



# **CONFERENCE PROCEEDING INTERNATIONAL CONFERENCE ON GLOBAL PERSPECTIVES ON SUSTAINABILITY (ICGPS – 2025)**

*VOLUME - I*

## **EDITORS**

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# **INTERNATIONAL CONFERENCE ON GLOBAL PERSPECTIVES ON SUSTAINABILITY (ICGPS - 2025)**

**ORGANIZED BY**



## **ST. JOSEPH'S COLLEGE (ARTS & SCIENCE)**

Affiliated to University of Madras, Accredited by NAAC with "A" - Grade  
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# Chairman's Message



*Esteemed Guests and Participants,*

*I am happy to learn that an International Conference on “**Global Perspectives on Sustainability**” is being organized in our college. My best wishes for its success.*

*We live in a world of enormous possibilities and at the same time extreme challenges. The revolution ushered in by AI, Digital Science and the giant leaps made in the field of Computation are only expected to be faster, wider and greater. While this is happening with the promise of better healthcare, cozier lifestyle and even greater longevity of life, it is not without the great risk of lesser employment opportunities, reduced human engagement and erosion of human values. We are also faced with ecological challenges and woes that are only rising by the day.*

*In these circumstances, the Sustainable Development Goals (SDGs) introduced in 2015 by the United Nations to promote a more equitable and sustainable world become even more relevant and urgent. Sustainability is no longer just an aspiration; it is a necessity. I think it needs to be approached and tackled on three fronts: Environmental Sustainability, Social Sustainability and Economic Sustainability.*

*By bringing together researchers, academicians, industry leaders, students and responsible citizens, I am confident that this conference would serve as a catalyst for collaborative efforts toward a greener and more just world. I extend my heartfelt congratulations to the organizing committee; and I wish all the participants a fruitful and enriching experience. God bless everyone!*

**Rev. Fr. Dr. J. E. Arulraj**  
Founder & Chairman  
DFT Group of Institutions

## Message from Managing Trustee



*With a heart full of gratitude and blessings, I extend my warmest greetings to all the distinguished participants, scholars, and delegates attending the **International Conference on Global Perspectives on Sustainability (ICGPS- 2025)**. St. Joseph's College (Arts & Science), inspired by the vision of our beloved Founder Chairman, Rev. Fr. Dr. J.E. Arulraj, continues to uphold the values of faith, knowledge, and service to humanity.*

*The theme of this conference, “**Global Perspectives on Sustainability**,” is a noble call to action, reminding us of our shared responsibility to care for God's creation. Sustainability is not just a scientific pursuit but a moral obligation - one that requires wisdom, collaboration, and a compassionate approach. Through this gathering of great minds, may we be guided towards innovative solutions that promote harmony between progress and preservation.*

*I offer my heartfelt blessings to the organizing team for their unwavering dedication in making this event possible. May this conference be an enlightening experience for all, inspiring new paths towards a just, sustainable, and thriving world.*

*Wishing you all God's grace and success at ICGPS-2025!*

**With blessings and regards**

**Rev. Sr. S. Gnanaselvam**

Managing Trustee

DFT Group of Institutions.

# Administrator's Message



*Dear Esteemed Scholars, Researchers, and Participants,*

*It is with great pride and enthusiasm that I extend a warm welcome to all of you attending the **International Conference on Global Perspectives on Sustainability (ICGPS-2025)**, hosted by **St. Joseph's College (Arts and Science), Kovur, Chennai**. This conference marks an important milestone in our ongoing efforts to address the critical challenges and opportunities presented by sustainability on a global scale.*

*As we gather here from various corners of the world, we are reminded of the immense responsibility we share in shaping a sustainable future. The theme of this conference, "Global Perspectives on Sustainability," invites us to engage in meaningful dialogue, exchange ideas, and collaborate on innovative solutions that transcend borders and disciplines.*

*The diverse range of topics and sessions throughout this conference highlights the significance of sustainability in every facet of life, from environmental conservation to social equity and economic resilience. Your participation whether as a speaker, researcher, or attendee is a testament to the importance of collective action and intellectual collaboration in addressing these global issues.*

*I am truly grateful for the commitment and passion each of you brings to this conference. Together, we have the power to inspire change, create new pathways for sustainable development, and contribute to a more harmonious and balanced world. I would like to extend my sincere appreciation to all the speakers, participants, and organizers who have worked tirelessly to make this event possible. Your dedication to advancing knowledge and fostering global cooperation is invaluable, and I look forward to the meaningful discussions and outcomes that will emerge from this gathering.*

*May this conference serve as a catalyst for continued collaboration and innovation as we strive to build a sustainable future for generations to come.*

**Rev. Sr. Dr. M. Baby**

*Administrator*

*St. Joseph's College (Arts and Science),  
Kovur, Chennai-128*

# Principal's message



*I am pleased and proud to acknowledge the incredible journey of **St. Joseph's College (Arts & Science)**, which has grown from the vision of our Founder Chairman, Rev. Fr. Dr. J.E. Arulraj, a humble servant of God. Over the past three decades, the college has transformed into a NAAC Accredited College, ISO 21001:2018 Certified Institution, 2(f) Status College, center of academic excellence along with holistic development.*

*With our motto '**Educate to Excel,**' we strive for constant growth, aiming to improve the quality of our academic pursuits and meet the expectations of students, parents, and society. Our commitment to fostering knowledge, innovation, and sustainable development continues to guide us positive forward.*

*The **International Conference on Global Perspectives on Sustainability (ICGPS-2025)**, with the theme "**Global Perspectives on Sustainability,**" provides a platform for the exchange of ideas, fostering global partnerships, and inspiring innovative solutions for sustainability. The conference themes and sub-themes are designed to spark meaningful discussions and encourage research in critical sustainability areas.*

*I would like to extend my congratulations to the organizing team for their dedication in making this event possible. I wish all participants success in their deliberations and am confident that this conference will lead to valuable insights for a sustainable future.*

**Dr. R. Ruban**

*Principal*

*St. Joseph's College (Arts and Science),  
Kovur, Chennai-128*

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**DEEP LEARNING-ENHANCED FUZZY-QUAD TREE SEGMENTATION FOR  
CONTEXT-AWARE REVERSIBLE WATERMARKING WITH  
MULTI-MODAL SECURITY IN EDGE COMPUTING ENVIRONMENTS**

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**Abstract:**

The proliferation of edge computing environments necessitates robust, context-aware security solutions to protect sensitive data while preserving computational efficiency. This paper introduces a novel framework, *Deep Learning-Enhanced Fuzzy-Quad Tree Segmentation for Context-Aware Reversible Watermarking (DL-FQTS-CRWM)*, which integrates deep learning with fuzzy logic and quad-tree segmentation to achieve multi-modal security in resource-constrained edge systems. Traditional reversible watermarking techniques often struggle to balance imperceptibility, payload capacity, and robustness, particularly in dynamic edge environments. To address this, our approach employs a fuzzy-quad tree segmentation mechanism that adaptively partitions multimedia content based on local complexity and texture features, guided by a lightweight convolutional neural network (CNN) for context-aware region selection. The deep learning component optimizes embedding parameters dynamically, enhancing both security and visual quality, while a multi-modal security layer combines cryptographic hashing, chaotic encryption, and reversible watermarking to safeguard data integrity and authenticity. Designed for edge compatibility, the framework minimizes computational overhead through model quantization and distributed processing, ensuring scalability across IoT and edge devices. Experimental results on diverse datasets (images, videos, and sensor data) demonstrate superior performance in peak signal-to-noise ratio (PSNR > 48 dB), structural similarity index (SSIM > 0.98), and tamper detection accuracy (98.7%), outperforming state-of-the-art methods like DWT-DCT hybrid schemes and LSB-based techniques. The proposed system's reversibility ensures lossless data recovery, critical for medical imaging and legal document workflows in edge ecosystems. This work bridges the gap between adaptive watermarking, deep learning efficiency, and edge-centric security, offering a versatile solution for applications ranging from smart surveillance to distributed healthcare systems.

**Keywords:** *Fuzzy Quad-Tree Segmentation, Context-Aware Reversible Watermarking, Multi-Modal Security, Convolutional Neural Networks (CNNs), Peak signal-to-noise ratio.*

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**PERCEPTIONS OF MICROFINANCE BENEFICIARIES TOWARDS  
GOS, BANKS/MFIS AND NGOS IN THIRUVALLUR DISTRICT OF  
TAMILNADU**

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**Abstract:**

The Government and Non-government offices are able to understand and support the work done by the SHGs. The contemporary study is carried out to realize the Perceptions of Micro finance Beneficiaries towards GOs, Banks/MFIs and NGOs in Thiruvallur District of TamilNadu. The finding of the present segment is based on the contextual of important services provided by concern post of the staff and strategies which they used in rendering services. Both primary and secondary data were used in the investigation. Primary data in the research were collected from 300women who had availed microcredit in the specified area. It is clear and evidently understood that respondents prefer the support of Government, as SHGs work on incorporating trust and faith in its members from the rural communities who need the utmost support and guidance from the Government. This study reflects the maximum benefits the beneficiaries would get in the long run, which is an achievement of their hard work and endurance regarding their livelihood with the support of SHGs. The Government, NGO and Banks/MFIs need to introduce many programs like microcredit program with subsidy to have livelihood promotion to increase their income, capacity building and skill training that may help to empower women, and get impact to the children indirectly.

**Keywords:** *Perceptions, Government, NGO, Banks/MFIs, SHGs and Microfinance*

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**NAVIGATING DUAL ROLES: WORK-LIFE BALANCE AND  
CHALLENGES FACED BY MARRIED WOMEN EMPLOYEES IN  
THE IT SECTOR**

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**Abstract:**

It has become increasingly challenging for married women in the IT sector to balance their personal and professional commitments. The challenges married women professionals face in juggling their responsibilities to their families and their careers are examined in this study. As part of a mixed-methods approach, married women employed in the IT sector took part in surveys (n=100) and in-depth interviews (n=10). The results demonstrated that among the main challenges married women professionals in the IT sector have in attempting to achieve a work-life balance are long work hours, gender role expectations, and a lack of organizational support. Important factors that impact work-life balance are also identified by the study, such as individual characteristics, familial responsibilities, and professional expectations. The study's findings help us better understand the difficulties married women in the IT sector have juggling work and personal obligations. The recommendations made by the study assist companies in developing policies and practices that successfully address the needs of married women employees in terms of work-life balance.

**Keywords:** *work-life balance, married women employees, IT sector, organizational support.*

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## **A STUDY ON EMOTIONAL INTELLIGENCE AND JOB PERFORMANCE OF WOMEN EMPLOYEES IN IT SECTOR**

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### **Abstract:**

In today's IT workplace, emotional intelligence is essential, particularly for female employees, as it fosters a healthy work atmosphere and fosters strong bonds with coworkers. Having high emotional intelligence can assist women overcome the obstacles they frequently experience in male-dominated areas. Women may improve their communication, problem-solving, and decision-making skills in the fast-paced, cutthroat IT sector by being aware of and in control of their emotions. Finding the different EI scales and comprehending their applicability in the IT sector are the goals of this study. The purpose of the study is to examine the factors that influence emotional intelligence and how they affect the performance of female employees. The study also intends to investigate how the emotional intelligence of female IT workers differs according to their work-related and demographic profiles. The study is limited to female employees at all levels who were chosen at random, and the sample size may not be typical of the entire community.

Women in IT who work as software engineers or system engineers (entry level), senior software engineers or module leaders (middle level), team leaders or project leaders, project managers or delivery managers (upper middle level), or delivery heads or group leaders (top level) are the only ones included in the current study. According to studies, those who have a higher emotional quotient (EQ) at work are better at handling their relationships and themselves. Effective teamwork requires individuals to communicate clearly with one another. Stronger relationships can be cultivated through the ability to recognize and regulate emotions during social encounters, which in turn facilitates efficient operation in a variety of professional contexts. This is made possible by the development of advanced dispute resolution techniques, decision-making that considers several points of view, and the encouragement of team members to feel heard, understood, and valued.

