Dr A Murugan – Publications – 05

Paper - 1

Stochastic Modeling & Applications
Vol. 26 No. 3 (January – June, Special Issue 2022 Part - 8)
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Portending Diabetes using Euclidian distance with Manhattan Metric Measures

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Abstract

Diabetes must be predicted early if it is to be prevented. Common criteria used in prediction models for detection systems may not apply to all people with various health issues. As a result, this study suggests a way for type 2 diabetes prediction using variables that reflect individual health issues. This study explicitly suggests a prediction approach called Point based Algorithm with Manhattan Metric Measures (PBAMM) based on the presumption that the individual has a variety of health issues coming from various individual characteristics, a necessity for an efficient prediction model. By using information gain to disclose significant and insignificant individual aspects with varied priorities, which are represented by different weights, PBAMM modifies Distance. The total absolute disparities between two points in all dimensions make up the Manhattan Distance.92.5 percent of the predictions for this work came true, according to the PBAMM implementation in R programming.

Paper -2

iJETRM

INTERNATIONAL JOURNAL OF ENGINEERING TECHNOLOGY RESEARCH & MANAGEMENT

Impact Factor: 5.004
ISSN: 2456:9348

CERTIFICATE OF PUBLICATION FOR ARTICLE TITLED:
A DISTRIBUTED COMPUTING IN BIG DATA USING MINING ALGORITHMS

AUTHORED BY:
T. Haripriya[1],
A. Murugan[2]

PUBLISHED IN:
Volume (06) Issue (07) July 2022

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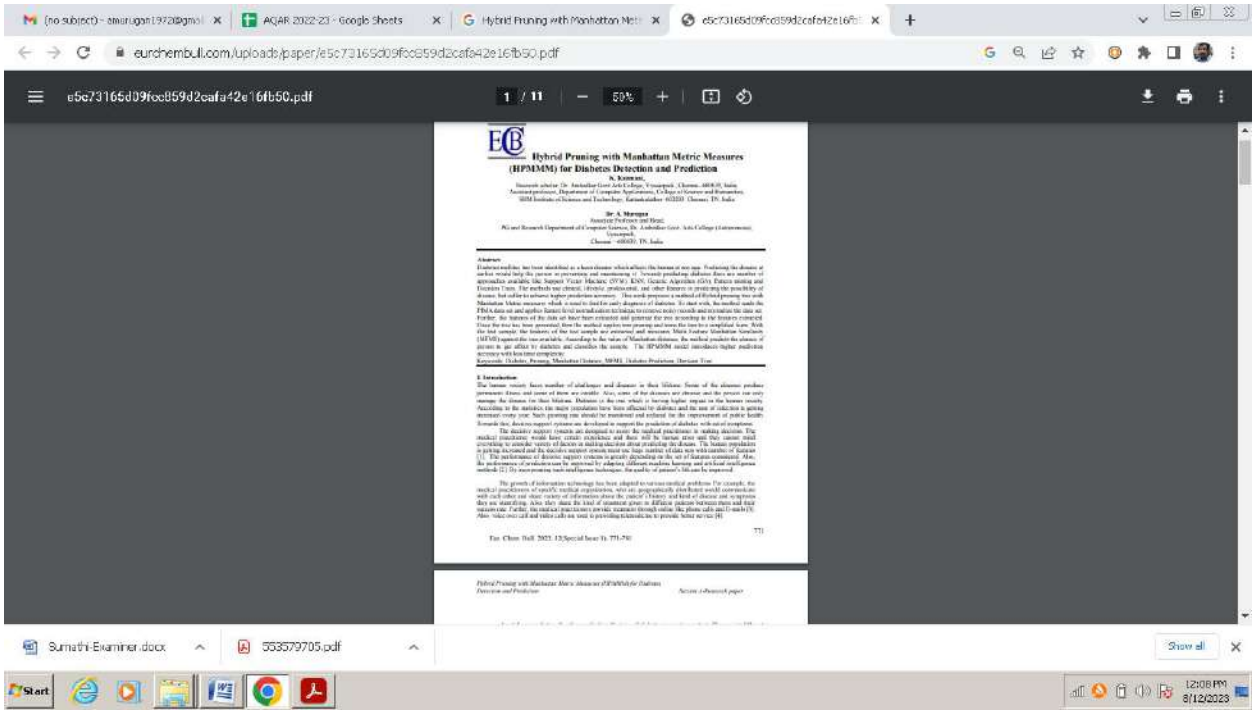
July 21, 2022

URL
http://www.ijetrm.com/issues/files/Jul-2022-21-1658388224-J07.pdf

Editor-in-chief

Paper 3



Paper - 4

Industrial Engineering Journal
ISSN: 0970-2555
Volume : 52, Issue 5, No. 3, May : 2023

AN ADAPTIVE SUNFLOWER OPTIMAZATION MODEL FOR EFFICEINT DIABETES PREDICTION USING MEDICAL DATA SET

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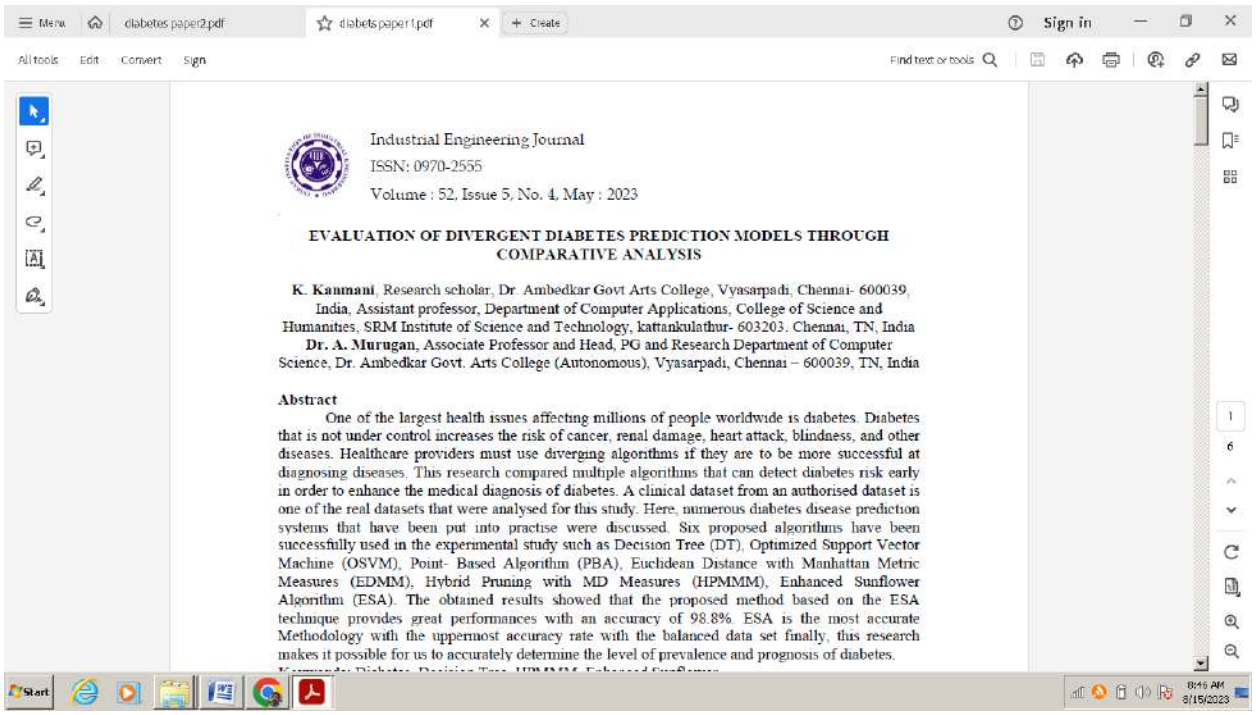
Abstract:

Objectives: The problem of diabetes prediction with medical data set is deeply analyzed . There are number of techniques in predicting the disease like Support vector machine (SVM), Genetic Algorithm, Ensemble learning, Artificial neural network, and so on. However, the methods struggling to achieve expected prediction accuracy. **Methods:** To handle this issue, an efficient Adaptive Sunflower Optimization based Diabetes Prediction Model (ASODPM) is presented towards diabetes prediction. The method start with preprocessing the diabetes data set given with the use of Value Based Normalization technique. The value based normalization technique identifies the noisy records and eliminates the noisy records. **Findings:** With the purated data set, the method extract the features and generates K number of sunflowers depending on the number of disease classes. Initially, the method uses the classfied labels to index the data points to the sunflower. At the training phase, the method iteratively applies the sunflower optimization algorithm with the objective function named Feature Centric Fitness (FCF) Estimation. **Novelty:**Using the objective function, the method computes the value of multi feature morality value (MFMV) for the sunflower considered. The method iteratively measure

Paper - 5



Industrial Engineering Journal
ISSN: 0970-2555
Volume : 52, Issue 5, No. 4, May : 2023

EVALUATION OF DIVERGENT DIABETES PREDICTION MODELS THROUGH COMPARATIVE ANALYSIS

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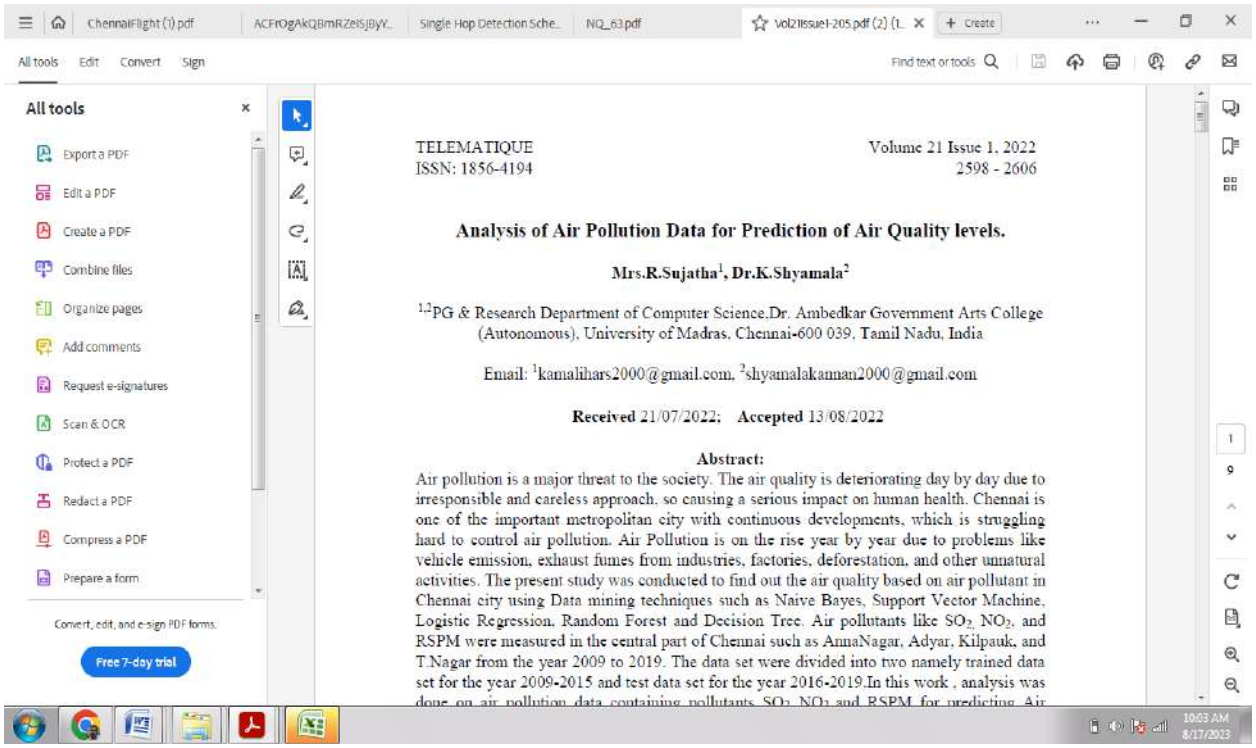
Dr. A. Murugan, Associate Professor and Head, PG and Research Department of Computer Science, Dr. Ambedkar Govt. Arts College (Autonomous), Vyasarpadi, Chennai – 600039, TN, India

