Tamil Nadu Societies Registration Act, 1975

(Registration No.: SRG / TENKASI / 87 / 2020)

June, 2021

ISBN: 978-81-953620-1-1

Price: Rs. 500.00

Printed in India

Website: **https://www.kalamsociety.org**

https://www.siraindia.org

e-Mail: **president@kalamsociety.org**

Published by

SIRA Publications

(Bharat Ratna Dr. APJ Abdul Kalam Social and Educational Society, Sankarankovil)

No: 5/573, Gomathisankar Colony,

Sankarankovil, Tenkasi – 627756,

Tamil Nadu, India

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A STUDY ON CHANGES OF CONSUMER BEHAVIOUR IN TIRUNELVELI, TAMIL NADU DUE TO COVID -19

Dr. K. Sheik Mydeen
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Introduction:

The study of consumer behaviour enables markets to understand and predict consumer behaviour in the market place, not only analysis buy the products but also analyse why, when, where, how often they buy the product. It helps to the marketers to adopt some strategy achieving their organization goals. The corona virus covid-19 pandemic is defining the global crisis and great challenge to all country. The entire world is struggling to recover from corona virus. This is not only affect health of humans and also affects the economy. Consumers' attitudes and purchasing behaviour is changes post pandemic. Consumers are isolated and stay-at-home and they are more connected to digital and more often they are stressed and socially away from others. So, that will create some psychological and health problems. At the same time consumers attitudes and purchasing habits is also changed. Industry Also Passing in Greece More Industries Are Close and Stop Produced. Consumer packed goods is more suffered from covid 19. Because consumers are more concentrate essential, health and hygiene goods while they are avoid non essential goods.

Review of Literature:

Stanciu et al., (2020) When accounting for the main pandemics which have had affected the humanity, Jarus shows that generalized epidemics have occurred since 5,000 years ago in China (epidemic wiped), followed by the Bubonic Plague in Ancient Greece (430 BC) and the Roman Empire (A.D. 165-180, 250-271, 541-542), Black Death (1346-1353) in Asia and Europe, cocoliztli epidemic in Central America (1545-1548), Great Plague of London (1665-1666), Marseille: (1720-1723), Russia (1770-1772), Philadelphia yellow fever (1793), Flu pandemic (1889-1890), American polio epidemic (1916), Spanish Flu (1918-1920), Asian Flu (1957-1958), AIDS pandemic and epidemic (1981-present day), H1N1 Swine Flu pandemic (2009-2010), West African Ebola epidemic (2014-2016), Zika Virus epidemic (2015-present day) and Swine fever (2010-present).

According to the study conducted by the Nielsen Company, quoted by Start-up Cafe (2020) publication, because the pandemic spread, there was a globally manifested modification in consumer behaviour. Thus, supported the survey conducted among consumers in a hundred countries, a method as well as six stages within the evolution of consumer behaviour was known, due to corona virus. This evolution is common to all or any markets suffering from the pandemic, the businesses requiring grasping and adapting to those changes, so they'll higher arrange future actions. The correlation of media releases and government selections concerning COVID-19 with consumers' payment on things like health merchandise and groceries reveals variety of continual patterns.

Wright (2020)why, what and way of consumer buying is changed due to COVID19 outbreak. During this analysis they notice the buyer priorities became targeted on the foremost basic wants, causation the demand for hygiene, cleansing and staples merchandise soaring, whereas non- essential classes slump. The factors that influence complete selections are ever-changing as a "buy local" trend accelerates. Digital Commerce has conjointly seen a lift in new grocery buying on-line patrons.