**Keywords:** *Emotional Intelligence, Women employees, IT Employees, Job performan*

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## **A STUDY ON SYNERGIZING ETHICS AND CSR FOR SUSTAINABLE BUSINESS**

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Agurchand Manmul Jain College, Meenambakkam, Chennai – 61.

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### **Abstract:**

The integration of business ethics into Corporate Social Responsibility (CSR) models is essential for fostering trust and ensuring sustainable organizational success. Business ethics encompass the principles and standards that guide behaviour within business contexts, influencing decision-making and organizational culture. Carroll's Pyramid of CSR outlines four dimensions: economic, legal, ethical, and philanthropic responsibilities. While this model provides a foundational framework, contemporary business environments necessitate an evolved approach that emphasizes robust ethical standards, client-centric practices, employee accountability, performance measurement, and stakeholder satisfaction. The proposed model addresses these aspects, advocating for the development of comprehensive ethical guidelines, prioritization of customer trust, empowerment of employees through ethical responsibility, regular performance evaluations aligned with ethical practices, and a commitment to societal obligations. By embedding these elements into CSR strategies, organizations can enhance their reputations, foster stakeholder confidence, and contribute positively to society.

**Keywords:** *Business Ethics, Corporate Social Responsibility, Carroll's Pyramid, Ethical Standards, Stakeholder Engagement.*

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## **A STUDY ON THE ROLE OF DIGITAL TRANSFORMATION IN ENHANCING ENTREPRENEURIAL GROWTH IN SURAT**

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### **Abstract:**

Digital transformation has emerged as a pivotal catalyst for entrepreneurial advancement, fundamentally altering business models, improving operational efficacy, and broadening market accessibility. This investigation delves into the ramifications of digital transformation on entrepreneurial development in Surat, a prominent commercial centre renowned for its flourishing textile and diamond sectors. Employing secondary data derived from industry analyses, governmental publications, and scholarly literature, the research scrutinizes the extent to which digital adoption—encompassing e-commerce, automation, fintech innovations, and artificial intelligence—has affected business growth, competitive positioning, and sustainability among entrepreneurs.

The research underscores crucial facilitators of digital transformation, including governmental initiatives, technological progress, and evolving consumer behaviours, while simultaneously addressing obstacles such as financial limitations, digital literacy deficits, and cybersecurity vulnerabilities. Through an analysis of existing scholarship and industry patterns, this paper elucidates the degree of digital assimilation among Surat's entrepreneurs and its significance in promoting business development. The results contribute to an enriched comprehension of the influence of digitalization on entrepreneurship, presenting valuable implications for policymakers, business proprietors, and scholars focused on regional economic advancement.

**Keywords:** *Digital Transformation, Entrepreneurial Growth, Surat, Technology Adoption, Innovation.*

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**GREEN BONDS: AWARENESS AND IMPACT ON SUSTAINABLE INVESTMENT**

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UG Students, Department of B. Com (Accounting and Finance)

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**Abstract:**

Green bonds are debt instruments that are used to finance environmentally beneficial projects. This study explores the awareness and impact of Green Bonds on sustainable finance through a survey of 140 individuals. It examines perceptions of Green Bonds as an investment, their role in raising capital for environmental projects, and their contribution to green infrastructure. The research also analyses how demographic factors, such as family structure and occupation, influence attitudes towards Green Bonds. Percentage Analysis, Logistic regression, Chi square, Independent T test, and ANOVA were used in this study. The findings highlight significant differences in awareness and perceptions, emphasizing the need for improved education on Green Bonds in sustainable finance.

**Keywords:** *Sustainable Finance, Carbon Footprint, Green Transition, and ESG (Environmental, Social, and Governance).*

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**A STUDY ON AWARENESS AND ADOPTION OF GREEN  
INITIATIVES AMONG COLLEGE STUDENTS**

**Dr.K.S.ARAM VALARTHA NAYAKI, BHAVANIS**

Associate Professor & HOD PG Department of Commerce (General),

Shri Shankarlal sundarbai shasun Jain College for women

Student, PG Department of Commerce (General),

Shri Shankarlal Sundarbai Shasun Jain College for Women

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**Abstract:**

In recent years, environmental sustainability has become one of the major issues globally, and the need for individuals to adopt eco-friendly practices has never been greater. Colleges and universities play a critical role in shaping the attitudes and behaviours of students, who represent the next generation of professionals, consumers, and leaders. As future decision-makers, it is important to understand how college students perceive and engage with green initiatives. This understanding can guide educational institutions in developing programs and policies that encourage sustainable behaviour and contribute to broader environmental goals. The data for this study was collected through a questionnaire. This study focuses on examining the awareness and the adoption of green initiatives among college students, focusing on their understanding, involvement and the factors influencing the eco-friendly behaviours among students. The study examines students' awareness of green practices, such as recycling, energy conservation, and sustainable transportation, and their participation in campus-based environmental programs. It also explores factors influencing the adoption of these practices, such as peer influence, availability of resources, and institutional support.

**Keywords:** *Green initiatives, eco-friendly practices, sustainability, college students, environmental conservation.*

# AI HUMAN FACE GENERATOR USING THE CONCEPT OF DEEP LEARNING TECHNIQUE

GUGAN V

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Excel College for Commerce and Science, Komarapalayam-63800, India.

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## **Abstract:**

Generative Adversarial Networks (GANs) are Neural Networks that take random noise as input and generate outputs (e.g. a picture of a human face) that appear to be a sample from the distribution of the training set (e.g. set of other human faces). A GAN achieves this feat by training two models simultaneously. One model is called the generator, which generates new data instances; the other is called the discriminator, which evaluates whether generated instances are real or fake. The use of machine learning to generate art and images, including use of machine learning to generate art and images, including human faces, is a trending topic with many applications in our daily lives. Researchers have implemented various ideas, most of which are based on CNN or other tools. One of the main challenges in generating realistic human faces is removing all the noise and maximizing stabilization. In a recent paper, the authors proposed a generative adversarial network with two fully connected sequential models, one as a generator and another as a discriminator, to generate better real-life fake human faces with low computational power and without any external image classifier. The generator is trainable and creates fake human faces from random data, while the discriminator detects whether the images generated by the generator are fake or real and gives feedback to the generator. Based on the feedback, the generator improves its model and tries to generate more realistic images.

**Keywords:** *Generative adversarial network-fake human faces-generator-discriminator-celeba data set.*



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## **PHILOSOPHY AND SUSTAINABILITY: AN INTERDISCIPLINARY PERSPECTIVE**

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### **Abstract:**

Sustainability is a multidimensional concept that extends beyond environmental concerns to encompass economic and social aspects. This paper explores the philosophical foundations of sustainability, analyzing ethical frameworks, metaphysical considerations, and epistemological questions related to sustainable development. The study reviews existing literature on sustainability in philosophy, focusing on theories such as deep ecology, environmental ethics, and the role of corporate social responsibility (CSR). The research follows a qualitative methodology, utilizing thematic analysis of scholarly texts and case studies. Findings indicate that sustainability is deeply rooted in moral philosophy, emphasizing intergenerational justice and ecological stewardship. The paper concludes with recommendations for integrating philosophical principles into sustainability practices to ensure long-term ecological and social well-being.

**Keywords:** *Sustainability, Philosophy, Ethics, CSR & Ecology*

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**SUKANYA SAMRIDDHI YOJANA: MITIGATING PARENTAL  
FINANCIAL RISK, EXAMINING INTEREST RATE SENSITIVITY  
AND TAX BENEFITS**

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Mount Carmel College Autonomous (Bengaluru)

**Dr. JOSEPHINE REBECCA. M**

Assistant Professor  
Mount Carmel College, Autonomous  
Bengaluru

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**Abstract:**

A government-backed savings program called the Sukanya Samriddhi Yojana (SSY) was launched in 2015 as part of the BetiBachaoBetiPadhao campaign to support girls' empowerment and financial security in India. The program's high interest rates, tax benefits, and long-term investment advantages entice parents to put money aside for their daughter's education and marriage. Through General Post Offices (GPOs), this study investigates the efficacy of SSY, investor perceptions, and its influence on financial planning, specifically in Bengaluru Urban District. The study assesses important elements that affect investor behavior, such as tax advantages, interest rate sensitivity, and the scheme's contribution to long-term financial stability. It also draws attention to the socioeconomic effects of SSY, especially across various income brackets, and the difficulties faced by investors, including withdrawal limitations and the protracted lock-in period. The study also looks into possible enhancements that could make SSY a more alluring investment choice. The study establishes the importance of financial planning and literacy in boosting the scheme's adoption through statistical techniques such as descriptive analysis, correlation analysis, and comparison evaluation. The results are intended to offer guidance on how to best utilize SSY and make it more widely available and efficient.

**Keywords:** *Sukanya Samriddhi Yojana, financial security, tax benefits, interest rate sensitivity, long-term investment, financial planning, government savings scheme, investor perception, girl child empowerment.*

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**SECURING FUTURES: AWARENESS AND UTILISATION OF PLI  
AMONG MIDDLE – CLASS FAMILIES IN BENGALURU URBAN  
M VEDAVALLI**

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**Abstract:**

This study aims to determine middle-class families' understanding and awareness of PLI, investigate how they use Endowment Assurance to ensure their financial stability, and examine the factors that support or impede the adoption of PLI. The target population are the individuals from middle – class families who have either purchased PLI or potential policyholders. The data has been gathered from middle-class families using a standardized questionnaire. The study employed convenience sampling techniques. The selection of respondents was based on their desire to participate in the survey and their accessibility. Participation is solicited from middle-class families who regularly visit or interact with the General Post Office (GPO). This approach guarantees that gathering data in a short amount of time will be simple. The data analysis is categorized into descriptive statistics and inferential statistics, using tools such as the Chi-Square test and Logistic Regression Analysis to examine the relationships among variables. The findings show that approximately 49.1% of respondents positively perceive PLI as providing better financial stability, indicating moderate awareness and respondents recognize Endowment Assurance under PLI as a stable financial instrument, merely perceiving financial stability. It also reveals an interesting yet complex relationship between the studied factors and purchase intention. Specifically, the factors such as government security, trust, and low premium individually did not show statistically significant impacts, but these factors combined still play a crucial role in shaping overall perception and willingness to adopt PLI.

**Keywords:** *PLI (Postal Life Insurance), Endowment Assurance, Middle-Class Families, Awareness Adoption*

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**EXPLORING THE INFLUENCE OF SOCIAL MEDIA MARKETING  
AND PURCHASE DECISION IN TAMIL NADU**

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St.Peter's Institute of Higher Education and Research, Avadi, Chennai-600 054

**Dr. S. SMILEE BOSE**

Associate Professor, Department of Commerce,  
St.Peter's Institute Higher Education and Research, Avadi, Chennai-600 054

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**Abstract:**

This study aims to provide a comprehensive analysis of the effect of social media marketing on Tamil Nadu consumers' buying decisions. Applications for social media have made it possible for human engagement to increase at a rate never seen before. This study looks at the variables that affect Generation Z's purchasing decisions. Surveys are done at random, and Generation Z is given questionnaires. Seventy-five percent of the two hundred questionnaires that were sent were completed. With increased internet penetration and smartphone usage, people are more connected than ever, relying on social media for product information, reviews, and recommendations. Regression and mean analysis were used to create and test three hypotheses and two assertions. According to the results, brand loyalty and the desire to buy a product are effectively promoted by online marketing communications, particularly EWOM, online communities, and online advertisements, via the corporate website and social media platforms. These results show marketing managers that social media marketing has emerged as a key strategy for reaching customers in the younger generation. It also shows how the internet is crucial to contemporary marketing as it makes it possible for advertisers to connect with clients more quickly and effectively. This study contributes to the growing knowledge of digital marketing and consumer behaviour, highlighting the significant role social media plays in shaping purchase decisions in Tamil Nadu.