Abstract

One of the largest health issues affecting millions of people worldwide is diabetes. Diabetes that is not under control increases the risk of cancer, renal damage, heart attack, blindness, and other diseases. Healthcare providers must use diverging algorithms if they are to be more successful at diagnosing diseases. This research compared multiple algorithms that can detect diabetes risk early in order to enhance the medical diagnosis of diabetes. A clinical dataset from an authorised dataset is one of the real datasets that were analysed for this study. Here, numerous diabetes disease prediction systems that have been put into practise were discussed. Six proposed algorithms have been successfully used in the experimental study such as Decision Tree (DT), Optimized Support Vector Machine (OSVM), Point- Based Algorithm (PBA), Euclidean Distance with Manhattan Metric Measures (EDMM), Hybrid Pruning with MD Measures (HPMMM), Enhanced Sunflower Algorithm (ESA). The obtained results showed that the proposed method based on the ESA technique provides great performances with an accuracy of 98.8%. ESA is the most accurate Methodology with the uppermost accuracy rate with the balanced data set finally, this research makes it possible for us to accurately determine the level of prevalence and prognosis of diabetes.

Dr K.Shyamala – Publications – 05

Paper- 1



TELEMATIQUE
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2598 - 2606

Analysis of Air Pollution Data for Prediction of Air Quality levels.

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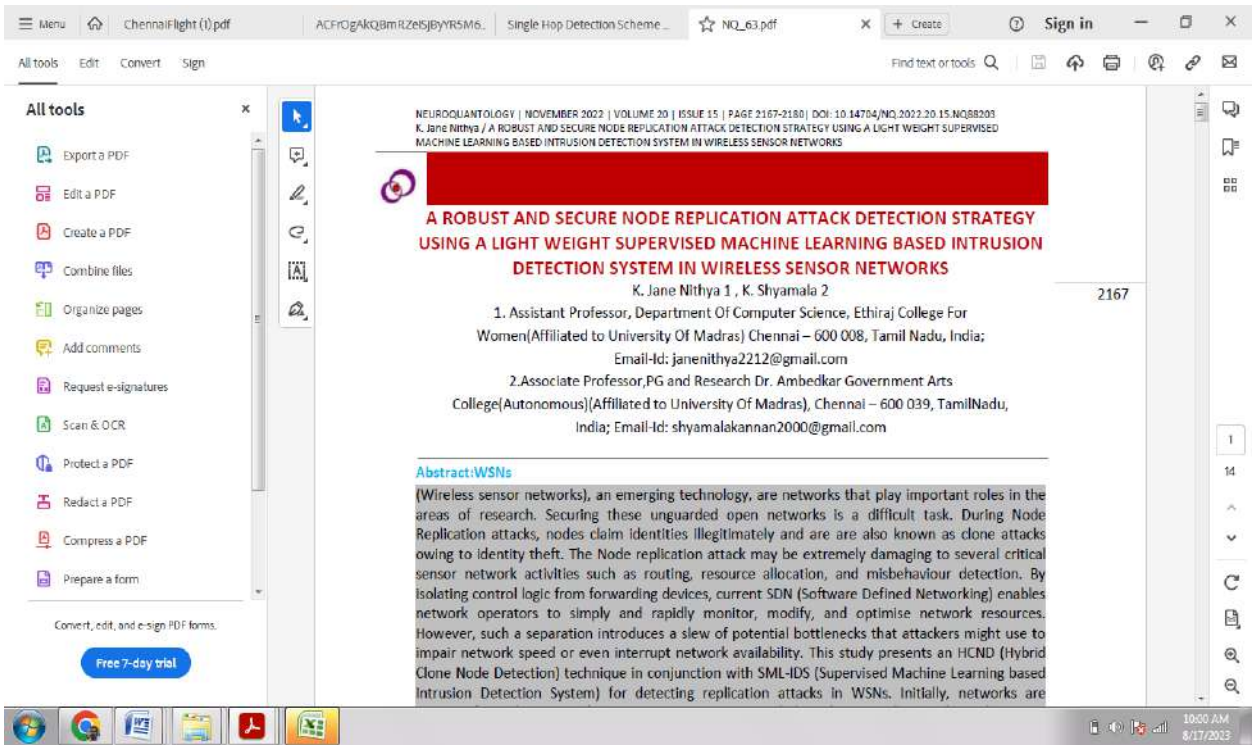
Abstract:

Air pollution is a major threat to the society. The air quality is deteriorating day by day due to irresponsible and careless approach, so causing a serious impact on human health. Chennai is one of the important metropolitan city with continuous developments, which is struggling hard to control air pollution. Air Pollution is on the rise year by year due to problems like vehicle emission, exhaust fumes from industries, factories, deforestation, and other unnatural activities. The present study was conducted to find out the air quality based on air pollutant in Chennai city using Data mining techniques such as Naive Bayes, Support Vector Machine, Logistic Regression, Random Forest and Decision Tree. Air pollutants like SO_2, NO_2, and RSPM were measured in the central part of Chennai such as AnnaNagar, Adyar, Kilpauk, and T.Nagar from the year 2009 to 2019. The data set were divided into two namely trained data set for the year 2009-2015 and test data set for the year 2016-2019.In this work , analysis was done on air pollution data containing pollutants SO_2, NO_2 and RSPM for predicting Air

Paper- 2



NEUROQUANTOLOGY | NOVEMBER 2022 | VOLUME 20 | ISSUE 15 | PAGE 2167-2180 | DOI: 10.14704/NQ.2022.20.15.NQ88203
K. Jane Nithya / A ROBUST AND SECURE NODE REPLICATION ATTACK DETECTION STRATEGY USING A LIGHT WEIGHT SUPERVISED MACHINE LEARNING BASED INTRUSION DETECTION SYSTEM IN WIRELESS SENSOR NETWORKS

2167

A ROBUST AND SECURE NODE REPLICATION ATTACK DETECTION STRATEGY USING A LIGHT WEIGHT SUPERVISED MACHINE LEARNING BASED INTRUSION DETECTION SYSTEM IN WIRELESS SENSOR NETWORKS

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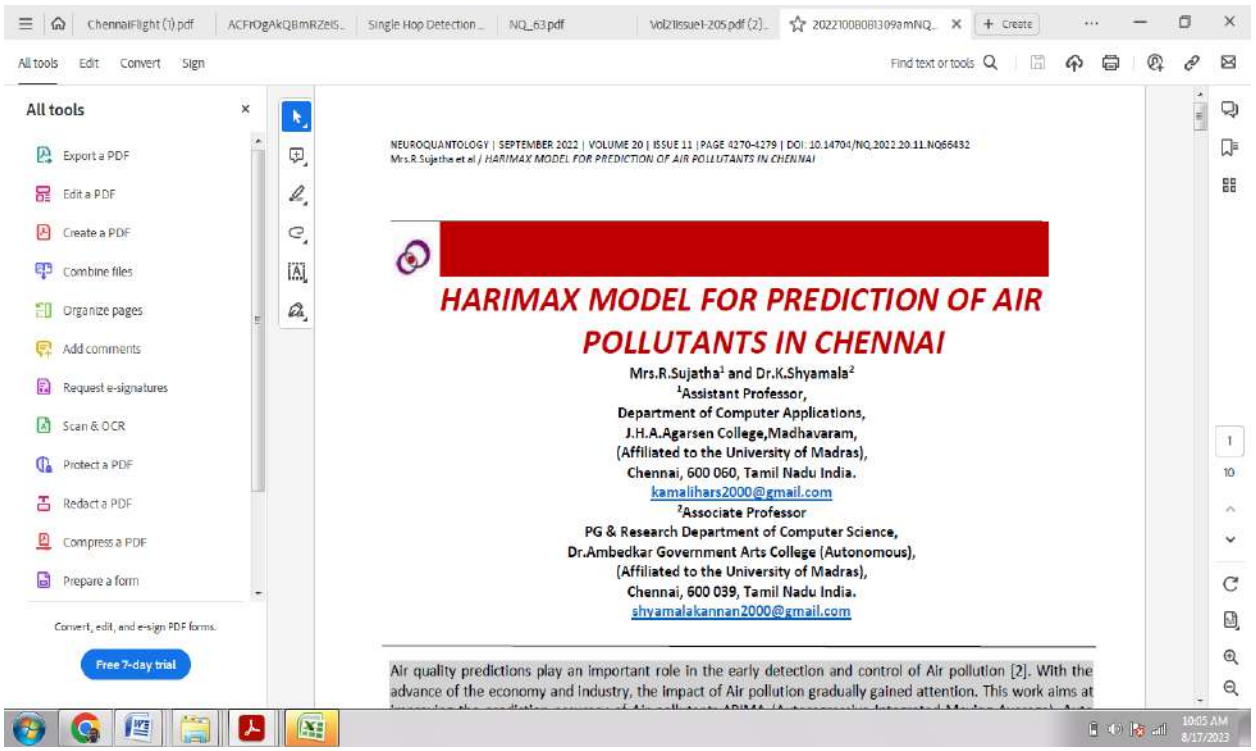
Abstract:WSNs

(Wireless sensor networks), an emerging technology, are networks that play important roles in the areas of research. Securing these unguarded open networks is a difficult task. During Node Replication attacks, nodes claim identities illegitimately and are are also known as clone attacks owing to identity theft. The Node replication attack may be extremely damaging to several critical sensor network activities such as routing, resource allocation, and misbehaviour detection. By isolating control logic from forwarding devices, current SDN (Software Defined Networking) enables network operators to simply and rapidly monitor, modify, and optimise network resources. However, such a separation introduces a slew of potential bottlenecks that attackers might use to impair network speed or even interrupt network availability. This study presents an HCND (Hybrid Clone Node Detection) technique in conjunction with SML-IDS (Supervised Machine Learning based Intrusion Detection System) for detecting replication attacks in WSNs. Initially, networks are

Paper- 3



NEUROQUANTOLOGY | SEPTEMBER 2022 | VOLUME 20 | ISSUE 11 | PAGE 4270-4279 | DOI: 10.14704/NQ.2022.20.11.NQ66432
Mrs.R.Sujatha et al / *HARIMAX MODEL FOR PREDICTION OF AIR POLLUTANTS IN CHENNAI*