Objectives of the study:

To analyse the changes of consumer behaviour due to covid 19

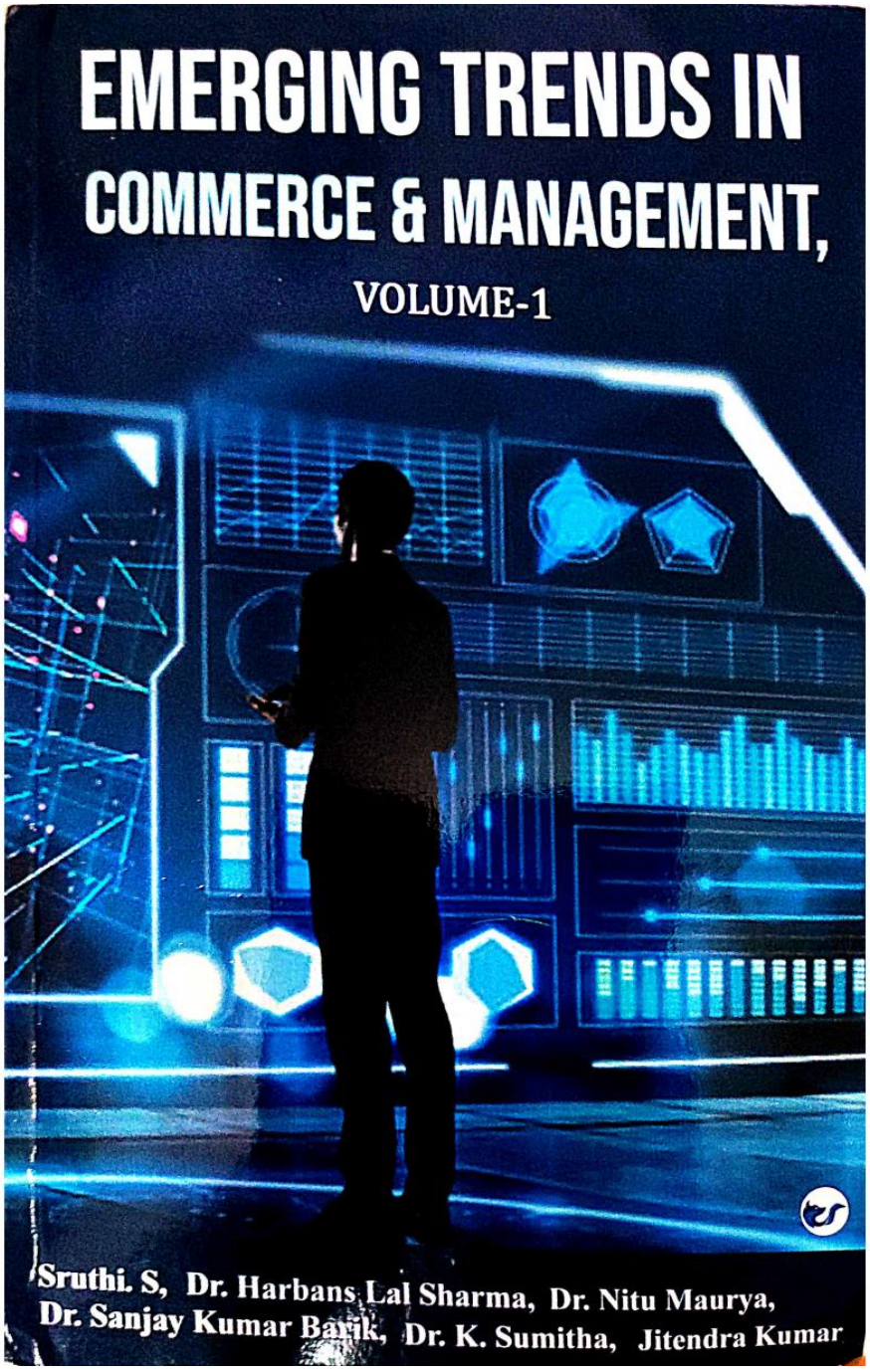
To discuss about what kind of goods is most preferred by consumers.