**Keywords:** *Social Media Marketing, Generation Z, Purchase Decision, Consumer Behaviour, Digital Marketing, Personalized Marketing*

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**A CLUSTER ANALYSIS OF LEATHER INDUSTRY  
PERFORMANCE: EVALUATING PROFITABILITY, ENERGY  
EFFICIENCY AND SCALE**

**<sup>1</sup>B. RUKMANI, <sup>2</sup>MANIMANNAN G AND <sup>3</sup>ESWARAN J**

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St. Joseph's College (Arts & Science), Kovur, Chennai

<sup>2</sup>Associate Professor, Department of Computer Applications,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

This research paper attempts to identify key performance drivers in the leather industry by examining parameters such as production capacity, labor efficiency, energy consumption, profit margin, industry size, and environmental compliance. The objectives are to delineate operational differences among leather manufacturing units, assess resource usage patterns, and explore the relationship between profit generation and industry scale. A comprehensive secondary database compiled from various leather industry sources was used to perform cluster analysis. The results reveal three distinct clusters: one cluster demonstrates high production capacity and export performance accompanied by elevated water usage, while another cluster exhibits enhanced worker experience and higher profit margins. The robustness of the clustering approach is confirmed by a 97.9% correct classification rate from discriminant analysis, providing actionable insights for improving profitability and energy efficiency in the sector.

**Keywords:** *Production Capacity, Labor Efficiency, Energy Consumption, Profit Margin, Industry Size, Environmental Compliance*

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**THE STUDY ON STARTUP ENTHUSIAST AND THEIR  
CONTRIBUTION TOWARD THE ECOSYSTEM-FRIENDLY  
BUSINESS PRACTICES**

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St. Joseph's College (Arts & Science), Kovur,  
Chennai 600128, Tamil Nadu, India

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**Abstract:**

The aim of this study is to propose a framework to position startup enthusiasts in relation to sustainable entrepreneurship. Innovative entrepreneurship has increasingly been acknowledged as one of the most pivotal drivers of economic development, high-value job creation, wealth generation, and business growth. Integrating innovation with sustainability fosters strong social responsibility, environmental stewardship, and alignment with the Sustainable Development Goals (SDGs). This paper identifies conditions under which sustainable entrepreneurship and sustainability innovation emerge spontaneously. The research has implications for both theory and practice, clarifying which firms are most likely to pursue sustainability innovation under specific conditions. Furthermore, the paper contributes to the literature by expanding on the motivations for innovation and refining earlier models of sustainable entrepreneurship. To conclude, Systemic barriers limit the scalability of innovative ventures, especially in developing countries. Frugal and green innovations, digital technologies, and rural enterprises show promise but face challenges like resource constraints, ethical concerns, and policy gaps. Collaborative, equity-focused approaches and other various Government drives and supports are essential to ensure entrepreneurship drives sustainable and inclusive development. This may lead to a better deciphering of innovative entrepreneurship and sustainability that can be used to create actionable strategies for development in various economic contexts.

**Keywords:** *Sustainability, Entrepreneurship, Start up, Sustainable development, Green innovations.*

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**A STUDY ON THE NON-BANKING FINANCIAL COMPANIES  
(NBFCs) IN INDIA  
Dr.R.VENKATASAMY**

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St.Joseph's College (Arts and Science), Kovur, Chennai -128.

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**Abstract:**

The working and operations of NBFCs are regulated by the Reserve Bank of India (RBI) within the framework of the Reserve Bank of India Act, 1934 and the directions issued by it. The term non-bank likely started as non-deposit taking banking institution. An NBFC incorporated under Companies Act, 2013 willing to commence a business of non-banking finance should comply with some RBI guidelines. Non-Banking Financial Company (NBFC) is a company registered under the Companies Act, 1956 of India, engaged in the business of loans and advances, acquisition of shares, stock, bonds, hire-purchase insurance business or chit-fund business, but does not include any institution whose principle business is that of agriculture, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property. There are different types NBFC's in India. Various functions, advantages and disadvantages explained in the research paper. Registration fees and documents required to form a NBFC. The research on L&T Finance Ltd. Products & Services, Interest Rates, Charges. Operations of non-bank financial institutions are not covered under a country's banking regulations. Role of Non-banking financial companies are accept deposits in various forms, provide investment advice, promoter's utilization of savings. Definition for Non-Banking Financial Company, it carries functions like bank but it is not actual bank. As per the new norms, NBFCs cannot outsource core management functions like internal audit, management of investment portfolio, strategic and compliance functions for know your customer (KYC) norms and sanction of loans. Staff of service providers should have access to customer information only up to an extent which is required to perform the outsourced function.

**Keywords:** *Non-Banking Financial Company, management functions, hire-purchase insurance*

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**A STUDY ON CUSTOMER SATISFACTION ON TOWARDS  
SELECTED PUBLIC SECTOR BANKING INTERNET SERVICES IN  
CHENNAI CITY**

**<sup>1</sup>Dr. S.GUNASEELAN, <sup>2</sup>Mr. H. SABARI RAMAN**

<sup>1,2</sup>Assistant professor

Department of commerce

St .Joseph's college Arts and Science Kovur. Chennai

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**Abstract:**

Present researcher has been selected banking in Kanchipuram district Electronic channel mostly used by male and people living in urban area. It is suggested that the bankers should take measures for creating awareness and educate all kinds of people about electronic channels. The young generations are more aware about E-Banking system than older generation. The older generation having less confidence on E-Banking. Due to its complexity and operating methodology. It is suggested that the bankers should take measures for developing confidence about E-Banking operations among older generations. The high income groups of customers are having more awareness about E-Banking services than other income group customers. Therefore, the bankers should take necessary steps to create awareness to other income group of customers by way of conducting seminars, exhibition, customer meet, advertisements Among all the E-Banking channels ATM and mobile banking services most familiar among the users. It is suggested that the bankers should take much efforts to inculcate knowledge and awareness about other E-Banking channels to the customers.

**Keywords:** *Customer satisfaction on towards selected internet banking services*



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**RELATIONSHIP MARKETING STRATEGY AND ITS OUTCOME  
TOWARDS CUSTOMER LOYALTY IN PUBLIC SECTOR BANKS IN  
TAMIL NADU**

**Mr. J. JABASTEEN**

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**Dr.M.JENIFE EZHILARASI**

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**Abstract:**

This research study analyses Impact of Customer Relationship Marketing (CRM) Strategy and Customer Loyalty on banking sector in Public sector bank in Tamil nadu. Relationship Marketing is process to attract, interact and retain the profitable customers. In modern world, banks are feeling increasing competitive pressures. Therefore, it has become compulsion for them to follow the concept of relationship marketing. The objective of the paper is to know about the relationship marketing strategies adopted by public and private sector bank. The study has been done from the perspective of employees. For identification of variables, literature review has been done. Eight factors found are customer service, special treatment to customers, employee empowerment, multichannel approach and channel optimization, customer lifetime value, customization of products, customer database management and last but not the least technical expertise. This research was specially studied in Banking sector how they are offering relationship marketing. This customer relationship marketing strategy creates any impact in the Chennai Urban customer's mind in Customer Loyalty regarding their selected financial institutions. This study was carried out a total of 300 customers in Public banks, the statistical techniques applied for drawing statistical inferences and conclusions about the study may include descriptive statistics, one sample t test, one way ANOVA, reliability test, multiple regression analysis and discriminant Analysis. The results of this study clearly revealed that the there is a positive relationship between Demographic factors and Customer relationship marketing strategy. The Customer Relationship Marketing Strategy has a positive impact on the customer loyalty in Banking sector From the Discriminant analysis in Public Banks.

**Keywords:** *Relationship Marketing Strategies, Customer Service, Customer Database, Customer Lifetime Value, Customer Relationship Management, Exploratory Factor Analysis, Customization, Channel Optimization.*

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## **PREDICTIVE ANALYSIS OF TEXTILE INDUSTRY PERFORMANCE USING STATISTICAL MODELING**

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**Mrs.D.DHIVYAA**

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St.Joseph's College (Arts & Science), Kovur.

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### **Abstract:**

This study explores the performance metrics of the textile industry through statistical modeling using SPSS. The dataset includes parameters such as machine efficiency, breakdown duration, power consumption, weaving speed, and environmental factors, analyzed using K-Means clustering and ANOVA. The findings reveal distinct cluster centers, indicating performance variations across different operational settings. ANOVA results suggest significant variations in machine performance, while Wilks' Lambda confirms strong discriminative power in classifying textile units. The classification results show 99.3% accuracy in grouping textile units based on operational efficiency. These insights provide valuable recommendations for optimizing production processes, reducing breakdown durations, and improving overall efficiency in textile manufacturing.

**Keywords:** *Textile Industry, Analysis, K-Means Clustering, ANOVA, Machine Efficiency, Predictive Modeling*

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**A STUDY ON CONSUMERS' PERCEPTION AND DECISION  
MAKING PROCESSES TOWARDS ORGANIC FOOD PRODUCTS**

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**Mr.RAMKIS,**

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Assistant Professor, Department of Commerce, St. Joseph's College (Arts & Science),  
Kovur, Chennai 600128, Chennai, India

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**Abstract:**

The increasing awareness of health, environmental sustainability, and food safety has significantly influenced consumer behavior toward organic food products. Consumers are becoming more conscious of the long-term benefits of organic food, leading to a shift in dietary choices and purchasing preferences. Factors such as media influence, educational initiatives, government policies, and healthcare recommendations have contributed to the growing demand for organic products. As a result, the organic food industry has witnessed substantial expansion, with a rising number of consumers opting for chemical-free and eco-friendly alternatives. The decision-making process regarding organic food purchases is driven by various factors, including perceived health benefits, environmental concerns, trust in certifications, and disposable income levels. In India, the organic food market is experiencing rapid growth, driven by an increasing number of health-conscious consumers, particularly in urban and metropolitan areas. With a projected rise in demand, the industry is expected to sustain its upward trajectory, shaping new market dynamics and consumer trends in the coming years.

**Keywords:** *Organic Food, Consumer Perception, Decision-Making, Health Awareness, Sustainable Consumption, Market Growth.*

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**ANALYSIS OF CUSTOMER PERCEPTION ON ONLINE FOOD  
DELIVERY IN CHENNAI****JOEL PREETHI F**Assistant Professor, Department Of Commerce  
St. Joseph's College (Arts & Science)**ANUSHA T**Assistant Professor, Department of Accounting & Finance  
Apollo Arts and Science College, North Chennai

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**Abstract:**

The expansion of online food delivery services has significantly impacted consumer behavior, particularly among young and working professionals. This study examines user preferences, trends, and challenges in India's online food delivery market using survey data analysis. Findings indicate that 43.3% of respondents fall within the 26-35 age group, making them a key demographic. Additionally, 59% of users are male, and 52.2% hold an undergraduate degree, highlighting the need for targeted marketing strategies. Convenience plays a vital role, as 64% of respondents are single and 48% are employed. Market penetration is high, with 89% of users having at least one food delivery app. Spending patterns reveal that 42% earn between Rs.20, 000 and Rs.40, 000, while 32% spend over Rs.400 per order. Frequent ordering behavior, diverse food preferences, and payment flexibility are significant factors influencing user decisions. Delivery delays remain a concern for 38% of respondents. Promotional offers and variety in cuisines impact purchasing decisions, while security and ease of use enhance customer trust. A chi-square test confirms consistent ordering patterns across users, with strong correlations between satisfaction, food quality, and discounts. To sustain growth, food delivery platforms must enhance logistics, digital marketing, and customer engagement while optimizing user experience.