HARIMAX MODEL FOR PREDICTION OF AIR POLLUTANTS IN CHENNAI

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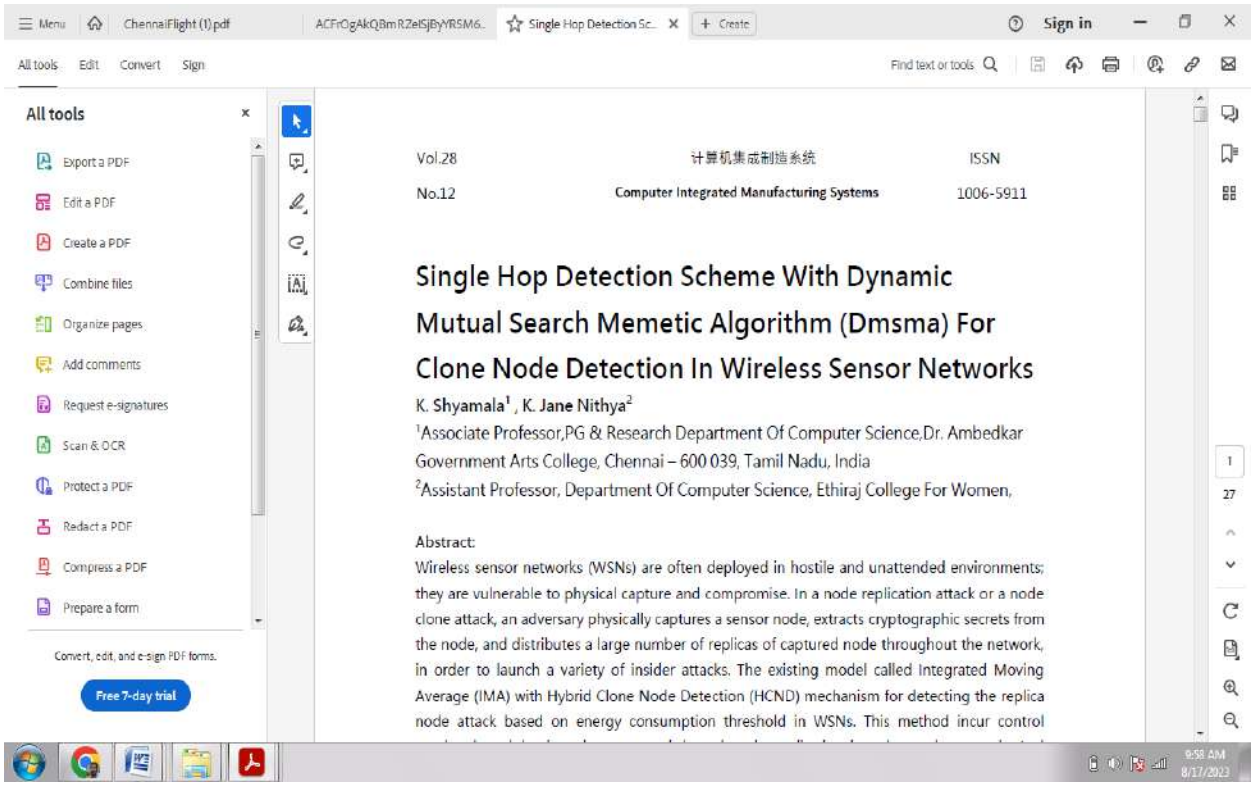
Air quality predictions play an important role in the early detection and control of Air pollution [2]. With the advance of the economy and industry, the impact of Air pollution gradually gained attention. This work aims at

Paper- 4



Vol.28 计算机集成制造系统 ISSN
No.12 Computer Integrated Manufacturing Systems 1006-5911

Single Hop Detection Scheme With Dynamic Mutual Search Memetic Algorithm (Dmsma) For Clone Node Detection In Wireless Sensor Networks

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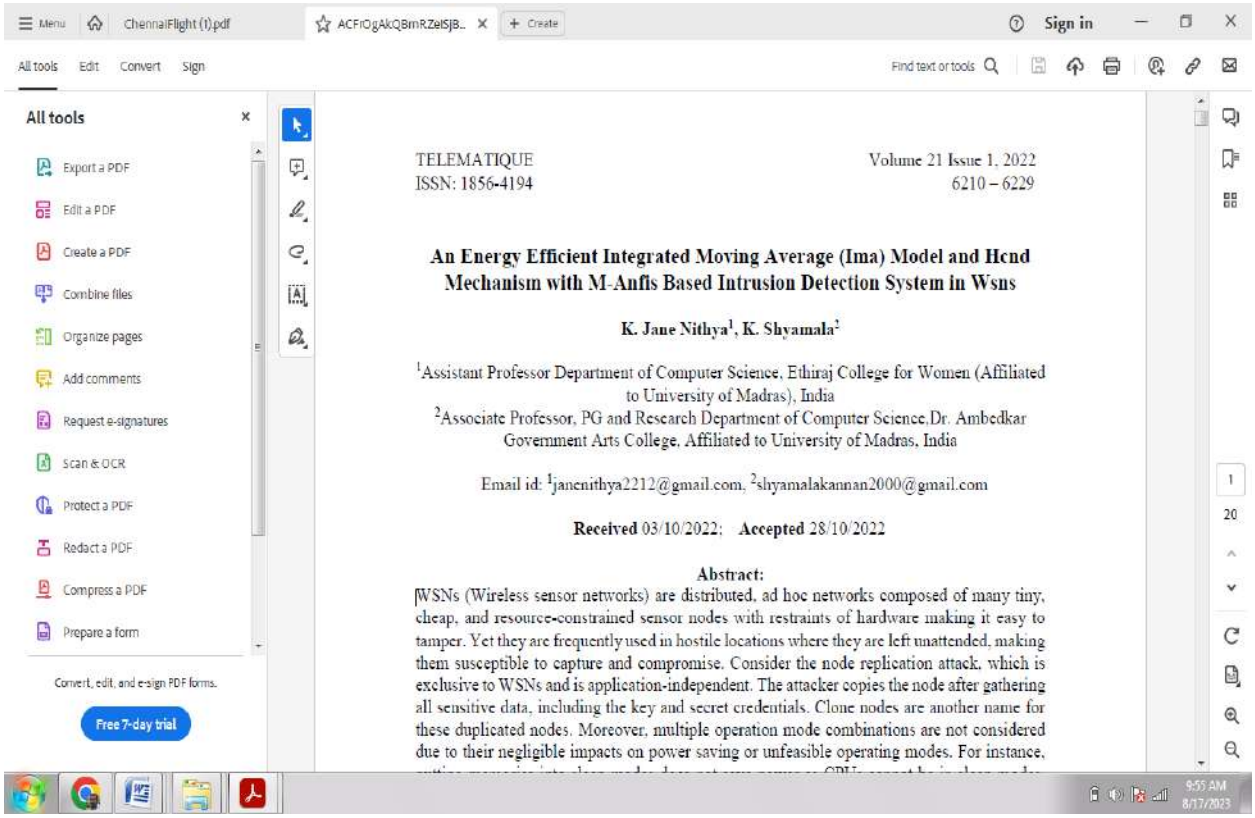
Abstract:
Wireless sensor networks (WSNs) are often deployed in hostile and unattended environments; they are vulnerable to physical capture and compromise. In a node replication attack or a node clone attack, an adversary physically captures a sensor node, extracts cryptographic secrets from the node, and distributes a large number of replicas of captured node throughout the network, in order to launch a variety of insider attacks. The existing model called Integrated Moving Average (IMA) with Hybrid Clone Node Detection (HCND) mechanism for detecting the replica node attack based on energy consumption threshold in WSNs. This method incur control

Paper- 5



TELEMATIQUE Volume 21 Issue 1, 2022
ISSN: 1856-4194 6210 – 6229

An Energy Efficient Integrated Moving Average (Ima) Model and Hcnd Mechanism with M-Anfis Based Intrusion Detection System in Wsns

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Abstract:
[WSNs (Wireless sensor networks) are distributed, ad hoc networks composed of many tiny, cheap, and resource-constrained sensor nodes with restraints of hardware making it easy to tamper. Yet they are frequently used in hostile locations where they are left unattended, making them susceptible to capture and compromise. Consider the node replication attack, which is exclusive to WSNs and is application-independent. The attacker copies the node after gathering all sensitive data, including the key and secret credentials. Clone nodes are another name for these duplicated nodes. Moreover, multiple operation mode combinations are not considered due to their negligible impacts on power saving or unfeasible operating modes. For instance,

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ISSN: 1004-9037
https://sjcjycl.cn/
DOI: 10.5281/zenodo.7766159

STUDENTS PERSONALITY BASED PREDICTION OF EMOTIONAL INTELLIGENCE USING DATA MINING TECHNIQUES

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Abstract: In the current world, the behavior of students changes from time to time, based on their emotional decisions regarding the kind of activities they are involved with. Many emotions are produced by the students when they act in a particular incident-based activity. This research work, analysis such kind of emotion-based students' personalities through their activities using some of the data mining techniques, Naive Bayes and Random Forest are utilized to predict the usefulness of the students' activities, created utilizing their decisions. The data set is collected from the students for this analysis employing a questionnaire. The performance of both algorithms is evaluated based on the results of students' decision-making responses collected from the survey. The best algorithm for the analysis of emotional intelligence-based students' information is suggested based on the accuracy of the algorithms.

Keywords: Data Mining Algorithms, Emotional Intelligence, Naïve Bayes Algorithm, Random Forest Algorithm, Performance Accuracy.

1. INTRODUCTION

Today, it is the world of the digital era, where everyone's daily activities are preoccupied with digital gadgets and social media.[1] It has become very difficult for every individual to survive without the indulgence of social media in our day-to-day activities. Moreover, the current changes that have occurred due to the covid situation have also pushed everyone to be a social media addict. Students, who happen to be the future in deciding the progress of a nation, have been severely addicted to this digital threat. As a result of this, the student's mentality and behavior have changed and there is a severe wavering in their mood swings and emotions from time to time. This change in their emotions affects the efficiency of any individual in all their daily activities like making decisions, handling relationships, facing an interview, and their academic performance.[2] This study is carried out by collecting data from students through a google form. The questions were taken from a popular known technique to assess the emotions of the students, called the Maire Bridge Type Indicator (MBTI) [3] survey. The data are then analyzed, pre-processed, and evaluated based on the accuracy of the data mining algorithms.

Shodhasamhita : Journal of Fundamental & Comparative Research
Vol. VIII, No.2(II) July - December :2022
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A NOVEL MODEL FOR IDENTIFYING SIMILARITIES IN USER BEHAVIOR USING CLUSTER PLUS ALGORITHM

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Abstract
Web mining's popularity continues to rise every day, with interest and research being explored. By monitoring web log data, consumers can understand users' search patterns and motives. User behavior analysis is a significant topic in data science forecasting and classification. User behavior analysis involves finding out about users' interests in the website's activity and monitoring the dispositions of suspects based on their online presence. Several applications have made use of web log data from web user clusters, including optimizing website structures, reconstructing websites, distributing advertisements, etc. In this study, we look into clustering plus, a technique for classifying Internet users according to their browsing habits. Comparing the suggested cluster plus's performance to that of mini-batch k-means yields findings in terms of runtime and a measure of clustering quality that demonstrate cluster plus's superiority in enhancing website performance.