To find the relationship between economic fear, Health fear and consumer behaviour

Methodology:

The sample size is 120 respondents and the area of the study is Tirunelveli district, in Tamilnadu. The data are primary in nature. In the method Non probability sampling, we used convenience sampling technique. The results of the research have been analyzed, graphically examined and interpreted. The

47	**Dr.K.Ahamed Anis Fathima**	Emerging trends in Commerce & Management ,Volume 1/ impact of social promotional activities on Nestle India LTD	**978-93-93229-08-3**	**DEPARTMET OF COMMERCE**



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IMPACT OF SOCIAL PROMOTIONAL ACTIVITIES ON NESTLE INDIA LTD

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ABSTRACT

Sales Promotion is a most used phenomenon in today's business world. Its twoway benefit is that it helps to increase sales as well as it increases customer loyalty. So, most of the business firms consider it as an important marketing tool. Nestle concentrates on their consumers and tries to understand their physical and emotional desires. They have a wide range of products and consumed by all age groups. Consumers of nestle products refers to the level of happiness or dissatisfaction with product and brand. The researchers have taken a sample of 50 respondents of students, children, businessman, servicemen and housewives because majority these people consume nestle product in the market. The main objective of the research is to analysis the impact of social promotional activities on Nestle India Ltd. For this study, the sampling technique is chosen. This project is a result of research carried out in Rahmath Nagar, Tirunelveli district and it is based on the information given by the respondents through questionnaire that is primary data, secondary data was collected from websites and past research papers and articles.

Keywords: Promotional activity, Availability, Marketing

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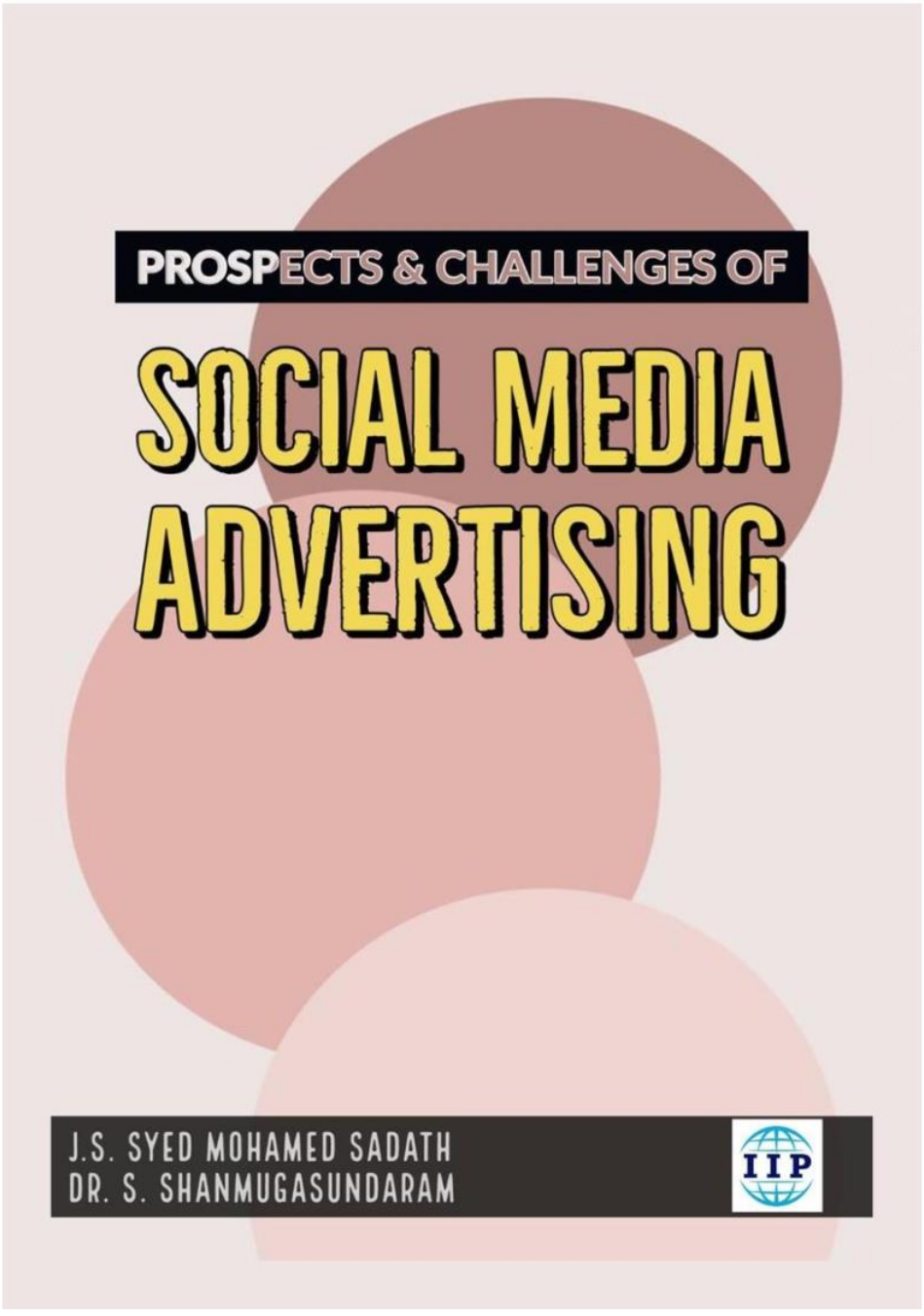