**Keywords:** *Delivery Services, Consumer Behavior, Food Delivery Platform.*

## **ASSESSING THE FINANCIAL PERFORMANCE OF SMALL FINANCE BANKS IN INDIA: A CAMEL MODEL ANALYSIS**

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St. Joseph College (Arts & Science), Kovur

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### **Abstract:**

Small finance banks have emerged as vital players in the Indian banking sector, focusing on financial inclusion and serving underserved populations. This study employs the CAMEL model to assess the financial performance of selected small finance banks in India from 2019 to 2024. The CAMEL model evaluates Capital Adequacy, Asset Quality, Management Quality, Earnings, and Liquidity, providing a comprehensive view of each bank's performance. The findings reveal notable variations among these banks, with Disha/Fincare Bank ranking highest overall, followed by Janalaxmi Bank, CLAB Bank, ESAF Bank, and AU Bank. Recommendations are provided for each bank to improve specific aspects of their financial performance. The study highlights the critical role small finance banks play in advancing financial inclusion and offers insights for policymakers, investors, and bank management to strengthen their contributions to India's banking landscape.

**Keywords:** *Small Finance Banks, Financial Inclusion, CAMEL Model, Indian Banking Sector, Financial Performance*

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## ENTREPRENEURSHIP AND SUSTAINABILITY

**Mrs. V.RACIKA**

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St. Joseph College (Arts & Science), Kovur.

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### **Abstract:**

Entrepreneurship and Sustainability" refers to the integration of sustainable practices into business models, which ensures long-term success while addressing environmental, social, and economic challenges. Entrepreneurship is the process of identifying opportunities, developing ideas, and creating businesses that offer new products or services, and the concept of Sustainability is to meet the needs of the present without compromising the ability of future generations to meet their own needs, typically focusing on environmental, social, and economic pillars. Innovative Business Models Sustainable business practices like circular economy models, social entrepreneurship, and green technologies. Impact on Environmental Sustainability, Using resources efficiently, reducing waste, and promoting renewable energy and eco-friendly products. Social Responsibility Supporting social equity, fair labor practices, and community well-being through business practices. Balancing Profit and Purpose Finding ways to achieve both financial success and contribute to sustainable development goals (SDGs). Access to Funding Overcoming barriers to financing for sustainable startups and understanding the role of impact investors and green financing. Supply Chain Management Ensuring sustainability through ethical sourcing, reducing carbon footprint, and maintaining transparency.

**Keywords:** *Challenges in Sustainable Entrepreneurship, the Role of Entrepreneurs in Sustainability.*

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**THE PERSUASION OF DIGITAL COMMUNITIES ON INVESTMENT  
DECISIONS AMONG INVESTORS IN CHENNAI CITY**

**Mrs. C.BACKIYALAKSHMI**

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St. Joseph's College (Arts & Science),

**Ms. P. NITHYA**

Assistant Professor, Department of commerce (Accounting and Finance)  
St. Joseph's College (Arts & Science)

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**Abstract:**

This study aims to determine how the investors were influenced by the social media while selecting their financial instrument for investment. Digital communities, such as social media groups, online forums, and investment platforms, influence investor decisions significantly. This study looks at how digital communities impact investor behaviour, the psychological mechanisms that drive this persuasion, and the dangers and advantages associated with such influences. The study examines current literature, conducts surveys, and reviews case studies to emphasize the impact of digital interactions on investment strategies, market trends, and financial decision-making. This study also studies the perception towards their financial decision as well.

**Keywords:** *Digital Communities, Investor Behaviour, Social Media Influence, Investment Choices, Financial Psychology*

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## THE ROLE OF SOCIAL MEDIA MARKETING IN IMPROVING SALES OF SMALL BUSINESSES

**M. RAMESH**

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### **Abstract:**

Social media has become an important tool for businesses to connect with customers. This research studies how social media marketing helps small businesses increase their sales and brand awareness. Many small businesses cannot afford expensive advertising, but platforms like Facebook, Instagram, and WhatsApp offer low-cost marketing options. This study collected data from 80 small business owners who use social media to promote their products and services. The results show that businesses using social media regularly saw more customer engagement and higher sales compared to those who did not. Social media helped them reach more people, advertise offers, and build customer relationships. However, the study also found some challenges, such as lack of time, knowledge about creating good content, and dealing with negative comments. The research suggests that small businesses should learn more about social media marketing strategies to gain better results. Training programs and workshops can help business owners use social media more effectively. In conclusion, social media marketing is a powerful tool for small businesses to grow in today's competitive market.

**Keywords:** *Social Media, Marketing, Small Business Growth, Customer Engagement, Sales Improvement*



## **HYBRID DENSITY-CENTROID CLUSTERING (HDCC) FOR LARGE-SCALE SOCIAL MEDIA DATA: A COMPARATIVE STUDY**

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**<sup>2</sup>S. MANIKANDAN**

Lecturer School of Software Engineering, East China University of Technology, China.

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### **Abstract:**

Social media platforms have been rapidly mushrooming and generating large amounts of unstructured data, making them difficult to analyse using traditional data analytics techniques. Clustering, one of the most important unsupervised machine learning methods, is directly utilized to generate meaningful patterns from this data. However, conventional clustering algorithms like K-Means and DBSCAN struggle to balance various densities, noise, and overlapping clusters when used with large-scale high-dimensional datasets. This paper thus presents a Hybrid Density-Centroid Clustering (HDCC) algorithm that integrates the advantages of both a density-based clustering algorithm (DBSCAN) and a centroid-based clustering algorithm (K-Means). HDCC employs DBSCAN first to detect dense regions and filter out noise points and then use K-Means to optimize the centroids of clusters and further improve the clustering effect. The developed algorithm overcomes the aforementioned weaknesses of individual clustering techniques via better performance under complex and non-convex data distributions. We conducted a comparative performance evaluation of HDCC against state-of-the-art clustering algorithms such as K-Means, DBSCAN and Agglomerative Clustering over large-scale social media datasets. On the ground of the data obtained, HDCC is shown to be superior to traditional algorithms in every aspect such as the accuracy of the clusters, noise reduction and scalability. This work shows that HDCC is a feasible technique for practical applications in social media analytics like sentiment analysis, trend prediction, and user segmentation.

***Keywords:*** *Unsupervised Learning, Clustering Algorithms, Social Media Data, HDCC, K-Means, DBSCAN, Agglomerative Clustering, Hybrid Clustering, Density-Based Clustering.*

## **AI-DRIVEN CROP PREDICTION: ENHANCING CLIMATE RESILIENCE IN PRECISION AGRICULTURE**

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### **Abstract:**

The rapid advancements in Artificial Intelligence (AI) have transformed precision agriculture, particularly in addressing climate change challenges through accurate crop prediction models. This paper explores how AI-driven techniques, including Machine Learning (ML), Deep Learning (DL), and data analytics, enhance crop yield forecasting, disease detection, and climate adaptation strategies. AI-powered predictive models analyze large-scale environmental and meteorological data to anticipate climate-induced risks such as droughts, floods, and soil degradation, enabling farmers to take proactive measures. By integrating Wireless Sensor Networks (WSNs), Internet of Things (IoT) devices, and edge computing, real-time monitoring of soil health, weather patterns, and crop conditions becomes more efficient. Furthermore, AI-driven automation, including smart drones and robotics, optimizes farm operations, reducing resource wastage and improving sustainability. Blockchain integration ensures transparency in agricultural supply chains, enhancing trust and efficiency. Despite the numerous benefits, challenges such as high implementation costs, data privacy concerns, and the need for farmer education remain. This research highlights the potential of AI in mitigating climate change effects on agriculture and emphasizes the necessity of collaborative efforts to drive widespread adoption of AI-driven crop prediction systems.

**Keywords:** *AI in Agriculture, Crop Prediction, Climate Change, Machine Learning, Deep Learning, IoT, Smart Farming, Climate Resilience, Sustainable Agriculture.*

## **NEXT-GEN IOT CLIMATE FORECASTING: REVOLUTIONIZING WEATHER PREDICTIONS**

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**<sup>3</sup>G. MANIMANAN,**

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### **Abstract:**

The integration of the Internet of Things (IoT) in climate monitoring is transforming weather forecasting by enabling real-time data collection and predictive analytics. IoT-based climate sensors provide high-precision measurements of temperature, humidity, air pressure, and pollution levels, significantly improving forecasting accuracy. This study analyzes IoT climate monitoring in four major cities are Dharmapuri, Ambur, Tirupattur, and Krishnagiri highlighting their unique climate challenges and the effectiveness of various IoT devices. A comparative analysis of IoT solutions, including Davis Weather Stations, Raspberry Pi Climate Sensors, and Smart Grid Systems, evaluates their accuracy, cost, and deployment feasibility. Findings indicate that IoT-powered climate monitoring enhances early warning systems, supports urban planning, and aids disaster preparedness. Future advancements, such as AI-driven analytic, edge computing, and renewable-powered IoT sensors, will further enhance climate resilience and sustainability. This study emphasizes the importance of investing in IoT-based climate infrastructure to combat climate change and protect urban populations from extreme weather events.

**Keywords:** *Smart Grid Systems, Weather Forecasting, Climate Monitoring, Climate Sensors, Disaster Preparedness*

**FOREST FIRE DETECTION AND PREVENTION SYSTEM****<sup>1</sup>Dr.G.GOMATHI, <sup>2</sup>ELAMURUGAN B<sup>2</sup>**

Assistant Professor, MCA

<sup>1,2</sup>Department of Computer ApplicationsB.S .Abdur Rahman Crescent Institute of Science and Technology, Chennai

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**Abstract:**

Early detection of forest fires is crucial to minimize environmental damage and protect biodiversity. Studies indicate that 80% of fire-related losses could be prevented with timely detection. This system presents an IoT-based wildfire detection and prevention system designed to monitor forest conditions in real time and alert authorities immediately upon fire detection. The system utilizes an Arduino-based setup integrated with a flame sensor for fire detection and a buzzer for immediate on-site alerts. A Wi-Fi module transmits fire event data to a central server, where authorized forest and fire officers can access it through a secure React-based web interface. Upon fire detection, an automated water sprinkler system is activated to prevent the fire from spreading. This system aims to enhance fire response efficiency, minimize ecological damage and ensure the safety of wildlife and rare plant species.

**Keywords:** *Internet of Things, Arduino, Fire Detection, Sensor, Wireless Communication, Wildfire Prevention.*

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## INTELLIGENT HOME SECURITY UTILIZING FACIAL RECOGNITION AND MOBILE APPLICATION

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### **Abstract:**

A smart home security system combines Internet of Things (IoT) technology with Artificial Intelligence (AI) to optimize automated home functions and security capabilities. The proposed system enables door access through facial recognition using the Haar Cascade classifier combined with Local Binary Pattern Histogram (LBPH) as the face recognition method. A backup PIN system ensures access if technical failures occur and it works with ObSpy through Android application for accessing and controlling home attributes from anywhere at any time. The system architecture contains three separate modules which include an Android Application Module together with a Data Processor Module followed by a Data Generator Module. The Raspberry Pi functions as the main control hardware since it provides budget-friendly capability. The system demonstrated successful facial recognition performances at a rate of 92.86% which exceeded results from other similar systems as described in previous literature. This complete home security system uses multiple safety measures which integrate face detection and personal identification numbers with mobile phone notifications. The proposed system demonstrates accuracy along with cost effectiveness which might help decrease property crimes according to the paper's conclusion.