***Keywords*—**web server, user behavior, Clustering

I. Introduction

Users throughout the world have access to the World Wide Web as a means of gaining knowledge. The biggest problem on the Internet is getting the correct information to the right person. Research into user behaviour is crucial since it allows for the examination of a wide range of user attributes. Exploring user characteristics on the web is very difficult. Finding the correct data takes a long time as well. The web can be further strengthened by a clever navigator approach and what web users expect. User activity like date and time, user IP address, and contextual information (such as user agent) is stored in weblog data. The most prevalent online user patterns are predicted using these weblogs, which can be utilized to predict user behavior and acquire business insights. In order to analyze and extract relevant information from content found on the web, web mining methods have emerged. Web application, web content, and web architecture mining are the three basic categories of web mining that may be distinguished from one another. Internet mining may be divided into three different categories: mining web use, mining web content, and mining web structure. There are a lot of resources available, but their usefulness is restricted and sometimes untested. Data mining, the practice of sifting through large volumes of information for nuggets of gold that may be used in practical contexts, is gaining popularity. Clustering is a widely accepted and promising data mining approach for discovering useful patterns in large datasets. It would seem that clustering techniques are well suited for evaluating semi-structured user log data in order to classify and access the data as user sessions. Based on the specifications, the effectiveness of several clustering methods has been assessed. Following this structure is the rest of the article. In the second section, we will talk about Web Log files and Web Usage Mining. The third part of this paper is a literature review on web mining methods for discovering user overlap. Data mining algorithms mini-batch k-means and cluster plus are compared and contrasted in Section 4. In Section 5, we will discuss the dataset and the criteria used to evaluate it. Section 6 provides an evaluation of the algorithms' performance by analyzing and comparing the obtained results from each method. The conclusion and experimental inferences are presented in Section 7.

Clustering of user behavior analysis in weblog data using CPKNN algorithm

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Abstract

There are now many more expectations for the World Wide Web's expansion. Online users are increasing as well as the internet, which is expanding daily. Extraction of useful knowledge from such massive amounts of data requires new reasoning and methodology. Every user spends the majority of their time online, and each one behaves differently from the next. A weblog is a collection of transactions that are frequently updated by visitors to the websites. It includes a lot of different entries, including IP address, status code, thenumber of bytes sent, categories, and time stamp.The classification of categorized user interest and qualities is useful in determining user behavior. Data collecting, query parsing, pre-processing, and pattern analysis are all components of the process of identifying user activity, which will assist us in quickly analyzing and predicting user behavior. This study investigates how to examine user behavior using various levels of cluster plus KNN (CPKNN) that are extracted from weblogs.

Keywords: Weblogs, user behavior, patternanalysis, CPKNN, websites, query parser.

DOI Number: 10.14704/nq.2022.20.10.NQ551052 **NeuroQuantology 2022; 20(10): 10849-10857**

Introduction

The World Wide Web (WWW) is a vast repository of different types of information in a variety of formats that is particularly helpful for analyzing business growth, which is crucial nowadays to compete in the business world. Researchers are starting to look into how people behave in this distributed Web data warehouse and are working to create models that may be used to comprehend how people

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INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

PHYTOCHEMISTRY OF METHANOLIC EXTRACTS OF *BRASSICA OLERACEA* AND ITS EFFECT ON ANTI-PROLIFERATIVE ACTIVITY IN HUMAN LUNG ADENOCARCINOMA A549 CELL LINE

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Key words:

Brassica oleracea, Phytochemistry, VERO cell Line, A549 cell line, MTT assay, Cell Cycle.

***Corresponding Author:**
Saravanan, R.

ABSTRACT

This study will decipher the phytochemistry and the antiproliferative activity of *Brassica oleracea* methanolic extract on lung cancer A549 cell line. The effect of methanolic extract was to ascertain its cytotoxic effect and anti-proliferative activity through *in vitro* studies by 3-(4, 5 dimethyl thiazole-2-yl)-2, 5-diphenyl tetrazolium bromide- MTT assay) on Normal VERO cell line and A549 (Human lung adenocarcinoma cell line). Methanolic extracts of *Brassica oleracea* was found to be effective in the prevention of cell proliferation by lung adenocarcinoma cell lines. Phases of cell cycle in the present study reveal the alterations in molecular events associated with the cancerous cells.

Citation: *Raja, K. Nalini Uthaman and Saravanan, R.* **2023.** "Phytochemistry of methanolic extracts of Brassica oleracea and its effect on anti-proliferative activity in human lung adenocarcinoma a 549 cell line". *International Journal of Current Research*, 15, (02), 23913-23917.

INTRODUCTION

Cancer is still a growing health problem world-wide characterized by the irregular proliferation of the cells, as a cell progresses from normal to cancerous tissue, the biological imperative to survive and perpetuate, drives fundamental changes in cells behaviour. The risk of cancer can be reduced by habitual consumption of cancer protective foods. Lung cancer has been the leading cause of cancer-related deaths for many years and incidence and mortality statistics vary widely worldwide (Barta *et al.*, 2019). There are two main subtypes of lung cancer: Non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). Around 80% of all lung cancers are determined to be NSCLC (Matsuda and Machii, 2015). Tobacco consumption is a major risk factor for lung cancer. Other factors include genetic susceptibility, diet, alcohol consumption, occupational exposures, and air pollution (Malhotra *et al.*, 2016). However, many of these chemotherapeutic drugs have been shown to produce significant toxic side effects and drug resistance. Several anticancer agents have been found in natural products which have been investigated and developed to become effective chemotherapeutic cancer drugs (Rayan *et al.*, 2017). Apoptosis, the well-known cell death mechanism, is induced by many chemotherapeutic agents. Membrane blebbing, nuclear condensation, and apoptotic bodies are unique morphology characteristics of apoptotic cells that occur without cell inflammation (Elmore, 2007). There are two main intrinsic and extrinsic pathways in apoptotic signaling. The intrinsic pathway which is induced by intracellular stimuli such as DNA damage or oxidative stress.

The extrinsic pathway which is induced by death ligand-receptor binding on the cell membrane (Hongmei, 2012). Natural therapies such as the use of the crude plant extracts or bioactive products with multiple phytochemical properties are being beneficial to combat cancer Thus, continued research needs to be pursued to find more effective natural products that provide fewer negative side effects (Amaral *et al.*, 2019). Brassica plants are the rich source of phytochemical compounds of medicinal importance and is been studied for their bioactive phytochemical components and antioxidant potential. The edible parts of these plants show antimicrobial, anti-aging, anti-ulcer, anti-hyperglycemic, anti-hyperlipidemic, anti-proliferative, neuroprotective, anti-genotoxic and antioxidant activities (Podsedek 2007; Miraj, 2016). This study will focus on the phytochemistry and the antiproliferative activity of *Brassica oleracea* methanolic extract on lung cancer A549 cell line. Cell cycle events will be analysed to find out the dynamics of the methanolic extracts on the various phases of cell cycle in human lung adenocarcinoma cancer cell lines.

MATERIALS AND METHODS

Collection and Identification of Plant Material: Inflorescence of *Brassica oleracea* (Plate-1) used for the study were purchased from wholesale market, Chennai, Tamil Nadu during April 2021. Fresh plant specimens collected were authenticated by Dr. P. Jayaraman, Director, Plant Anatomy Research Center, Tambaram, Chennai. Registration No. (PARC/2021/4704).

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Studies on *Ficus racemosa* Fruit Extract: A Potent Antioxidant and Antibacterial Agent

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Abstract: The antioxidant therapy has increased significantly in the treatment of such diseases associated with free radicals. In order to address metabolic disorders, the therapeutic properties of plants have been investigated and explored for their potent antioxidant activity. This research highlights the phytochemical composition, antioxidant potential and antimicrobial activity of *Ficus racemosa* fruit extract (methanol), which is extensively used in the preparation of traditional medications to treat various metabolic diseases. Phytochemical analysis revealed alkaloids, flavonoids, glycosides, terpenoids, tannins and phenols that contributed for higher antioxidant and antibacterial activity. The methanolic extract showed a total phenolic and flavonoids content at 69 µg GAE/mg and 80 µg mg QE/g, respectively. Moreover, the antioxidant activity was evaluated by DPPH scavenging assay, ABTS assay and Ion chelating activity. In all the methods, the methanolic extract of fruit showed significant antioxidant activity in a dose-dependent manner and IC_{50} value was 73.7 µg/ml for DPPH, 72.75 µg/ml for ion chelating and 59.3 µg/ml for ABTS assay. The antibacterial activity was evaluated against five pathogenic bacteria. Antibacterial study revealed that fruit extract exhibited good inhibition activity against pathogenic isolates. Study of well diffusion assay of *Ficus racemosa* fruit extract revealed that 100 µg/ml concentration has significant control over pathogens. Highest inhibition was obtained for *Streptococcus* spp. and *Staphylococcus* spp. with a zone of inhibition of 21 ± 0.34 and 18 ± 0.15 mm, respectively at 100 µg/ml. Based on all these results we conclude that the methanolic extract of *F. racemosa* acts as a potent antioxidant and an antibacterial agent. From this we can suggest the plant as a natural source of antioxidants and phytochemicals with potent antimicrobial properties, hence, it can be used for therapeutic purpose.

Keywords: *Ficus racemosa*, Phytochemicals, Antioxidant activity, Antibacterial activity, Pathogenic bacteria

Citation: Rajesh D., Saravanan R. and Sonia K.: Studies on *Ficus racemosa* fruit extract: A potent antioxidant and antibacterial agent. Intern. J. Zool. Invest. 8(2): 651-662, 2022.

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Free Radical Scavenging Activity of Methanolic and Ethyl Acetate Extracts of *Brassica oleracea* and its Antioxidant Role in Combating Degenerative Diseases

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Abstract: Focus on natural antioxidants in medicinal plants are gaining momentum in present days reflecting the immense valuability of Ayurveda, Naturopathy and Siddha medicine in treatment of ailments. The role played by free radicals which are highly reactive oxygen species has become increasingly relevant in etiology of degenerative diseases. The present study will focus on the antioxidant potential of methanolic and ethyl acetate extract of *Brassica oleracea* (var. *italica)* inflorescence which contribute to the scavenging of free radicals. *In vitro* free radical scavenging potential of aqueous extracts of *Brassica oleracea* inflorescence was assessed by 2,2-azino-bis (3-ethylbenzthiazoline -6-sulfonic acid, ABTS), 1,1-diphenyl-2-picryl hydrazyl (DPPH) and metal ion chelating assay (20, 40, 60, 80 and 100 µg/ml). Antioxidant potential was found more in the methanolic extracts of the florets in the present study.

Keywords: *Brassica oleracea,* Inflorescence, Free radical activity, ABTS, DPPH, Metal chelating assay

Citation: Raja K. and Saravanan R.: Free radical scavenging activity of methanolic and ethyl acetate extracts of *Brassica oleracea* and its antioxidant role in combating degenerative diseases. Intern. J. Zool. Invest. 8(2): 710-716, 2022.

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Introduction

Herbals are considered to be promising source of medicine in the traditional healthcare system. The efficacy and safety of herbal medicine have turned the major pharmaceutical population towards medicinal plant research. There is a need for more effective, less toxic and cost effective antioxidants and antimicrobials from natural sources to treat various non- communicable and communicable diseases (Singh *et al.*, 2002).

Cruciferous vegetables contain several hydrophilic and lipophilic antioxidant compounds and it is important to estimate the antioxidant

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Assessment of the Conservation Value of Wetland Birds on the Pallikaranai Marsh, Chennai, Tamil Nadu, India

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Abstract: The present study was carried out to assess the status and conservation issues of wetland birds in Pallikaranai marsh, Chennai, India from March 2021 to February 2022. The dominant family was Ardeidae represented by 9 species followed by Anatidae with 6 species, Threskiornithidae and Scolopacidae with 4 species. The families with representation with one species were Accipitridae, Anhingidae, Ciconiidae, Dicruridae, Sturnidae, Pelecanidae, Muscicapidae, Phoenicopteridae, Podicipedidae, Rostratulidae, Laridae, Hirundinidae, Columbidae and Cuculidae.Totally 60 species were identified during the study period. Higher numbers of birds were recorded in the month of April. Birds migration status, feeding habits and IUCN status were investigated. Majority of the birds are under the least concern category, the birds viz. Painted stork, Black tailed godwit and Orientel darter are under Near Threatened category. The present study site is also facing tremendous conservation challenges by the impacts of anthropogenic alteration of the habitats in and around the marshy area. The diversity of avifauna that occur in large numbers in this area invites attention for conservation of the Pallikaranai wetlands and prevention from further degradation.