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A Study on Impact of Advertisement of Social Media Advertisement on Mobile Phones in Tirunelveli

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Abstract

Most of people are addicted to social media. Present study analyzes on how they are influenced by social media and how they are purchased. In online mode of purchase there are many benefits and problems. This study is focused on two sides of the social media advertisement that is benefits and drawbacks in this study area.

Key words: Social Media, Advertisement

I. Introduction

Now a day's most of the people spend more time with social media. While using social media, the advertisements are shown in between their seeing. After that they are buying the product through online or offline mode. In online mode of purchase there are many benefits to the customers such as availability, choices, easy return and less effort. At the same time they face some problems like low quality, delivery issues, and payment failure and so on. Most of the people prefer online purchase and vice versa. This study concentrates on how the people are influenced by the social media advertisement and their purchasing decision.

Statement of the Problem: In this study the main concentration is social media advertisement. Now a days social media plays a crucial role in buying. Social media advertisement has pros and cons itself. This study is focused on two sides of the social media advertisement that is benefits and drawbacks. And also analyzes the mode of purchase where as it may be online purchase or offline purchase in the study area.

Scope of the study: The study is particularly focused on how the social media advertisements influence the buyers while purchasing the mobile phones in Tirunelveli.

Objectives of the study

- To analyze the socio economic profile of the respondents.
- To identify which one is best among the social media applications.
- To find out the preference and problems of online and offline shopping
- To offer findings, suggestions and conclusions.

Sources of Data: For this study both primary and secondary data are used.

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51	Dr.R. Janet Rani	Environmental Studies/ Fundementals of environmental sciences	978-81-942052-6-5	**DEPARTMET OF MICROBIOLOGY**

First Edition: July, 2020

ENVIRONMENTAL SCIENCES

Dr. P. Sundara Pandian
Dr. N. Prithivikumaran
Dr. S. Venkatesan
Dr. M.Kannan

ISBN : 978-81-942052-6-5
Price : ₹ 375/-

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The authors are solely responsible for the contents of the documents complied in this volume. The publishers or editors do not take any responsibility for the same in any manner. Errors, if any, are purely unintentional and readers are requested to communicate such errors to the editors or publishers to avoid discrepancies in future.

Published by

Virudhunagar Hindu Nadars' Senthikumara Nadar College (Autonomous)
3/151-1, College Road
Virudhunagar – 626 001, Tamilnadu, India.
email: support@vhnsnc.edu.in
website: www.vhnsnc.edu.in
Phone : (04562) 280154 Fax: (04562) 281 338

Typesetting & Printed at

Muthu Computers & Printers
25-B, T.T.K.Road, (Near M.G.R. Statue)
Virudhunagar – 626 001, Tamilnadu, India.
email :muthucolorprint@gmail.com
Phone: (04562) 266353, 9442997429

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CHAPTER I

FUNDAMENTALS OF ENVIRONMENTAL SCIENCES

The environment is everything that isn't me.

- Albert Einstein

DEFINITION

Environment includes biotic factors (man, plants, animals, microbes etc) and abiotic factors such as light, air, water, soil, etc., Environment science is a multi-disciplinary science because it consists of various branches of studies like chemistry, physics, medical science, life science, agriculture, public health, sanitary engineering etc. Environmental science aims to connect the knowledge from all sciences that is required to solve environmental problems.