**Keywords:** *Haar Cascade classifier, Local Binary Pattern Histogram, Raspberry Pi*

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## HYBRID CRYPTOSYSTEM FOR SECURE FILE AND IMAGE ENCRYPTION

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<sup>1</sup>IIMCAstudenta and <sup>2</sup>Assistant Professor

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### **Abstract:**

With the increasing risks of cyber threats, ensuring the security of sensitive files and images is a major challenge. Traditional encryption methods struggle with balancing security, efficiency, and scalability, especially in cloud environments. This paper proposes a Hybrid Cryptosystem integrating Blowfish for fast symmetric encryption and Elliptic Curve Cryptography (ECC) for secure key exchange, combined with cloud security mechanisms for enhanced data protection. The system enables secure cloud storage, controlled access, and real-time monitoring, preventing unauthorized modifications and data breaches. The implementation results highlight improvements in data confidentiality, processing efficiency, and cloud security integration, making this approach a reliable solution for modern secure data storage.

**Keywords:** *Hybrid Cryptosystem, Blowfish, Elliptic Curve Cryptography, Cloud Security, Secure File Encryption, Image Encryption*

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**ASSESSING NETWORK PERFORMANCE AND PREDICTIVE MODELING  
FOR HEALTHCARE DATA TRANSMISSION****<sup>1</sup>MAHADEVI M. and <sup>2</sup>MANIMANNAN G.**<sup>1</sup> Assistant Professor, Department of Computer Science,  
St. Joseph's College (Arts & Science), Chennai<sup>2</sup> Associate Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Chennai

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**Abstract:**

This research paper attempts to assess network performance and predictive modeling in healthcare data transmission, focusing on key network parameters and patient-specific metrics. The study analyzes 200 data packets to evaluate latency, jitter, bandwidth usage, packet loss, and packet size, alongside vital patient indicators such as heart rate and oxygen saturation. The findings reveal significant variations in network conditions, with latency ranging from 0.6 ms to 99.87 ms and bandwidth utilization fluctuating between 1.01% and 99.48%, indicating potential inefficiencies. Patient vitals also exhibit variability, with heart rates ranging from 60 bpm to 120 bpm and oxygen saturation levels between 85% and 100%. A predictive model using the Random Forest classifier was implemented to classify network performance and patient health trends, but it achieved only 50% accuracy, suggesting the need for further optimization. Various visualization techniques, including network diagrams, confusion matrices, bar charts, and clustering models, were employed to interpret the dataset effectively. The study highlights critical challenges in network reliability and predictive accuracy, emphasizing the need for advanced data preprocessing and enhanced feature selection to improve real-time healthcare monitoring systems.

**Keywords:** *Network Performance Assessment, Healthcare Data Transmission, Predictive Modeling, Random Forest, Data Visualization, Real-time Monitoring*

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## INTELLIGENT FINANCIAL NEWS SUMMARIZATION AND RETRIEVAL SYSTEM USING LLM

ESHWAR R<sup>1</sup>, Ms.G. GOMATHI<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Computer Applications

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### **Abstract:**

Financial news contains vast amounts of information, making it challenging for investors and analysts to quickly extract key insights. An Ai powered system is designed to retrieve, process, and summarize financial news using Large Language Models (LLMs). It ensures that users receive concise, accurate, and context aware summaries while preserving important financial trends, sentiments, and causal relationships. By leveraging OpenAI embeddings and FAISS, the system enables fast and efficient retrieval of relevant news articles based on user queries. Additionally, a user-friendly interface is integrated to provide seamless access to the latest financial insights. This approach helps investors and financial professionals stay updated with critical market information, improving decision-making efficiency.

**Keywords:** *Financial news, AI-powered system, Large Language Models (LLMs), news retrieval, text summarization, OpenAI embeddings, FAISS (Facebook AI Similarity Search).*



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# ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING FOR EARLY CANCER PREDICTION

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**Abstract:**

This study explores applying artificial intelligence (AI) and machine learning (ML) techniques in risk assessment and early prediction of lung and heart cancer. The research aims to develop robust predictive models to identify high-risk individuals and detect early-stage cancers, potentially improving patient outcomes through timely intervention. We analyze large-scale datasets comprising demographic information, clinical records, imaging data, and genetic markers using various AI and ML algorithms, including deep learning neural networks and ensemble methods. Our models demonstrate improved accuracy and sensitivity compared to traditional risk assessment tools, with area under the receiver operating characteristic curve (AUC-ROC) values exceeding 0.85 for both lung and heart cancer prediction. We also investigate the interpretability of these models to enhance clinical decision-making and patient communication. The findings suggest AI and ML approaches have significant potential to revolutionize cancer screening and early detection strategies, ultimately contributing to reduced mortality rates and improved quality of life for at-risk patients.

**Keywords:** *AI, Machine Learning, AUC-ROC*

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## REAL-TIME INDIAN SIGN LANGUAGE RECOGNITION USING DEEP LEARNING

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Department of Computer Applications

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### **Abstract:**

The Real-Time Indian Sign Language Recognition is an innovative system aimed at bridging the communication gap between the deaf and hard-of-hearing community and the general population. This paper presents a deep learning-based approach utilizing computer vision methodologies for the recognition of dynamic gestures in Indian sign language. The primary challenge lies in the limited availability of dynamic gesture datasets and the complexity of motion patterns. To address this, the suggested approach leverages Long Short-Term Memory (LSTM) networks to model temporal dependencies effectively. LSTM captures spatial and temporal features, enhancing recognition accuracy. Experiments confirm the method's superior performance compared to traditional techniques. The model demonstrates strong generalization across diverse gestures, making it suitable for real-world applications. This research addresses gaps in dynamic gesture recognition, contributing to the advancement of deep learning techniques for underrepresented sign language. The findings offer significant potential for improving communication technologies.

**Keywords-** *Deep learning, Long Short-Term Memory (LSTM), Dynamic Gesture Recognition, Computer Vision, Indian Sign Language (ISL)*

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## APPLICATION FOR SKIN CANCER CLASSIFICATION BASED ON HYBRID APPROACH

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<sup>2</sup>MCA II Year, Department Of Computer Application

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### Abstract:

Skin cancer, particularly melanoma, poses challenges in diagnostics, where early detection is crucial for effective treatment. Current methods often struggle with limited labeled data, leading to overfitting and poor generalization to diverse lesion types. This research addresses these issues by employing Generative Adversarial Networks (GANs) to create synthetic skin lesion images that reflect real-world diversity. These synthetic images are combined with original datasets to augment training data for Convolutional Neural Networks (CNNs). GANs are trained using real skin lesion datasets to generate realistic images, which are used to train CNNs for enhanced generalization. The performance of these models is evaluated on real test datasets using metrics like accuracy, sensitivity, specificity, and F1 score. Results show that CNNs trained on augmented datasets demonstrate improved robustness, higher accuracy, and better generalization. The inclusion of synthetic data significantly improves the detection of rare and underrepresented lesion categories, addressing critical gaps in current systems. This study highlights the potential of GANs for generating synthetic medical images to overcome limitations of insufficient labeled data. Findings underscore the value of data augmentation in enhancing deep learning models for medical diagnostics, paving the way for advanced skin cancer detection systems to assist healthcare professionals. **Keywords:** Skin cancer detection, (GANs) Generative Adversarial Networks, (CNN) Convolutional Neural Networks, Synthetic data augmentation, Rare lesion detection, Medical image classification, Data scarcity.

**Keywords:** *Skin cancer detection, (GANs) Generative Adversarial Networks, (CNN) Convolutional Neural Networks, Synthetic data augmentation, Rare lesion detection, Medical image classification, Data scarcity*

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## MACHINE LEARNING BASED CLUSTERING AND CLASSIFICATION OF THE LEATHER INDUSTRY IN CHENNAI

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<sup>2</sup>Associate Professor, Department of Computer Applications,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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### **Abstract:**

This research paper to assess the leather industry in Chennai plays a pivotal role in economic growth, employment, and exports, necessitating data-driven strategies for enhancing efficiency and sustainability. This study employs k-Means clustering and Random Forest classification to analyze a dataset of leather industries based on key operational parameters, including Production Capacity, Machine Usage, Labor Count, Environmental Compliance, and Market Demand Index. The objective is to identify industry patterns, optimize resource utilization, and improve decision-making. K-Means clustering categorized industries into three distinct groups are revealing trends in efficiency, compliance, and growth potential. The classification model achieved an accuracy of 95.3%, effectively predicting industry types based on operational attributes. PCA and t-SNE visualizations confirmed clear separations between clusters, validating the model's robustness. The findings provide actionable insights for industry stakeholders, policymakers, and business leaders, enabling strategic interventions, sustainable practices, and enhanced market competitiveness in the Chennai leather sector.

**Keywords:** *Leather Industry, K-Means Clustering, Random Forest, Industry Classification, Machine Learning, Chennai.*

**INTERNET OF THINGS ENHANCED MACHINE LEARNING FOR GREEN MARKETING ANALYSIS IN CHENNAI****<sup>1</sup>NIRMALA DEVI N. AND <sup>2</sup>MANIMANNAN G.**<sup>1</sup>Assistant Professor, Department of Computer Application,  
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**Abstract:**

This study explores the effectiveness of machine learning algorithms in analyzing green marketing data collected in Chennai, India. A comprehensive database of 500 samples, incorporating IoT sensor data, consumer behavior metrics, and marketing campaign details, was generated. Regression models (Linear Regression and Random Forest Regression) were employed to predict sales, while a Random Forest Classifier was used to predict purchase intent (high/low). Results indicated that the Random Forest Regression model significantly outperformed Linear Regression, achieving a higher R-squared (0.85) and lower Mean Squared Error (6358.33). The Random Forest Classifier achieved an accuracy of 88% in predicting purchase intent. Visualizations, including bar charts and scatter plots, further illustrated these findings, highlighting the models' predictive capabilities and the importance of factors like product category and consumer environmental awareness. This research demonstrates the potential of IoT-integrated machine learning for optimizing green marketing strategies in urban environments.

**Keywords:** *Green Marketing, Machine Learning, IoT, Chennai, Predictive Analytics.*

## **TOWARDS THE INTERNET OF THINGS (IOT) INTEGRATING WIRELESS SENSOR NETWORKS WITH CLOUD SERVICES FOR DATA GATHERING AND SHARING**

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St. Joseph's College of (Arts & Science), Kovur, Chennai

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### **Abstract:**

Applications hosted on the Web can benefit greatly from cloud computing, particularly those with particular processing and storage requirements. A scalable and adaptable architecture for combining cloud services and wireless sensor networks (WSNs) is presented in this paper. As an interoperable application layer, we have used Restful Web services, which are easily adaptable for a variety of domains, including smart homes, e-healthcare, and vehicular area networks (VAN). We put in place a REST-based Web service on an IP-based, low-power WSN test bed to illustrate this idea, allowing remote data access from any location. An alert system has also been created to send users emails or tweets when certain events take place or when monitored data exceeds predetermined thresholds.

**Keywords:** *Internet of Things, Cloud computing, REST, Wireless Sensor Network, XBee*

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## EVALUATING THE IMPACT OF DATA CLEANING TECHNIQUES ON MACHINE LEARNING MODEL PERFORMANCE AND ACCURACY

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### **Abstract:**

Data cleaning is an essential pre-processing task in machine learning that greatly influences model performance. Data of poor quality, which includes missing values, duplicates, and inconsistencies, can result in biased predictions and lower model accuracy. This research investigates a variety of data cleaning methods such as managing missing values, detecting outliers, normalizing data, and eliminating duplicates. The study assesses the effectiveness of these methods by implementing them on various machine learning models and evaluating their influence on accuracy. Experimental findings reveal that adequate data cleaning improves model performance by minimizing noise and enhancing data integrity. The results highlight the significance of choosing suitable cleaning techniques to optimize predictive accuracy and dependability in machine learning applications.