Keywords: Wetland birds, Diversity, Pallikaranai marsh, Conservation threats, IUCN

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Introduction

The birds which inhabit and dependent on wetland directly or indirectly for feeding, nesting or roosting are commonly called water birds/ wetland birds. Selection of wetland by waterfowl is influenced by complex characteristics including water chemistry, aquatic vegetation, invertebrate fauna and physical features. Pallikaranai marsh functions as habitat for indigenous and migratory birds. Every year huge number of water fowls and waders are sighted on the mudflats of the marsh land between June to December (during winter). Due to the availability of ideal climate for breeding and food resources, it is an important stopover for the migratory species for resting and refuelling.

A Study of Investment Behaviour of Professional Women in Chennai city

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Abstract

The research study is based on the micro economic approach of estimating the responses of the respondents' i.e. professional women towards their investment pattern in Chennai city. The motive of the study was to determine the relationship between the income and level of savings and socio-economic features of respondents. The study was done on the different professional women from different sectors of industry. The data were collected by distributing a structured questionnaire to 480 professionals belonging to diversified fields in Chennai. In spite of low income the respondents have been saving for future needs. The major impact on savings is due to the level of income of the respondents. The research shows that the age, yearly savings and expected return on investments have significant relationship.

Keywords: Annual income, Annual savings, Investment, professional women, expected rate of return

Introduction

Investment means is an asset or item that is purchased with the hope that it will generate income or appreciate in value at some point in the future. It is a deployment of time, energy, or other resources to earn profitable returns in the form of interest, income, or appreciation of the instruments. From the view point of economics, investment is the accumulation of newly produced entities such as inventories, equipment, buildings etc. On the other hand, finance experts treat investment as purchase of asset with the expectation of profits and/or capital appreciations. An investor is a person who distributes the capital with the expectation of financial return. Investment behavior depends on the mindset of investors. Every investor desires his/her hard earned savings to be invested in a highly secured, lucrative, and liquid sector. The study mainly focuses on the perception of female investors towards savings objectives, investment risk, and popular investment choices. Savings and investments are correlated. Savings creates new investments and benefit the economy in the long run by improving the standard of living. As an investor, and a woman, ensuring financial stability is as important as other roles in life. Today's women

A Study on Problems faced by Employees in Implementation of CRM by Retail Banks in Thiruvallur district Tamilnadu.

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Abstract

Customer relationship management is involved in various sectors which provide enormous benefits to various sectors in order to maintain a better relationship with the existing customers. Implementation of CRM in industries allows them to understand the requirements of customers more effectively. Implementation of CRM provides space for development of new product and improvement in existing products. This makes the industries to gain reputation and to grow in the market. Even though there are many benefits by adoption of CRM system, there are some problems faced by various industries which include huge monetary investment and non-monetary investment. The important challenge faced by industries in adoption of CRM is slow return on investment.

Keywords: CRM, Implementation, Investment, Benefits, Problems.

Introduction

In today's competitive world, Customer Relationship Management is considered as the most important asset in each and every business. As the margins are shrinking in the competitive world, adoption of new technology is tedious, but in order to satisfy the expectation of customers, CRM is essential. The main concept of CRM is the combination of business process of technology to optimize the revenue, profitability and customer loyalty. Many radical changes are faced by banking industry such as competition, technology advancement, consolidation and the need to be customer centric. Majority of the commercial banks have shifted their loyalty due to various introduction of financial products like commercial paper and other financial instruments as to raise resources directly from the market be offering a wide range of services.

Retail banks have to find out what to sell, whom to sell, how to sell, when to sell and how to be unique in the competitive world in order to generate profitability. They have to differentiate from others by offering various services such as value-added service, various offers, personalized services and to increase easy accessibility by building a long term relationship with the customers. The banks should target the customers who are in need and to serve the customers with greater cost and efficiency. To increase the customer loyalty, banks should build a good relationship by satisfying their needs and wants.

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Prospects And Pitfalls In Marketing Of Food Products In Chennai City

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Abstract

In the field of food technology, there is only a small use of market analysis in developing nations, which makes it difficult to describe issues and turn up with suitable solutions. Many research initiatives aiming at enhancing food products or reducing malnutrition are launched in the lack of adequate data on the target market. The consumption for the processed food products has been growing at a steady rate as of late. The local industrial units, provide a negligible portion to the state's market for processed foods. The state government has implemented a number of programmes with the goal of bolstering the food processing business. The objectives of the Study was to analyze various factors considered by the consumers while buying food products, to measure the satisfaction of the consumers of selected food products and to study the problems of the consumers .The study has been carried out in Chennai City. It is a descriptive study made to analyze the consumer behaviour, satisfaction and problem in using the food products. 300 sample respondents have been selected using convenient sampling method. The data from the respondents have been collected through the interview schedule. For analyzing the data, factor analysis, paired sample t test and Friedman test are applied.

Keywords: Prospects and Problems of consumers, , Marketing of food products, Factors affecting consumers of Food Products

Introduction-Food product

Food is both a need and a considered commodity for people. Aside from being a fundamental requirement, food has converted a commodity that, even in the twenty-first century, does not meet the needs of the whole world's population. According to the Food and Agriculture Organization (FAO), 795 million people were food insecure in 2017, while more than two billion were malnourished. Climate change on natural resources where food is produced may worsen it[1]. By making food more easily accessible and affordable, the use of information and communication technology in the food product commerce reduces food concerns. The use of information technology has been shown to have a substantial impact on the food chain and provide market access for small enterprises, rural economies, and farmers.The value of online food product sales surged by approximately 30% in 2019 to $1,452 billion. When compared to other online product sales like those for fashion, electronics, music, travel, and tourism, it has the highest growth rate. In this study, "food items" refers to all raw and processed foods that have been categorized as such by the Food Agriculture Organization (FAO) of the United Nations using the Codex General Standard for Food Additives (GSFA). Fruits and vegetables, vegetable oils, dairy products and their derivatives, eggs and egg products, meat and meat products, fish, fermented herbs and spices, beverages, salt, ice, bread goods, cereals, grains, and processed foods are the 16

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An Empirical Study On Impact Of Employee Retention In IT Companies On The Employer Branding With Reference To Chennai City

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Abstract

The technology market is overwhelmed making the bid for talented employees is higher and shows no sign of slowing down. The companies need to change their strategy in recruiting and in retaining the best staff. Information Technology has created a level playing field among countries and has a positive impact on the lives of millions. A country's IT potential is very important for it to compete globally and attain a healthy GDP. The IT industry has played a pivotal role in putting India on the global map. IT industry has been one of the most significant growth contributors for the Indian economy and its cost competitiveness in providing IT services continues to be its USP. It was instrumental in the transformation of the country from an agricultural based economy to a knowledge based economy and has contributed significantly towards social transformation in the country. This paper examined how important the concept of employer branding is gaining importance in today's corporate world in order to retain the key talent, therefore organizations are focusing on building their corporate image in order to attract and retain the talented employees. The primary objective of this research paper was to study the retention strategies followed in the IT companies and to measure the impact of the strategies of retention of employees in the IT companies on the employer branding. This is an empirical study carried out in Chennai city. Employer branding helps the companies to improve and efficient management of the human resource in the IT sector. Recruitment and retention of employees are strongly influenced by the employer branding. In this view, 200 employees have been selected for this study based simple random technique. The primary data have been collected through the Google forms.

Keywords:-Employer Branding, Employee Retention, employer image, employer culture and IT companies

Introduction

Employee retention refers to the policies and procedures in place at businesses to keep important employees from leaving. One of the most pressing issues confronting businesses in today's competitive environment is how to retain valuable staff. Companies used to view the "revolving door policy" as a necessary element of conducting business, and they were fast to fill a vacancy with another enthusiastic candidate. Businesses nowadays frequently discover that they spend a significant amount of time, effort, and money training an employee only to have them develop into a valuable commodity and depart for brighter pastures. Employers should examine as many choices as possible when it comes to keeping employees, while also gaining their trust and loyalty so they have less of a desire to leave in the future, in order to build a successful firm. Staff must be kept because running a firm requires good, loyal, well-trained,

STUDY ON THE INFLUENCE OF CELEBRITY ENDORSEMENT OVER THE PERCEPTION AND PURCHASE INTENTION OF COLLEGE STUDENTS

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Abstract

In the current context, the modern marketing strategy employed by the majority of commercial enterprises places a significant emphasis on inventive forms of advertising in order to promote and sell their wares to the specific consumers they have identified as constituting their target markets. In highly competitive market places, basically having a product of excellent quality is not enough to ensure success on its own. Evidently, the shifts that are taking place in markets and the lifestyles of consumers are forcing marketers to concentrate on developing more appealing methods for advertising their products. As a result of this, regular customers are subjected to hearing and seeing thousands of different voices and pictures in various media, including magazines, newspapers, billboards, internet, radio, and television. The objectives of the study are to identify the student's perception towards the celebrity endorsement and to compare the influence of the celebrities from film and sports in endorsement. It is a qualitative study made in Chennai city. Purposively the college students (both arts & science and engineering college) are considered for the study. 300 sample respondents are selected from the city using convenient sampling technique. The questionnaire is prepared and circulated in Google forms to collect the primary data.

Keywords: Celebrity endorsement, perception, purchase intention and college students

Introduction

In India, celebrities can refer to more than only actors and actresses. The television business has grown to the same level of popularity as the cinema industry. Recruiting well-known and successful athletes as spokespersons is one of the most prevalent marketing strategies. But in today's culture, it seems as though even if a newcomer plays well in a single match, they are instantly pulled into advertising. This is a tendency that is becoming increasingly common. Cricket players take home a substantial wage as a result of their profession. It is fair to say that celebrities have had a good deal of success in India in terms of effectively expressing the intended messages and influencing the customers' shopping habits[1]. Celebrity endorsements in India have resulted in a positive influence on consumer purchasing patterns, as seen by an increase in both public awareness and sales volume of the companies that are being sponsored by celebrities. This can be seen as evidenced by the fact that there has been an increase in the number of sales of the products being endorsed by celebrities. When the promotional merits of a product and photos of the product itself are coupled with the image of a celebrity, this has the ability to persuade a buyer to choose a particular brand out of a number of other possibilities that are available to them. In spite of the fact that it is straightforward, the design campaigns, as well as the subsequent success in achieving the desired result, requires an in-depth understanding of the product, the objective of the brand, the choice of a celebrity, the associating of the celebrity with the brand, and a framework for determining how effectively the campaign is working (Subeer et al 2012)[2].The objective of the advertising strategy of today is to convince clients, who are not only educated and smart but also

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A STUDY ON EFFECTIVENESS AND IMPLEMENTATION OF MENTORING IN EDUCATIONAL INSTITUTIONS

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Abstract: *Mentoring is the process of helping and giving advice to a younger or less experienced person, especially in a job or at school. In the point of organization the mentoring programs are a way to increase the company's competitive advantage . Workplace mentoring increases employee satisfaction and talent retention. Mentors not only develop mentees as successful professionals, but also provide psychological support. As a sponsor, they utilize their influences and connections to support the career advancement of mentees. The importance of mentoring in education lies in the fact that a mentor may provide instruction, inspiration, emotional support, and role modelling to a mentee, while also sharing knowledge about his or her career path. A mentor can assist with career exploration, goal-setting, networking, and resource discovery.*

This study examines the literature, research and past practice of mentoring in educational institutions. The author brings with it some potential components that could make mentoring a useful tool for building a productive and positive relationship. Learning environment in an educational institution

Keywords *– Mentoring, Educational Institution, Career Mentoring, Networking.*

INTRODUCTION

A mentor essentially helps the student make informed decisions at every stage of their academic and professional career. They are the signposts that show us the way, whether we are stuck in our career choice or need help at a crucial time in our life. According to mentoring theory, mentor perform career – related functions including sponsoring, exposure-and-visibility, coaching, protection, and challenging assignments. They also provide

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ORGANISATION FINANCIAL RISK MANAGEMENT CONTROL SYSTEM USING ARTIFICIAL INTELLIGENCE

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Abstract: Financial risk management aims to detect and manage several risks of any organization. The institutions can match several payment obligations and income streams if the employees can manage the entire system. Artificial intelligence can possess a particular change within its application as financial functions are highly automated. The risks can be easily measured with the help of machine learning and the leaders can solve the problems. Using the .cpp file has helped to mitigate the financial risks in the companies.