Environmental studies is a multidisciplinary academic field systematically studies human interaction with the environment which influence life on earth, including atmospheric conditions, food chains, the water cycle, etc.

PRINCIPLES OF ENVIRONMENTAL SCIENCES

- Environmental system includes water, air, soil and organism, which associate with the flows of material, energy and information.
- The components, structures and functions of environmental system are diverse. Environmental system consists of abiotic things (air, water bodies, soils and rocks) and organisms (plants, animals and microorganisms).
- Human beings obtain useful substance and energy from environmental system continuously and emit wastes and unnecessary energy into the system.
- The dynamics of the environmental system characterizes a nature that the system state is changing with time. Environmental system change is constant.

SCOPE OF ENVIRONMENTAL SCIENCES

The scopes are summarized as follows:

- The study creates awareness among the people to know about various renewable and nonrenewable resources of the region. The endowment or potential, patterns of

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First Impression: 2020

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ISBN: 
978-81-937002-7-3

Price: ₹ 500.00

Published by
EDUSYS, Chennai

Typeset & Printed by
M/s Sarathas Xerox & Computers
Trichy – 620 017.
Email : heberlink@yahoo.com

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IMPLEMENTATION OF AUTOMATION SERVICES USING AUTOLIB IN SADAKATHULLAH APPA COLLEGE LIBRARY, TIRUNELVELI

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ABSTRACT

As libraries are knowledge treasures, it is essential for them to grow with technology. With the emerging technology trends, libraries also upgrade themselves towards the process of digitalization. Automating a library provides user satisfactory services to the community. Library automation reduces the work load of man power in regular library works by use of library automation collection, storage, management, processing, etc. Many library automation soft wares are available in this digital world to help the LIS Professionals to automate their libraries. AutoLib is one such software which is implemented in the library of Sadakathullah Appa College, Tirunelveli. The scope of this study is to know the areas that can be automated in a library using AutoLib, and to analyse the areas where automation is implemented in the library of Sadakathullah Appa College, The library professionals were interviewed with various questions to find out how much extent the software is utilized. The circulation and other services were also observed in a day. The areas of the library that are automated are, circulation, stock verification, OPAC, and acquisition. Suggestions were made to automate more areas or services to make the library a fully automated one.

Keywords *: Academic libraries, Library Automation, AutoLib Software, Automated Services*

I INTRODUCTION

In today's scenario, libraries especially college libraries are in a need to upgrade themselves by automating. It helps the librarian as well as the reader to save the time in searching and doing other various tasks. Automating the house-keeping operations of the library also reduces the work load of the library professionals a lot. Hence, library automation becomes a worldwide practice. Keeping this in mind the library of Sadakathullah Appa College has also been automated. The areas of house-keeping operations that are automated in the library of SAC is discussed in this paper.

II OBJECTIVES

The main objectives of this study are,

1. To know about the automation software used in the library.
2. To find out the areas where the software can be implemented.
3. To find out in which areas the software has been implemented in the library of Sadakathullah Appa College.

III AUTOMATING A LIBRARY

Automation is an automatic operation or control of a process, with the help of certain equipment or a system or techniques. In libraries automation refers to the process of automatic in-house functions such as circulation, cataloguing,

ROLE OF LIBRARIAN IN IMPLEMENTING LIBRARY 3.0

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ABSTRACT

If a library applies web 3.0 to its services then it is called as library 3.0. Library offers many services which can be put together in three broad areas viz, information acquisition, knowledge Organization, and knowledgedissemination. With the help of web 3.0, anyone can retrieve any information from anywhere. Libraries are in a position to transform themselves according to the changes acquired time to time in the society. Objectives of this study include understanding web 3.0, accepting the technological changes to be implemented in the library etc. To implement Library 3.0, it is essential to be well versed in web3.0. As the librarian is responsible for integrating new technologies with the library services, the role of the librarian is discussed in this paper. Hence, the librarian must have a broad mind to welcome new technologies. In this paper web 3.0 has been analyzed with the role of librarian as a bridge between technological advancement and the users. In conclusion the librarian should know his/her position to work to integrate the technology with information services. This paper also provides suggestions to create a successful library 3.0.