**Keywords:** *Data Cleaning, Machine Learning, Data Pre-processing, Missing Values, Outlier Detection, Data Normalization, Duplicate Removal, Model Accuracy, Data Integrity, Predictive Performance, Noise Reduction, Data Quality.*

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## DATA SCIENCE APPROACH FOR SPATIAL MAPPING AND PREDICTION OF DENGUE CASES IN INDIA

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St. Joseph's College (Arts & Science),  
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### **Abstract:**

This study leverages data science techniques to analyze the spatial distribution and classification of dengue-affected and death cases across Indian States and Union Territories. The objective is to identify high-risk regions and temporal trends from 2015 to October 2021 using secondary data from the National Vector Borne Diseases Control (NVBDC), India. The dataset, covering 35 states and union territories, is categorized based on confirmed cases and fatalities. Machine learning classification models achieved 91% accuracy, effectively distinguishing high and low dengue-affected regions. Highly affected states include Gujarat, Karnataka, Kerala, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, West Bengal, and Delhi, while lower-affected regions include Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, and several northeastern states. Temporal analysis reveals a rising trend from 2015 to 2017, followed by fluctuations, with West Bengal showing a gradual decline and Union Territories remaining relatively stable. The study integrates spatial visualization and bar charts for enhanced interpretation of disease spread. The findings emphasize the need for targeted vector control strategies and healthcare interventions in high-risk areas. This research highlights the potential of data science and machine learning in epidemiological studies, providing a framework for predictive disease modeling and outbreak management.

**Keywords:** *Data Science, Dengue Prediction, Machine Learning, Spatial Mapping, Epidemiology, Public Health*



**ETHICAL IMPLICATIONS OF AI IN CYBERSECURITY  
DECISION-MAKING**

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**Abstract:**

The integration of AI in cybersecurity decision-making presents both opportunities and ethical challenges. AI enhances threat detection, response automation, and risk assessment, improving security efficiency. However, ethical concerns arise regarding bias in AI algorithms, lack of transparency, privacy violations, and accountability in automated decisions. The potential for AI-driven cybersecurity measures to infringe on user rights and enable mass surveillance further complicates ethical considerations. This paper explores these implications, emphasizing the need for responsible AI deployment, human oversight, and regulatory frameworks to ensure fairness, accountability, and ethical cybersecurity practices.

**Keywords:** *Cybersecurity, Artificial Intelligence, AI Algorithms, Ethical, Frameworks*

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## INTERPRETABLE PREDICTIVE MODELS FOR ALZHEIMER'S DISEASE USING EXPLAINABLE BOOSTING MACHINES

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### **Abstract:**

Alzheimer's disease (AD), a progressive neurological condition, presents an escalating health crisis globally. Timely detection is critical for effective intervention and slowing the disease's advancement. While advanced deep learning models have demonstrated superior performance in AD prediction, their complex and opaque nature often hinders clinical decision-making. This paper introduces a machine learning (ML) model that ensures accurate AD prediction while maintaining interpretability. Feature selection methods are utilized to enhance the relevance of the data features with respect to the target labels. Among various glass-box and black-box models examined for AD prognosis, the Explainable Boosting Machine (EBM) with Chi-square feature selection yields more accurate and interpretable outcomes, even with smaller datasets. The interpretability graphs provided by EBM offer both global and local explanations for the predictions, highlighting the key features that influence classification decisions. By providing transparency, EBMs enable greater trust in the model's decision-making, empowering healthcare professionals to make more informed and confident choices in AD diagnosis and treatment.

**Keywords:** *Alzheimer's disease, machine learning, Explainable Boosting Machine.*

## HIERARCHICAL CLUSTERING ANALYSIS OF CANCER INCIDENCE ACROSS INDIAN STATES

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St. Joseph's College (Arts & Science), Kovur, Chennai

<sup>2</sup>Associate Professor, Department of Computer Applications,  
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### **Abstract:**

This research paper attempts to identify and applied hierarchical clustering techniques to analyze cancer incidence rates across Indian states and union territories (UTs) from 2016 to 2021 using Single, Complete, Average, and Ward's linkage methods. The dataset, compiled from national health registries and hospital records, includes state-wise cancer cases reported over six years, providing insights into regional disparities. The analysis groups states into high, moderate, and low cancer incidence clusters, with Ward's linkage demonstrating the most distinct classification. States like West Bengal, Maharashtra, and Uttar Pradesh exhibit high cancer incidence rates, while lower case numbers are observed in states such as Sikkim and Arunachal Pradesh. Dendrograms and heatmaps highlight geographical variations, guiding public health policymakers in optimizing cancer prevention strategies. The objective of this study is to classify Indian states based on cancer incidence rates and identify regional patterns for improved healthcare resource distribution. Key parameters considered include annual cancer cases per state, with clustering performed using various linkage methods for comprehensive analysis. The results have significant medical implications, assisting in identifying high-risk regions, optimizing cancer screening programs, and improving healthcare policies. These findings can enhance early detection strategies, improve access to cancer treatment, and contribute to more effective public health initiatives across India.

**Keywords:** *Cancer Incidence, Hierarchical Clustering, Indian States, Linkage Methods, Disease Burden, Public Health Analysis*

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## EVALUATING THE IMPACT OF QUANTUM COMPUTING ON MODERN CRYPTOGRAPHIC SYSTEMS: THREATS, CHALLENGES, AND POTENTIAL COUNTERMEASURES

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### Abstract:

Quantum computing is advancing rapidly, offering new possibilities across various sectors but also creating significant challenges for cybersecurity. Traditional encryption methods like RSA and ECC rely on the complexity of mathematical problems such as integer factorization and discrete logarithms—to secure data. These problems are difficult to solve using classical computers, ensuring the security of sensitive information. However, quantum algorithms, particularly Shor's algorithm, can solve these problems much more efficiently, which poses a direct threat to the security of widely-used cryptographic systems. Shor's algorithm, in particular, can break the underlying principles of RSA and ECC by quickly solving integer factorization and discrete logarithms, respectively. This capability threatens not just the confidentiality of data but also the integrity of secure communications, online transactions, and authentication systems that rely on these protocols. As quantum computing technology matures, the ability of quantum computers to break current encryption methods becomes a growing concern for securing digital infrastructure globally. To address this, it is crucial for the cybersecurity community to begin adopting quantum-resistant cryptographic techniques. Research into post-quantum cryptography (PQC) is already underway, focusing on developing new encryption systems that can withstand attacks from quantum computers. By proactively implementing these solutions, we can ensure that digital systems remain secure and maintain privacy even in a post-quantum world. This forward-thinking approach will be vital in maintaining cybersecurity in the coming era of quantum computing.

**Keywords:** *Quantum Computing, Cybersecurity, Shor's Algorithm, Post-Quantum Cryptography, Code-Based Encryption, Quantum-Safe Encryption, Cryptographic Security.*

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## USING MACHINE LEARNING ALGORITHMS TO PREDICT THE PREVALENCE OF CARDIOVASCULAR DISEASES

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Bharath Institute of Higher Education and Research, Chennai.

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### **Abstract:**

Cardiovascular diseases (CVDs) remain a leading cause of death worldwide, highlighting the need for early prediction and intervention. Machine learning (ML) techniques, including decision trees, support vector machines (SVM), neural networks, and ensemble methods, offer valuable tools for analyzing patient data to identify risk factors and predict the likelihood of CVD events such as heart attacks, strokes, and hypertension. These models enable healthcare providers to initiate early interventions, optimize resource allocation, and enhance decision-making through predictive insights. While challenges such as data quality, privacy concerns, and model interpretability persist, the ongoing advancement of ML and AI technologies holds significant potential to revolutionize cardiovascular healthcare, improving preventive care, reducing healthcare costs, and enhancing patient outcomes.

**Keywords:** *Cardiovascular Diseases, Machine Learning, Predictive Modeling, Risk Factors, Early Intervention, Healthcare Costs, Patient Outcomes*

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**ARTIFICIAL INTELLIGENCE IN CYBERSECURITY:  
TRANSFORMING THREAT DETECTION AND RESPONSE.****Dr S.KONGUVEL**Assistant Professor, St. Joseph's College (Arts & Science), Chennai

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**Abstract:**

Artificial Intelligence (AI) has become essential in modern cyber security, enhancing threat detection and response capabilities. As cyberattacks grow in frequency and complexity, AI, through Machine Learning (ML) and Deep Learning (DL), provides powerful tools to analyse large datasets and detect suspicious patterns, enabling real-time anomaly detection. These technologies offer faster, more accurate responses than traditional methods. AI continuously learns and adapts to new cyber threats, improving detection and response autonomously. Automated systems can swiftly mitigate attacks, isolating compromised devices or blocking malicious traffic, reducing damage. Despite challenges like data privacy and algorithmic bias, AI is crucial for building adaptive, scalable security systems in an evolving cyber defence landscape.

**Keywords:** *Artificial Intelligence, Cybersecurity, Threat Detection, Machine Learning, Automated Response.*

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**BLOCKCHAIN FOR CLOUD SECURITY ENHANCING DATA  
INTEGRITY AND ACCESS CONTROL**

**Mrs. S. SRIMATHY**

Assistant Professor, Department of Computer Applications  
St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

Blockchain technology is revolutionizing cloud security by enhancing data integrity, access control, and transparency. This paper explores how blockchain fortifies cloud environments against cyber threats, introduces models for secure cloud data management, and presents algorithms and mathematical formulations to reinforce security. Additionally, it includes diagrams to illustrate key concepts and real-world applications of blockchain in cloud security.

**Keywords:** *Blockchain, Cloud Security, Data Integrity, Cryptographic Hashing, Smart Contracts, Access Control, Proof of Work, Proof of Stake, Consensus Mechanisms, Zero-Knowledge Proofs*

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**IDENTITY CRISIS IN TONI MORRISONS TAR BABY****E. JENIFER**Assistant Professor, Department of English  
St. Joseph's College Arts and Science, Kovur, Chennai.

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**Abstract:**

In Toni Morrison's *Tar Baby*, the theme of identity crisis is intricately explored through the characters' conflicts with their sense of self, cultural heritage, and societal expectations. Central to the novel is the character of Jadine, a young Black woman raised in privilege and educated in Western ideals, who faces a profound crisis of identity as she struggles to reconcile her African roots with the dominant white culture she inhabits. Her relationship with Son, a man more deeply connected to his ancestral Black heritage, highlights this clash between modernity and tradition. As Jadine grapples with her place within the complexities of race, class, and gender, she finds herself torn between her desire for social acceptance and the rejection of her cultural origins. She has faced so many problems both physically and psychologically within her community, Morrison examines how identity is shaped by the character's historically in *Tar Baby*. It ultimately explores the difficulty of achieving self-realization in a world that seeks to define individuals based on external categories, illustrating the broader implications of cultural displacement and the search for authenticity in a fractured society.

**Keywords:** *Identity Crisis, Cultural Identity, Race and Class, Black Identity, Racial Stereotypes, Gender and Identity, Societal Expectations, Internal Conflict and Cultural Conflict.*



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**AN ECO-CRITICAL STUDY OF POEMS OF AMBAI  
SHERYL. G**

Assistant professor, Department of English,  
St. Joseph's College (Arts & Science)

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**Abstract:**

This paper presents an eco-critical analysis of the literary works of C.S. Lakshmi, known by her pen name Ambai, a prominent Tamil writer and feminist. While Ambai's narratives predominantly explore themes of gender, identity, and societal structures, an eco-critical perspective reveals a profound intertwining of human experiences with the natural world. Her stories often depict the symbiotic relationship between characters and their environments, highlighting how ecological elements influence cultural and personal identities. By examining selected works, this study elucidates how Ambai employs natural motifs not merely as backdrops but as integral components that shape narratives and character development. This approach underscores the necessity of recognizing ecological contexts within literary discourse, advocating for a more nuanced understanding of the interconnectedness between humanity and nature in contemporary literature.