Keywords: *Artificial Intelligence, Organization financial risk, Management control, competitive advantage, machine learning*

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ARTIFICIAL INTELLIGENCE BASED TECHNIQUE IN DATA MANAGEMENT FOR SMART MANUFACTURING USING INTERNET OF THINGS

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Abstract

The study highlighted the background of the core topic, regarding the Artificial Intelligence (AI) based methods, for the improvement of data management in the case of smart manufacturing through the association of Internet of Things (IoT). Several countries have involved these methods for achieving improvement in decision making, easy surveillance over the working aspects, and other related factors. The research questions and the research objectives were penned down. The performance of thematic analysis allowed the study to highlight the main themes and concepts. The integration of the theory of digital disruption allowed the researcher to associate the main topic with a theoretical approach.

Keywords: Artificial Intelligence, Internet of Things, smart manufacturing, improved efficiency, Cloud computing, Big Data

Introduction

Implementing Artificial Intelligence (AI) has been one of the major elements of digital disruption that has taken over the industrial level. Through the involvement of the Internet of

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CRITICAL ANALYSIS ON EFFECTIVE CRM SYSTEM FOR SOCIAL MEDIA AND LOYALTY PROGRAM AS INSTRUMENT OF STRATEGIC MARKETING

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Abstract

The purpose of this study is to explore the analysis on the effectiveness of CRM system on social media marketing. In Customer Relationship Management (CRM), a procedure is to manage its interconnection with its clients, basically by analysing the figures to investigate enormous details. CRM helps in developing customer's retentiveness and connection with the organization. The constructive parts of accomplishing concordance between online media and client relationship administration are accession, retentiveness, and completeness. The pessimistic results could be achieved due to lack of coordination between Social Media and CRM, big and amorphous figures, secrecy, security of data, scarcity of certified workforce, policies for handling workers, misunderstanding client's touching points. The amalgamation of social media and CRM can provide immense chances to enhance client's interconnection and provide businesses a path to control and calculate how social platforms are used with pleasing social customers triumphantly.A loyalty program is a well thought and continuing marketing strategy that entices consumers to make recurrent business with a definite product or service. Usually, the customer loyalty program offers sole benefits. Loyalty program is an important process that focuses on the relationship of customer with the organization. The objective of any loyalty program is to enhance the profit of the company by retaining their customers and attracting new customers. Customer satisfaction and customer loyalty are the two main factors that help in getting success for any organization. Loyalty programs are the important tool for strategic marketing because it helps the organization in various ways. Organizations use their loyalty programs for enhancing their performance in the market and helps in maintaining their goodwill. In this study author tries to find out the benefits of loyalty programs for an organization and how these loyalty programs works as an essential tool in the marketing process of any company for this study secondary data and various research work has been taken into consideration and author tries to suggest some valuable suggestions for the companies to make their loyalty programs more effective and efficient. Customer loyalty is the important factor of cheerful customers and it is the important base for the success of any organization. The utmost

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$\beta-$Ideals of $\beta-$Subalgebras via Cubic Intuitionistic Set

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Abstract Cubic intuitionistic fuzzy sets are an effective and versatile technique for encoding ambiguous data. In this paper, the notion of β-ideals have been merged with cubic intuitionistic set. The perception of cubic intuitionistic ideals of β-algebra is established with relavent results. Moreover, various properties on Cartesian product and the homomorphism of cubic intuitionistic ideals of β-algebra are studied. Further, multiplication of cubic intuitionistic $\beta-$ideals is introduced and few of its related results were investigated.

MSC: 06F35; 03G25; 08A72; 03E72

Keywords: $\beta-$algebra; $\beta-$ideals; cubic intuitionistic fuzzy; cubic $\beta-$ideals; cubic intuitionistic ideals

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1. Introduction

After Zadeh's[1] fuzzy set, Atanassov[2] proposed the notion of intuitionistic fuzzy sets with degrees of membership and non-membership. Aub Ayub Ansari and Chandramouleeswaran[22] established the concept of fuzzy β-subalgebras of β-algebra and discussed some of its analogous outcomes. Sujatha, Chandramouleeswaran and Muralikrishna[3] introduced the notion of intuitionistic Fuzzy $\beta-$sub algebras of $\beta-$algebras. The thought of β-algebra was explored by Neggers and Kim[4], where two operations were coupled. The notion of interval valued fuzzy β-ideals were presented by Hemavathi, Muralikrishna and Palanivel[5, 6] and also they have extended the idea of interval valued intuitionistic fuzzy β-subalgebras and dealt some fascinating results. Borumand Saeid, Muralikrishna and

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RADIATION AND MAGNETOHYDRODYNAMIC EFFECTS ON CONVECTIVE NANOFLUID PAST AN INCLINED PLATE IN THE PRESENCE OF A CHEMICAL REACTION

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This computational work explores the heat and mass transfer of copper water nanofluid flowing along an inclined plate with varying surface temperature and concentration in the presence of a magnetic field and radiation through a permeable medium. The dimensionless governing equations are solved numerically using an efficient finite-difference technique, which is fast convergent and unconditionally stable. The findings are reviewed and illustrated through graphs for pertinent parameters.

Key words: finite difference, nanofluids, viscous dissipation, heat source, porous medium.

1. Introduction

Nanoparticle study is currently a hot area for several researchers. Due to an innovative technique for increasing thermal conductivity, nanofluids have seen widespread use in engineering and medicine over the last few decades. Specifically convective heat transfer in nanofluids plays a significant role in engineering processes, such as heating or cooling technique of electronic components, highly developed nuclear systems, solar collector, thermal isolation systems, food processes, etc. Countless biomedical applications necessitate nanofluids, for example in, magnetic cell division, drug delivery, cancer therapeutics, nano-cryosurgery, etc.

Chien-Hsin Chen [1] studied MHD flow with Ohmic heating and viscous dissipation impact on a vertical surface and found that when viscous dissipation increases, the rate of heat transfer decreases. Rising Schmidt numbers or buoyancy ratio tend to raise the local Sherwood number and slow down the local skin friction. Palani and Kim [2] looked into the effect of viscous dissipation over a semi-infinite plate on a free convective flow with a changing temperature. They discovered that the velocity reaches a steady-state by raising the value of the Prandtl number and local skin friction rises for higher values of viscous dissipation, but a reverse effect is observed in the case of average Nusselt number. Vasu, Prasad, and Reddy [3] analyzed the transient free convective radiating flow past a vertical plate with thermal flux and noticed that velocity and temperature increase as radiation parameters decrease. Subhas Abel *et al.* [4] explored an MHD laminar flow over an upright permeable stretching sheet with the effects of buoyancy and viscous dissipation; and noticed that the influence of the suction parameter decreased and the injection parameter increased the longitudinal velocity. RamReddy *et al.* [5] analysed the impact of viscous dissipation and magnetic field on a free convective flow in a permeable medium and came up with the result that an increment in the viscous dissipation factor leads to increased velocity and temperature fields. Ganesan, Suganthi and Loganathan [6] discussed the

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SIMILARITY SOLUTION OF STAGNATION – SPOT FLOW OF A MICROPOLAR FLUID ABOVE A FLAT EXPONENTIALLY ELONGATING PENETRABLE SURFACE WITH CONCENTRATION AND HEAT PRODUCTION/ABSORPTION

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Abstract:

The current study aims to explore the stagnation spot flow of a micropolar liquid about a plain linear exponentially expanding penetrable surface in the incidence of the chemical reaction and in-house heat production/absorption. Through similarity mapping, the mathematical modeling statements are reformed as ODEs and numerical results are found by shooting techniques. The impact of varying physical constants on momentum, micro-rotation, temperature, and concentration is demonstrated through graphs. The computed measures including shear, couple stress, and mass transfer with distinct measures of factors involved in this proposed problem are presented in a table. The presence of heat source increases the temperature of the fluid but has no impact on the velocity, angular velocity, and concentration.

Keywords: Boundary layer, concentration, contracting panel (shrinking sheet), heat spring/drop, micropolar fluid, stagnation spot flow, and suction/injection.

NOMENCLATURE

C_p	specific heat at constant pressure
C_f	shearing stress
f'	dimensionless fluid velocity
g'	dimensionless angular velocity
j	microinertia density
K_c	reaction level factor
l	reference length
L	length
$M_{\hat{x}}$	couple stress
m_w	surface couple stress
n	boundary value factor
$\hat{N}$	micro-rotation
$Nu_{\hat{x}}$	Nusselt number
Pr	Prandtl number
Q	heat source/sink factor
q_w	surface heat flux
$Re_{\hat{x}}$	local Reynolds number
S_c	Schmidt number
$Sh_{\hat{x}}$	Sherwood Number
s	suction/injection factor
$\hat{T}$	fluid temperature
$\hat{T}_{¥}$	free stream temperature
$\hat{u}$	velocity along the surface
$\hat{u}_e$	free stream velocity
$\hat{U}_1$	wall stretching factor
$\hat{U}_0$	free stream velocity factor
$\hat{v}$	velocity perpendicular to the surface
$\hat{v}_w(\hat{x})$	transpiration velocity
$\hat{x}$	direction along the surface
$\hat{y}$	direction perpendicular to the surface

Greek symbols

g	spiral gradient
d	slip factor
D	micropolar factor
e	shrinking factor
h	boundary layer length
θ	dimensionless temperature
u	kinematic viscosity
k	vortex viscosity
m	dynamic viscosity
r	fluid density
t_w	surface shear stress

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A STUDY ON PHYSICAL HEALTH AND EMOTIONAL STATUS OF SANITARY WORKERS CHILDREN IN VYASARPADI, CHENNAI

*S. Sakthi Devi
**Dr. M. Arivanandan

Abstract

Developing Countries have rapid urbanization growth, led to the formation urban poor settlements. The high prevalence of poverty, overcrowding, and poor sanitation observed in these settlements commonly referred to as "slums". The slum residences constitute a major number of sanitary workers and having health risk too. Children are significant population in slums. There are facing lots of health and nutritional and emotional challenges as they grow and due to environment and social structure children are getting into various issues. In this milieu the study focuses on the health and emotional status of the sanitary workers children living in Vyasarpadi slum area in Chennai. It is an empirical study which involves slum children and their health, eating habits, life style, and emotional status based on their current socio economic and parental occupations. The data was collected through interview schedule using non random sampling methods in the study area. The major findings of the study were all the sanitary workers children belong to Schedule caste and they all are studying in Government schools. When it comes to hygiene – they have poor hygiene practices like not washing hands, not taking baths, wearing the unwashed clothes etc., out of 12 female respondents all have obtain puberty and during menstruation they have habit of using clothes, and they don't have the habit of frequently changing their sanitary napkins. Overall study found that there is a direct association between their physical health condition and emotional problems in their daily routine.