Keywords : *Web 3.0, Library 3.0, Librarian 3.0, Library services, Information services.*

I INTRODUCTION

Whenever there is a technological renaissance, especially when there is one in the information technology, the world tries to change its face according to the emerging trends. It is necessary for the libraries to update themselves whenever such an event happens. Web 3.0 is the term that is used frequently in the field of information technology. If a library applies web 3.0 to its services then it is called as library 3.0. Library offers many services which can be put together in three broad areas viz, information acquisition, knowledge Organization, and knowledge dissemination. With the help of web 3.0, anyone can retrieve any information from anywhere. Libraries are in a position to transform themselves according to the changes acquired time to time in the society. The concept of web 3.0, its impact on libraries and implementation of library 3.0 are discussed in this paper.

II OBJECTIVES

- To understand web 3.0 and accepting the technological changes to be implemented in the library etc.
- To analyze with the role of librarian as a bridge between technological advancement and the users.
- To find out the challenges that arises while implementing web 3.0in the libraries.

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தமிழ்ச்சுவடி

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Published by

Tamilsuvadi Publication

Published by
Tamilsuvadi Publication
182, First Middle Street, Thiyagaraja Nagar,
Tirunelveli-627 011.
Cell : 9345543043. www.tamilsuvadi.com

Book Name	:	BIBLIOTHERAPY FOR ALL AN INNOVATIVE PRACTICE IN LIBRARY
Authors Name	:	Dr. P.Sundara Pandian, Dr. G.Amudha Dr. S.Aravind, Dr. J.Kamatchi Eswaran, Dr. P.Karuppasamy, Dr. V.Senthur Velmurugan
Copy Right	:	Tamilsuvadi Publication
First Edition	:	2020
ISBN No	:	978-81-944351-5-0
Rate	:	₹ 750

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ROLE OF SCHOOL LIBRARIAN AS A BIBLIOTHERAPIST: A REVIEW

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Introduction

Library in a school means a lot for the students. Pupils like to read books apart from their text books. The habit of reading can be enhanced during the school going period. Going to the library during their class hours and after school hours make children happy and helps the children in many ways. Reading good books leads them towards light. Apart from developing the individual's learning skills, book reading helps them to improve their life skills and to manage emotions. School librarian plays a vital role in developing these skills at the school level especially while dealing with the adolescents.

Bibliotherapy

The word Bibliotherapy is a combination of two Greek words 'Biblio' and 'therapeio' which mean book and healing respectively. The use of books within therapeutic contexts first appeared in the Atlantic Monthly in 1916. Sometimes referred to as, biblioguidance, bibliocounseling, literatherapy, bookmatching or reading therapy, bibliotherapy involves the use of books and other media to facilitate both normal development and clinically significant problems. In 1966, the Association of Hospital and Institution Libraries, then a division of the American Library Association, defined Bibliotherapy as " The use of selected reading materials as therapeutic adjuvants in medicine and psychiatry; also guidance in the

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INFLUENCE OF CLIMATIC CHANGES ON THE GROWTH OF NEMATODES

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Introduction

Everywhere on earth, climate is changing. A change in the pattern of weather, in oceans, land surfaces and ice sheets, occurring over time scales of decades or longer is known as Climate change, a prime factor in global warming which arises due to the combined effect of air and sea surface temperatures over the world (Kelly, 2013).Changes in natural ecosystems threaten biodiversity worldwide and have implications for global food production. It was driven by human emissions of greenhouse gases, resulting large-scale shifts in weather patterns. There are many -naturall and -anthropogenicl (human-induced) factors that contribute to climate change, it is the rapid rate and the magnitude of climate change occurring now that is of great concern worldwide. Human activity has increased greenhouse gases(carbon dioxide, nitrous oxide, methane, ozone, and water vapor) in the atmosphere mainly due to the burning of fossil fuels since the Industrial Revolution, leading to more heat retention and an increase in surface temperatures. Natural processes can also contributeto

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978-81-947114-9-0

788194 711490

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