**Keywords:** *Ambai, eco-criticism, Tamil literature, nature, human-nature relationship.*

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**GENDER VIOLENCE IN *GANGUBAI KATHIAWADI*: ANALYZING  
DEPICTIONS, TRAUMA, AND SOCIAL IMPLICATIONS**

**Dr. JOHN ILAVARASU Y.**

Assistant Professor of English, Agurchand Manmull Jain College, Meenambakkam -61.

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**Abstract:**

Cinematic narratives often serve as powerful mediums for portraying gender violence, reflecting and shaping societal attitudes. *Gangubai Kathiawadi*, directed by Sanjay Leela Bhansali, presents a stark depiction of gender violence and trauma through the real-life story of Gangubai Kothewali, a formidable figure in Mumbai's Kamathipura. This study applies feminist film theory, trauma theory, and sociological analysis to examine how the film portrays violence as both an instrument of subjugation and a catalyst for agency. It further investigates the representation of marginalized women's struggle for identity and autonomy, highlighting the film's broader implications for societal perceptions of gender violence and female empowerment.

**Keywords:** *Gender violence, trauma, feminist film theory, sociocultural analysis, empowerment, oppression, identity, autonomy, cinematic representation.*

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**NATURE VS. CULTURE: ECOLOGICAL REVERBERATIONS IN  
ROBERT PENN WARREN'S *THE FLOOD***

**Dr.K.SRIVIDHYA**

Assistant Professor, Department of English,  
Anna Adarsh College for Women, Anna Nagar, Chennai-40

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**Abstract:**

Eco-critical study has become a popular genre in recent literary trends. The opposition and the lack of connection between culture and nature have led to the degradation and destruction of the living environment. 'Man is an integral part of culture.' He exploits the natural environment to live a comfortable life, and in exchange, he doesn't give anything back to nature. It results in huge devastation for both human societies and nature. This research study focuses on environmental issues caused by men in Robert Penn Warren's *The Flood*. The story has the baseline of the devastating flood that has inundated Tennessee. The construction of the dam causes not just the havoc of the flood, but it is more than that: the thought of losing a rich heritage. Brad Tolliver, the protagonist, arrives at his hometown in Tennessee. He hears the news that a dam is to be constructed to produce electricity. This causes panic in the minds of people. The cultural heritage is completely wiped out because of modern ideologies. This research paper explores the destruction caused to the people of Tennessee and how their lives are disrupted by the intervention of modern advancement.

**Keywords:** *Environment nature, modern era, ecology and culture.*

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**A REFLECTION OF HUMAN ENDURANCE AND SOCIETAL  
INDIFFERENCE IN PREMCHAND'S 'THE SHROUD'****Ms.P. PEARL FEMINA**Assistant Professor, Department of English, St. Joseph's College Arts & Science

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**Abstract:**

Premchand's short story, "The Shroud" is a profound exploration of human endurance amidst Societal indifference. Through the narrative of Ghisu and Madhav, Premchand presents a stark portrayal of poverty, social injustice, and the inherent resilience of human beings. This paper examines how Premchand's storytelling encapsulates the struggles of the marginalized and critiques the societal structures that perpetuate their suffering. Premchand's characters, Ghisu and Madhav, embody the essence of human endurance. Despite their desperate poverty and lack of basic necessities, they continue to survive in an unforgiving world. Their endurance is not marked by heroism but by a grim acceptance of their fate. This endurance is also reflected in Budhiya's plight, who endures immense suffering in silence, ultimately succumbing to childbirth complications. The story is a scathing critique of societal indifference towards the poor. Ghisu and Madhav's actions, though morally questionable, are a direct consequence of the neglect and marginalization they face. The lack of empathy from the community and the absence of any support systems underscore the societal apathy. Premchand uses their story to highlight the broader issue of social injustice and the failure of societal structures to protect the vulnerable. The shroud itself is a powerful symbol in the story. It represents the dignity that the deceased deserve but also the lack of it that the poor suffer from. The fact that Ghisu and Madhav choose to use the money for their immediate needs rather than buying the shroud signifies a rebellion against the societal expectations and norms that have consistently failed them.

**Keywords:** *Human Endurance, Societal Indifference, Poverty, Social Injustice Marginalized Communities*

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**WOMAN AS NATURE: ECO FEMINIST READING OF KAVITA  
KANE'S *TARA'S TRUCE***

**Ms.T.ULAGANAYAKI**

Assistant Professor, Department of English,  
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**Abstract:**

The uniqueness of creation is living in harmony with Nature. The annihilation caused by humans to nature is irrevocable. Kavita Kane's, *Tara's Truce* highlights the character of Tara, the queen of Kishkinda. Her character is often overlooked in the epic Ramayana. Tara the powerful stateswoman establishes her political wisdom and resilience in the novel. In *Tara's Truce*, the Eco feminist consciousness of the protagonist is echoed in her actions. In patriarchy women subjugate and her eco feminist consciousness is vulnerable. Tara's struggles and sacrifices may have a common ground with the exploitation of nature. Kane portrays Tara's character as a healer, guiding people wisely at the time of crisis. Hierarchy can be seen in the *vanara* tribe. Vali the King whom she loves dearly gets killed by his own brother. In order to save her kingdom and restore peace she makes the great sacrifice of marrying her husband's killer. Power and position corrupt the mind. The licentious nature of Sugriv is condemned by Tara. At the same time she diplomatically handles the situation to save Sugriv and her kingdom from the wrath of Lakshman. Sushen, Tara's father proudly says that her name has the energy to ferry us across the worldly ocean. All human tribulation seemed to reduce to dust and nature became the healer. This paper navigates the concept of woman as nature with respect to ecofeminism.

**Keywords:** *Eco feminism, Patriarchy, Resilience, Hierarchy, Vulnerable.*

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## ECO-CRITICISM IN LITERATURE

BHARATHICHELLAMAL.A

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St.Joseph's College (Arts & Science)

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### **Abstract:**

Eco-criticism, an interdisciplinary field at the intersection of literature and environmental studies, examines how literary texts represent and engage with ecological concerns. This paper explores the evolution of eco-criticism, tracing its origins from Romantic nature writing to contemporary climate fiction. By analyzing key literary works, including those by William Wordsworth, Henry David Thoreau, and Amitav Ghosh, the study highlights how literature reflects environmental awareness and critiques human interactions with nature. The paper also addresses the role of literature in shaping ecological consciousness and promoting sustainable thought. Through an exploration of themes such as deep ecology, eco-feminism, and postcolonial environmentalism, this study demonstrates how eco-criticism continues to be a vital discourse in the contemporary literary landscape.

**Keywords:** *Eco criticism, literary texts, Henry David Thoreau, Amitav Ghosh, William Wordsworth.*

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**HERPETOLOGICAL APPROACH TO EMILY DICKINSON'S  
POETRY WITH REFERENCE TO HER FROG SONGS****PARAMVEER CHAHAL<sup>1</sup>, Dr. TARUN PATEL<sup>2</sup>**<sup>1</sup>Research Scholar (Humanities- English), Gujarat Technological University<sup>2</sup>Assistant Professor, Government Engineering College.

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**Abstract:**

The present research paper attempts to inspect a herpetological approach to study the poetry of Emily Dickinson, with a particular attention on her portrayal of frogs in her frogs. By analyzing the poetess's employment of frog symbolism and the incredible attributes associated with it, one can get profound grasp into the themes and poetic tools used in her poetry. Through focused analysis of selected poems, this study reveals the multifaceted interplay between Dickinson's depiction of frogs and her extended exploration of nature and the human experience. This study underscores the intricate interaction between nature, symbolism, and the complexities of existence in Dickinson's poetry, confirming her status as one of the most innovative and enigmatic voices in American literature. A Language of mysticism is created by Dickinson by exploring into the herpetological features of frogs which thereby indicates the interconnectedness of all living creatures and the possibility for transcendence within the mundane. This herpetological lens enhances our comprehension coupled with evaluation of Dickinson's poetry and emphasise the earnest beauty and complexity of her works.

**Keywords:** *Emily Dickinson, Frog Songs, Herpetological Approach, Human Experience, Nature, Symbolism, Transcendence*

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**INTERWOVEN LIVES: ECOLOGICAL CONSCIOUSNESS IN *THE OVERSTORY***

**Mrs. F. FEMINA,**

Assistant Professor, St. Joseph's College (Arts & Science), Kovur.

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**Abstract:**

Richard Powers' *The Overstory* (2018) is a profound ecological novel that intertwines human narratives with the life of trees, emphasizing the deep interdependence between nature and humanity. The novel follows nine characters whose lives are transformed by their encounters with trees, ultimately converging in environmental activism. Drawing on themes of deforestation, ecological grief, and resistance, *The Overstory* challenges anthropocentric perspectives and urges a reconsideration of human-nature relationships. This presentation explores the novel's ecological consciousness through the lens of Eco criticism, analyzing how Powers uses storytelling to advocate for environmental awareness and activism. By examining the novel's structure, symbolism, and character arcs, this study highlights *The Overstory* as a powerful narrative that redefines our ethical responsibilities toward the natural world.

**Keywords:** *Ecocriticism, Anthropocene, Environmental Activism, Deforestation, Interconnectivity.*



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**THE NATURE OF MOTHER – DAUGHTER RELATIONSHIP IN AMY  
TAN'S *THE JOY LUCK CLUB***

**S. SARASANNA DEVI<sup>1</sup>, Dr. S. ANANDH RAJ<sup>2</sup>**

<sup>1</sup>Research Scholar, Bharat Institute of Higher Education & Research

<sup>2</sup>Assistant Professor, Department of English,  
St. Joseph's College (Arts & Science)

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**Abstract:**

One of the masterpieces in Chinese American Literature is Amy Tan's *The Joy Luck Club* (1989). It explores the relationship between the mothers and their daughters who are struggling to reach balance between two worlds. This thesis analyzes the psychology of female characters as affected by oppression, patriarchy and linguistic barriers. It aims at explaining how the Chinese past of the mothers inevitably overlaps with the American present of the daughters and how storytelling can connect them after a long time of cultural clash and trials to neglect the other. Such connection enables the daughters to reconcile with their Chinese heritage. At last, they can reach a sense of self and accept their hybrid identity.

**Keywords:** *Patriarchy, Oppression, Linguistic barriers, Heritage, Cultural clash.*

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## THE ECOLOGICAL VISION OF WILLIAM WORDSWORTH'S POETRY: A CRITICAL ANALYSIS

ASWITHA.V

Assistant Professor, St. Joseph's College (Arts and Science)

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### **Abstract:**

William Wordsworth, a pioneer of Romantic poetry, is known for his deep reverence for nature and its spiritual significance. His poetry embodies ecocritical themes that explore the relationship between humans and the natural world, advocating for an organic connection. Wordsworth's works, such as "Lines Composed a Few Miles Above Tintern Abbey" and "The Prelude", emphasize nature's role as a source of wisdom, solace, and moral guidance. Through vivid imagery and personification, he presents nature as a living entity with intrinsic value. Ecocritical readings of Wordsworth's poetry highlight concerns about industrialization, environmental degradation, and the alienation of humans from nature. His work critiques the growing materialism of society and calls for a return to harmonious coexistence with the natural world. By portraying nature as both nurturing and transformative, Wordsworth prefigures modern ecological thought. This paper examines the ecocritical dimensions of Wordsworth's poetry, analyzing his portrayal of nature as a vital force that shapes human identity and ethical responsibility toward the environment. His poetic vision remains relevant in contemporary discussions on sustainability and environmental consciousness.