Keywords: *Children, Urbanization Growth, Sanitary Workers, Health and Nutritional, Socio Economic, Emotional Challenges.*

INTRODUCTION

Children are the future of any state. Their performance in the education sports and other development activities are important, to achieve these developmental activities they are in need of good physical health and emotional conditions. Children are facing various problems from the birth. Tamilnadu is far better than the northern states where IMR rates and nutritional issues are high, that is due to the lack of nutritional content in the mother of the children. Parents are influencing children in many factors. Sanitary workers children health and emotional status are depending on their Parents. There is a need to study about the health and emotional status of sanitary workers children because of three

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Sakthi Devi S, Dr.M.Arivanandan	SOCIAL WORK DEPARTMENT	A Study on the physical health and emotional status sanitary workers children in vyasarpadi, chennai	Journal of the Oriental Institute	Apr-22	0030-5324	UGC Care list no 135 volume 71, issue 03, NO 8, 2022

A STUDY ON PHYSICAL HEALTH AND EMOTIONAL STATUS OF SANITARY WORKERS CHILDREN IN VYASARPADI, CHENNAI

*S. Sakthi Devi
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Abstract

Developing Countries have rapid urbanization growth, led to the formation urban poor settlements. The high prevalence of poverty, overcrowding, and poor sanitation observed in these settlements commonly referred to as "slums". The slum residences constitute a major number of sanitary workers and having health risk too. Children are significant population in slums. There are facing lots of health and nutritional and emotional challenges as they grow and due to environment and social structure children are getting into various issues. In this milieu the study focuses on the health and emotional status of the sanitary workers children living in Vyasarpadi slum area in Chennai. It is an empirical study which involves slum children and their health, eating habits, life style, and emotional status based on their current socio economic and parental occupations. The data was collected through interview schedule using non random sampling methods in the study area. The major findings of the study were all the sanitary workers children belong to Schedule caste and they all are studying in Government schools. When it comes to hygiene – they have poor hygiene practices like not washing hands, not taking baths, wearing the unwashed clothes etc., out of 12 female respondents all have obtain puberty and during menstruation they have habit of using clothes, and they don't have the habit of frequently changing their sanitary napkins. Overall study found that there is a direct association between their physical health condition and emotional problems in their daily routine.

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Crystal growth and properties of pure L-alanine and boric acid doped L-alanine nonlinear optical single crystals for frequency conversion

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ABSTRACT

Frequency conversion materials such as pure and 5 wt % Boric acid doped L-alanine crystals are grown using the slow evaporation technique at room temperature. Single crystal XRD reported that the crystals formed attained the orthorhombic system of noncentrosymmetric space group $P2_12_12_1$. FTIR analysis established the presence of groups such as COO^-, NH_3^+, CH_2, CH and boron (B) element from shift in vibrational modes of at lower frequency region is also confirmed by EDAX measurement. The UV–Vis spectral study predicted the cut-off wavelength for pure LA and boric acid doped LA at 245 nm and 238 nm and thereby energy gap, urbach energy were also evaluated. Vicker's microhardness study categorized the harvested crystals as soft materials following RISE effect. The dielectric characterization such as dielectric constant and dielectric loss were studied at various temperature ranges. Jonscher's power law verifies the conductivity mechanism with s = 0.988, 0.985 for pure LA and doped LA. Laser damage threshold study using an Nd:YAG laser (1064 nm) evinces the stability of the material to withstand high intensity lasers in NLO applications. The luminescence nature of crystals was investigated in the range 250–600 nm and confirmed violet emission radiation. TGA-DTA analysis showed that the crystals possess good thermal stability. Second harmonic generation (SHG) was examined from the emission of green light from the samples by Kurtz Perry technique. The Z-scan investigations on the crystals reveal that they undergo two photon absorption, self-defocusing and hence greater third order nonlinear susceptibility χ^3 of order of 10^{-8} esu encompasses the grown crystals in the development of opto-electronic devices and for the conversion of energy process.

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Growth and Characterization of Second and Third Order Acentric Studies of L-Phenylalanine L-Phenylalaninium Malonate Single Crystal

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Abstract: A single crystal of L-phenylalanine L-phenylalanininum malonate (LPPMA) was synthesized by slow evaporation and was subjected to nonlinear optical examination and physio-chemical characterization. Studies on single X-ray diffraction confirm the arrangement of monoclinic space group P21 which is a vital criterion for the NLO phenomenon. The assessment of functional groups and diverse vibration modes responsible for the characteristics of the material was performed with an FTIR analysis. The UV-visible spectral examination found the wavelength of UV-cutoff at 233 nm and various optical parameters were evaluated. The mechanical strength and different criteria associated with it were assessed. The electric field response of the material was examined in terms of the dielectric constant, dielectric loss, ac conductivity and activation energy. The spectra of emission were detailed. The efficacy of second harmonic generation was studied. The parameters of nonlinearity were investigated to analyse the third-order acentric optical response in the LPPMA by Z-scan procedure.

Keywords: nonlinear optics; activation energy; fluorescence; SHG; Z-scan method

1. Introduction

Materials exhibiting second (SHG), third (THG) and higher harmonic generation occupy a versatile position in the area of optical data storage with information processing. The photo–electric interface occurs in the process of nonlinear SHG, and finds promising potential in the domain of storage of data with high intensity and spectroscopy [1]. The significance of the basic types with their orientations inside the material plays a substantial part in finding or understanding the physical and chemical features of the organic

PHYSIOCHEMICAL PROPERTIES OF AMMONIUM PENTA BORATE HEXAHYDRATE SINGLE CRYSTAL: AN EFFICIENT MATERIAL FOR OPTICAL LIMITING APPLICATIONS

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Abstract

Ammonium Penta Borate Hexahydrate (AMPBH), an inorganic nonlinear optical (NLO) material was grown by the process of slow evaporation technique (SET) in aqueous solution. The synthesized (AMPBH) was characterized by single crystal X- ray diffraction study to affirm the structure (monoclinic), lattice parameters and space group P21/n. The functional groups in the material has been analyzed by FT-IR and FT-RAMAN studies in the range 4000 and 500 cm^{-1}. The optical absorption was determined from the recorded UV-Visible spectra and energy gap was evaluated and the value is 5.56 eV. The study on hardness infers the crystal as soft material category. The dielectric nature was examined and Jonscher's law confirms the conductivity mechanism with s=0.984. Laser damage threshold study using an Nd;YAG laser (1064nm) having pulse width 10 ns was also carried out. The luminescence nature of crystals was investigated in the range 300-800 nm and confirmed green and violet fluorescence emission spectra. Temperature of decomposition and thermal stability were investigated using TG and DTA thermal techniques. Using Gaussian beam of He-Ne laser of wavelength, the Z-scan measurement reveals negative nonlinearity i.e., self-defocussing, saturation absorption behaviour and thereby the third order nonlinear susceptibility $\chi(3)$ were also evaluated.

Keywords: Nonlinear optical crystal; Borate; Luminescence; Z-Scan;

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1. Introduction

The synthesis of nonlinear optical materials to fulfill their contribution in the domain of laser technology, optical data storage, optical communication and high speed information technology is greatly needful [1,2].

Frequency conversion materials have the stability to break the restriction in optical spectrum in order to be utilized in nonlinear optical applications. The desired requirements of the NLO materials rely on large transparency range, high nonlinear susceptibility, fast nonlinear response and higher degree of laser damage threshold (LDT)[3]. Now, as the surge of polyborate salts occupying a vast position in developed applications involving fluorescence, piezoelectric, nonlinear optical (NLO) and porous materials [4-5], the versatility of borates is greatly attractive.

Inorganic borate based crystals are found to possess high transparency in the UV region and speciality of exhibiting different structures [3] emanating from special bonding properties of boron

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Crystal growth, optical, luminescence, SHG and THG exploration of an inorganic noncentrosymmetric alkaline borate crystal: $K_2B_4O_5(OH)_4{\cdot}3{\cdot}6H_2O$(KBOH) for photonic and optical limiting applications

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ABSTRACT

A potential, nonlinear optical alkaline borate crystal $K_2B_4O_5(OH)_4{\cdot}3{\cdot}6H_2O$(KBOH) was crystallized from aqueous solution by slow evaporation method. In this asymmetric unit cell, BO_4 the tetrahedral coordination geometries and the BO_3 triangular planar coordination geometries are linked by common O atoms to form the isolated B_4O_7 group. Single crystal XRD was taken to know the structural parameters and revealed orthorhombic crystal system comprising a 3D network. UV–Vis absorption spectrum shows that crystal has wide optical transparency in 200–1100 nm range. The functional groups of the $K_2B_4O_5{\cdot}(OH)_4{\cdot}3{\cdot}6H_2O$ crystal were analyzed by FT-IR spectrum. The mechanical strength and the luminescence response of the crystal have been tested by Vicker's microhardness and photoluminescence study. The chemical stability was presented by HOMO–LUMO energy values. The intermolecular interaction is evident from the 3*d*-Hirshfeld surface and 2*d*-fingerprint plot. The dielectric property of the grown crystal was established by dielectric measurements. Thermal analyses reveal that the material has good thermal stability. The second harmonic generation of the borate hydrated structure material KBOH has been accomplished by Kurtz–Perry technique, and third-order nonlinear optical parameters Nonlinear Refractive Index NLR, Nonlinear Absorption Coefficient and third order susceptibility ($\chi^{(3)}$) were found by Z-scan closed and open aperture approach to explore its suitability in the field of NLO applications.

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1 Introduction

In the recent times, arising of interesting structures and versatile applications in the field of optical technology have great attraction on borates based nonlinear optical (NLO) materials [1, 2], since then the invention of lasers. Highly compact and efficient solid state lasers with NLO crystals in the UV and deep UV spectral region are still needed with benefit of providing narrow bandwidth, improved beam quality, tunability and relative care of handling [3]. Only materials crystallized in non-centrosymmetric space group have second-order nonlinear effects; Second, wide transmission range, through the cutoff edge to reach deep UV (with a large band gap) application which is necessity. Comparatively borate based NLO crystals are found to satisfy the above qualities are hereby developed over the last two decades [4]. As the usage of NLO materials is needed are few units with planar conjugated electronic structures in inorganic compounds [15]. High resolution X-ray diffraction (HRXRD) studies to analyze the crystalline perfection was analyzed for borate single crystals by Chinnasami recently [16]. HRXRD generates high-resolution rocking curves (RCs) also termed as diffraction curves (DCs) by symmetrical geometry by employing a X-ray diffractometer with MoKα_1 radiations was performed in many borate based materials. The information from HRXRD reveal the Bragg angle and from sharp nature of the glancing angle versus intensity, RC or DC shows that the crystals would reveal nature of density of point defects and their agglomerates [17]. In addition, from the comparison of the intensities of the peaks and the curves drawn by Gaussian Fit of the primary and secondary curves, the crystalline perfection can be studied. Chowbey and his team [17] reported on codoping on crystalline perfection of Mg:Cr:LiNbO$_3$

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Use of ATR-FTIR spectroscopy for analysis of water deficit tolerance in *Physalis peruviana* L

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Biomolecular changes in gills of *Gambusia affinis* studied using two dimensional correlation infrared spectroscopy coupled with chemometric analysis

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Abstract

The pesticide use in agriculture production at reduced cost results in increased usage. Excessive use of this is en-routed to the aquatic environment causing serious threats. Fishes are used as a bioindicator of toxicants due to pollution in the

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Computational description of quantum chemical calculations and pharmacological studies of the synthesized chalcone derivative: A promising NLO material

N. Afsar [a b c], D. Reuben Jonathan [d], Dhurairaj Satheesh [c], S. Manivannan [a]

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Synthesis of virtually screened potent novel primaquine derivatives and evaluate the biological activity against antibacterial resistance microorganisms
Section A-Research paper

SYNTHESIS OF VIRTUALLY SCREENED POTENT NOVEL PRIMAQUINE DERIVATIVES AND EVALUATE THE BIOLOGICAL ACTIVITY AGAINST ANTIBACTERIAL RESISTANCE MICROORGANISMS

K. Kavitha[a], P. Krishnamoorthy[b]*

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Abstract: The emergence of multidrug resistance among pathogens has become a global challenge for bacterial infection treatment. The methicillin-resistant *Staphylococcus aureus*, multi-drug resistant tuberculosis and antibacterial resistant *E. coli* is the leading cause of mortality among infectious diseases worldwide. Finding a novel chemical to combat antibiotic resistance microorganisms is critical right now in the world. In this study we synthesized five novel primaquine derivatives and evaluated their efficacy against methicillin-resistant *Staphylococcus aureus*, multi-drug resistant tuberculosis and antibacterial resistant *E. coli*. All the molecules show excellent antibacterial activity against antimicrobial resistance microorganisms compared to standard drugs.

Keywords: Primaquine, Synthesis, Antimicrobial resistance, MRSA, *E. coli*, MDR-TB

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INTRODUCTION

Antibiotics' efficacy, which has revolutionized medicine and saved millions of lives, is being jeopardized by the fast rise of resistant bacteria around the world [1-3]. Bacterial illnesses have resurfaced many decades after the initial patients were treated with antibiotics. The overuse and misuse of antibiotics, as well as a lack of new drug research by the pharmaceutical sector due to limited economic incentives and difficult regulatory requirements, have all been blamed for the antibiotic resistance crisis [4-6]. The Centers for Disease Control and Prevention (CDC) has identified a number of bacteria as posing urgent, serious, and worrying dangers, many of which have already wreaked havoc on the US health-care system, patients, and their families [7-10]. Coordinated efforts to enact new regulations, restart research initiatives, and explore crisis-management strategies are critical.

Antimicrobial resistance (AMR) is a severe global danger to human, animal, and environmental health that is gaining traction. This is related to multidrug-resistant (MDR) bacteria's development, dissemination, and persistence [11-13]. MDR bacteria can be found in the animal, human, and environmental niches, and these pathogens are all related in this trio. Excessive use of antibiotics in animals (food, pets, aquatic), antibiotics sold over the counter, increased international travel, poor sanitation/hygiene, and release of nonmetabolized antibiotics or their residues into the environment through manure/feces are all possible causes of "the global resistome" or AMR [14-18]. These variables lead to the emergence of MDR bacterial illnesses in the community due to genetic selection pressure. The global use of antimicrobials in cattle has recently shown hotspots of antibiotic usage across continents, which will have economic and public health implications in the coming years. Antibiotics are commonly used in food animals such as cattle, fowl, and pigs, and it is predicted that by 2030, their use would have increased by 67 percent in the world's most populous countries. [19].

To overcome of these AMR problems, we have planned to discovery of novel drugs against antimicrobial resistance strains. In our previous study, we have already reported ten PQ-13, PQ-24, PQ-36, PQ-38, PQ-53 as potential molecules against *E. coli*, *M. tuberculosis*, *S. aureus*, Ciprofloxacin resistant *E. coli* (CPR *E. coli*), Methicillin-resistant *Staphylococcus aureus* (MRSA), multidrug-resistant *tuberculosis* (MDR TB) by *in silico* study. In this study we synthesized these novel primaquine derivatives and evaluate the antibacterial activity of major antimicrobial resistance strains.

METHODOLOGY

Instrumentation

The melting points were calculated in an open capillary tube and are unadjusted. On a PerkinElmer spectrometer, IR spectra were recorded in KBr. On a Gemini 300 MHz instrument, 1H NMR spectra were recorded in DMSOd6 as the solvent and TMS as the internal standard. A Shimadzu LC/MS spectrometer was used to record the mass spectra.

Synthesis of Schiff base intermediate molecules

Equimolar (0.01M) amounts of primaquine and various aldehydes were dissolved in methanol (15 mL), then acetic acid (0.5 mL) was added and the mixture was refluxed for two hours. After the reaction was completed (as measured by TLC), the reaction mixture was cooled and put into water, where the solid separated. To obtain equivalent Schiff bases

MACHINE LEARNING PREDICTION OF PRE-PREGNANCY WOMEN AND INFANT BIRTH WEIGHT GAIN AMONG MOTHERS ARE ATTENDING GYNECOLOGICAL CARE

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Abstract

This research paper looks into the use of Artificial Intelligence (AI) and Machine Learning (ML) methods in the field of obstetrics and gynecology. Specifically, a ML model is proposed to predict weight gain events during pregnancy based on clinical parameters such as education, age, height, pre-pregnancy weight, pre-pregnancy BMI, ninth month weight, weight gain, baby weight, neonatal complication, Abgar score and LSCS/ND. To evaluate the model, a dataset of 50 pregnant women from a private hospital in Chennai was collected and a multi-label approach was used. Different classifiers were tested, and it was found that a variation of all ML algorithm classifiers was the best performing model. This model showed a robust recall metric of more than 0.93 and an AUC ROC metric of more than 0.96, taking into account the size of the data. The three classes are labeled as Gestational Wight Gain (GWG), High Birth Weight (HBW) and Low Birth Weight (LBW) with a maximum accuracy of 0.95. Thus, the proposed ML model could help to improve the health and wellbeing of pregnant women by closely monitoring their health parameters during pregnancy.

Keywords: Machine Learning Models, Multilevel Classification, pre-pregnancy clinical parameters, Heat map, Confusion Matrix and Visualization.

1. INTRODUCTION

Pregnancy weight gain is a key indicator of maternal nutrition and intra-uterine fetal nutrition, and sub-optimal Gestational Weight Gain (GWG) can lead to a range of adverse outcomes, such as High Birth Weight (HBW), Low Birth Weight (LBW), pregnancy-induced hypertension, gestational diabetes, preterm births, caesarean delivery, and delayed initiation of breastfeeding [1–5]. Birth weight (BW) is a predictor of fetal wellbeing, newborn survival, and is heavily dependent on maternal health and nutrition during pregnancy [6]. Growth failure in children is most likely to occur in the critical window of opportunity, from conception up-to two years of age, and around half of growth failure which occurs by two years of age occurs in uterus [7].

The long-term consequences of intrauterine malnutrition are serious and far reaching, and can permanently affect the structure and function of tissues [8]. To break the cycle of malnutrition, the fetal period is a critical window of opportunity for nutrition intervention and improving birth weight [7]. Although there are various proven interventions for pregnant women, such as weight monitoring, health education, and counseling on weight management, nutrition and physical activity, unfortunately

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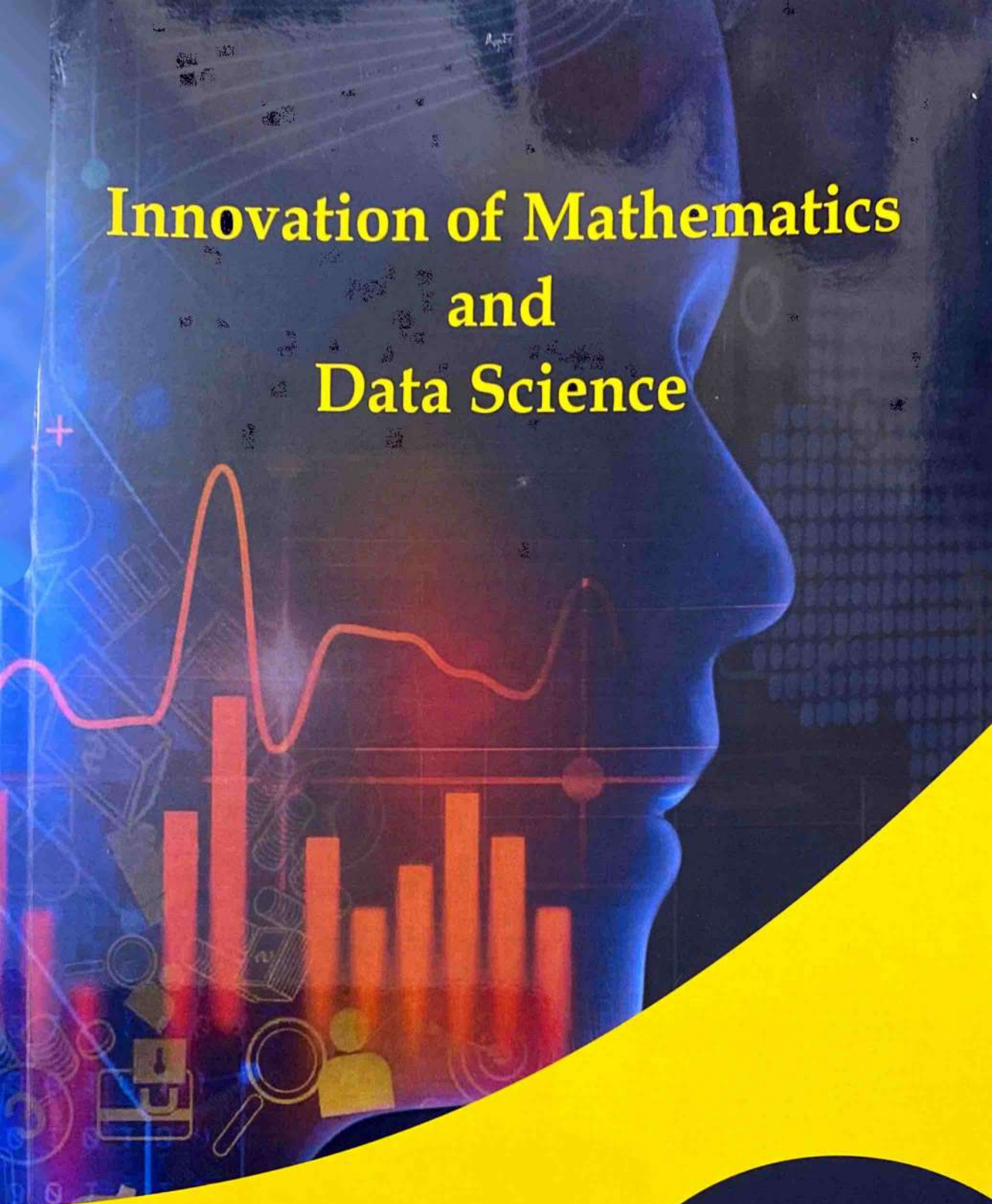

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