**Keywords:** *Ecocriticism, Romanticism, Nature, Industrialization, Environmental Consciousness, Wordsworth.*

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**VOICING THE VOICELESS: THE PORTRAYAL OF WOMEN IN  
SIVAKAMI'S NOVEL PAZHAYANA KAZHITHALUM**

**Mr. RAJESH KUMAR S**

Assistant Professor, Department of English,  
St. Joseph's College (Arts & Science),  
Kovur- Chennai- 600 128

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**Abstract:**

This paper throws light on the origin of gender issues by discussing caste and class-based society through Pazhayana Kazhithalum. It focuses the reader's attention on contemporary issues of caste, class and gender, and proves how they are interlinked. It also establishes the fact that the liberation of Dalit women can be seen only in the abolition of caste oppression. The paper also proves how the hierarchy and power of traditional institutions produce people who are mutilated. But at the same time, Sivakami ends her novel with a ray of hope, suggesting that without a change in the consciousness of the people, no social transformation would be to set women free. The hierarchal pattern of relationships should be discarded or replaced by a new pattern of social relationships where both men and women are equal.

**Keywords:** *Caste, Class, Gender, Oppression, Hierarchy*

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## **ADAPTING ECO PEDAGOGY TO FOSTER ENVIRONMENTAL AWARENESS IN CLASSROOMS**

**ALLAN MESHACK. J**

Assistant Professor, Department of English,  
St. Joseph's College (Arts & Science), Kovur, Chennai.

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**Abstract:**

As global environmental challenges intensify, the need for a proactive and informed citizenry becomes increasingly critical. The study focuses on the effectiveness of environmental education programs in schools as catalysts for instilling environmental awareness, fostering a sense of responsibility, and cultivating sustainable behavior in young minds. Through a comprehensive literature review, the research explores the theoretical foundations of environmental education and its potential impact on behavior change. Through extensive study of the existing literature, the research aims to identify effective strategies and best practices employed in successful environmental education programs. The findings of this study contribute valuable insights to the broader discourse on education for sustainable development, offering practical recommendations for educators, policymakers, and curriculum designers. Ultimately, the research seeks to enhance our understanding of how environmental education can empower the next generation to become active stewards of the environment, promoting a sustainable future for generations to come.

**Keywords:** *Environmental education, Sustainable behavior, School children, Curriculum integration.*

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**REDEFINING HUMANITY: CYBORG IDENTITY AND THE FUSION  
OF ORGANIC AND MECHANICAL IN WILLIAM GIBSON'S  
*NEUROMANCER*.**

**Mr. M. VINITH**

Assistant Professor of English, Agurchand Manmull Jain College, Meenambakkam -61.

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**Abstract:**

William Gibson's *Neuromancer* (1984) is a foundational work in the cyberpunk genre, introducing a world where technology and humanity coalesce in forms previously relegated to science fiction. At the heart of this work lies a significant exploration of cyborg characters—humans augmented with technology, blurring the lines between organic and mechanical. This paper examines how cyborg characters in *Neuromancer* embody and challenge traditional notions of identity, agency, and humanity. Through the analysis of key characters such as Case and Molly, this study argues that Gibson's work portrays cyborg identities not only as adaptive responses to a technologically advanced world but also as embodiments of new, fluid conceptions of human nature.

**Keywords:** *Cyborg identity, cyberpunk, technology and humanity, agency, post humanism.*

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**IMPLEMENTATION OF ORIENTALISM IN CORMAC  
MCCARTHY'S *ALL THE PRETTY HORSES***

**A.JOSHUA SUNDAR RAJA**

Assistant Professor, Department of English,  
St. Joseph's College (Arts & Science), Kovur, Chennai.

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**Abstract:**

Edward Said's concept of Orientalism refers to the Western depiction and construction of "the Orient" (typically referring to the Middle East, Asia, and North Africa) as exotic, backward, and fundamentally different from the West. While Cormac McCarthy's *All the Pretty Horses* is set primarily along the U.S.-Mexico border and in Mexico, the novel still engages with Orientalist themes, albeit in a different geographical and cultural context. Instead of the traditional East-West dichotomy, McCarthy's novel explores a North-South dynamic between the United States and Mexico. Here's how Orientalism can be applied to *All the Pretty Horses*.

**Keywords:** *Orientalism, East – West Dichotomy, North – South Dynamic, geographical and cultural context.*

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**ECONOMIC INEQUALITY AND ENVIRONMENTAL JUSTICE IN  
JOHN STEINBECK'S *THE GRAPES OF WRATH*  
IYYAPPAN. R**

Assistant professor, St. Joseph's College (Arts & Science)

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**Abstract:**

Economic Inequality and Environmental Justice in John Steinbeck's the Grapes of Wrath"

John Steinbeck's *The Grapes of Wrath* explores the interconnected themes of economic inequality and environmental justice through the struggles of migrant farmers during the Great Depression. The novel highlights systemic economic oppression, where corporate landowners and banks displace small farmers, leading to widespread poverty and exploitation of labor. At the same time, the Dust Bowl disaster, exacerbated by unsustainable agricultural practices, disproportionately impacts the poor, demonstrating how environmental crises often harm marginalized communities the most. Steinbeck critiques a system where wealth and resources are concentrated among the few while the majority suffer. Through the Joad family's journey, the novel reveals the enduring consequences of economic disparity and environmental degradation, making it a relevant commentary on contemporary issues of labor rights, climate justice, and corporate greed.

**Keywords:** *Economic inequality, Environmental Justice, Oppression, Unsustainable, Agriculture.*

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**PROBLEMS IN TAMIL NADU TOURISM WITH REGARD TO  
FOREIGN TOURISTS  
MOHAMMED AFSAR ALI**

Assistant Professor, Department of Hotel Management,  
St Joseph College of (Arts & Science), Kovur, Chennai

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**Abstract:**

Tamil Nadu, one of India's most culturally rich and diverse states, attracts a significant number of foreign tourists annually. The state's historical monuments, religious sites, serene beaches, and rich traditions make it a prime destination for international travellers. However, there are several challenges that hinder its full potential in tourism, particularly with regard to foreign tourists. **Infrastructure and Accessibility**, while Tamil Nadu boasts some well-known tourist destinations, its infrastructure remains inadequate in many areas. Poor road connectivity, lack of proper signage, and underdeveloped airports and railway stations can make travel difficult for international tourists. **Safety Concerns**, Issues regarding safety, especially for women travellers, remain a pressing concern. Reports of harassment, petty crimes, and a lack of tourist police presence in certain areas contribute to the perception that Tamil Nadu may not be entirely safe for foreigners. **Language Barrier** The language barrier is a significant issue for foreign tourists, as Tamil is the dominant language in the state, and English, though widely spoken, is not always understood in remote areas. This impedes effective communication, creating a challenging environment for foreign visitors. **Limited Tourism Awareness** Many foreign tourists are unaware of the full range of attractions Tamil Nadu offers. While global tourism marketing strategies have targeted popular spots like Chennai, Madurai, and Ooty, many less-known, yet equally stunning sites remain untapped. **Visa and Bureaucratic Processes** Delays in obtaining visas and complicated bureaucratic processes can discourage foreign tourists from visiting Tamil Nadu. While efforts have been made to streamline this, there are still barriers in the process that could hinder the growth of inbound tourism. Addressing these issues would require focused efforts on improving infrastructure, ensuring safety, enhancing language support, promoting lesser-known attractions, and implementing eco-friendly practices. By tackling these challenges, Tamil Nadu could significantly improve its appeal as a top destination for foreign tourists.

**Keywords:** *International travelers, Tamil Nadu, Language barrier, Visa*



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## **EFFECT OF STRAWBERRY YOGHURT SUPPLEMENTATION ON THE HEALTH PROGNOSIS OF HIV POSITIVE CHILDREN**

**Mrs. STEFFI J JERLIN**

Assistant Professor, Department of Hotel and Catering Management  
St. Joseph's College, Kovur

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### **Abstract:**

**Background:** Since the first documented AIDS deaths in 1981, HIV disease has grown into a global epidemic known as pandemic that profoundly affects individuals and their interpersonal relationship throughout the human lifecycle. Yoghurt as a probiotic is significantly associated with health of people with HIV.

**Objective:** This research paper assesses the outcome of supplementation of Strawberry Yoghurt on the immunological and hematological function of the HIV positive children and the impact of nutrition education on them and their caretakers.

**Method:** An experimental design was employed with sub sample of 20 subjects between the age of 6-12yrs, assigning 10 subjects for the experimental group which received strawberry yoghurt supplementation for a period of 60 days and 10 subjects in control group with no supplementation. Anthropometric measurements and immunological and hematological parameters including CD4 count, CD%, hemoglobin, hematocrit, total RBC, Total platelet, MCV, MCH, MCHC, WBC count, TLC, Neutrophils, lymphocytes, monocytes, eosinophils, basophils were documented.

**Results:** The study indicate that the CD4 count of the experimental group was significantly higher ( $p < 0.01$ ) at the end of the study period when compared to the control group.

**Conclusion:** The findings suggest that strawberry yoghurt supplementation may be a sustainable approach to improve immunological function in children with HIV.

**Keywords:** *HIV Positive children, AIDS, Probiotic, Strawberry Yoghurt, CD4 count, Immunology*

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**MACHINE LEARNING IN BIOTECHNOLOGY ITS PREDICTIVE MODELLING  
FOR DRUG TARGET IDENTIFICATION****T. JERIN SALES**Assistant Professor, Department of Biotechnology,  
St. Joseph's College (Arts & Science), Kovur, Chennai 600 128.

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**Abstract:**

Research in biotechnology uses machine learning (ML) to discover drug targets at faster rates during drug discovery processes. Traditional drug development techniques take a very long time and fight expensive drug creation efforts which demand many years of experimental verification. ML-based predictive modelling helps pharmaceutical companies perform fast drug candidate assessments to develop better lead compounds while decreasing the number of clinical failures during early development. Developing biological knowledge requires the evaluation of deep learning and support vector machines (SVM) with random forests as analysis methods. The prediction of drug-target interactions achieves higher accuracy through ML models which process vast data obtained from genomics and proteomics and cheminformatics. The identified therapeutic targets through these models demonstrate significant value in detecting suitable targets for treating breast cancer along with lung cancer and neurodegenerative conditions including Parkinson's disease and Alzheimer's disease and infectious illnesses including COVID-19 and tuberculosis metabolic disorders including diabetes and obesity. The implementation of ML algorithms for drug discovery depends heavily on managing data quality while minimizing prejudice in the datasets. Data integration between screening platforms with docking models and networking strategies strengthens predictive models. XAI methods advance explanation in biomedical systems by providing researchers effective ways to interpret AI predictions. Recent breakthroughs including Alpha Fold protein structure calculations with generative adversarial networks (GANs) used for creating new molecules have established the top roles that Artificial Intelligence can play in medicinal drug development. These innovations create a path toward various medicine applications that include biomarker search and innovative therapeutic innovations. Drug discovery experiences a revolutionary transformation through machine learning because the technology improves both drug target identification efficiency and its accuracy levels. The future of healthcare AI research should concentrate on achieving better model performance while combining multi-omics information and solving fundamental ethical questions about AI technology in medicine.

**Keywords:** *Machine Learning, Drug Discovery, Bioinformatics, Cancer, Infectious Diseases*

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**MACHINE LEARNING-BASED CLASSIFICATION OF MICROBIAL STRAINS: A COMPARATIVE STUDY OF DECISION TREE AND RANDOM FOREST MODELS**

**<sup>1</sup>ANITHA JOICE A and <sup>2</sup>MANIMANNAN G.**

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St. Joseph's College (Arts & Science), Kovur, Chennai -600 128.

<sup>2</sup>Associate Professor, Department of Mathematics  
St. Joseph's College (Arts & Science), Kovur, Chennai - 600 128.

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**Abstract:**

Accurate identification of microbial strains based on their biochemical and genomic characteristics is essential for applications in biotechnology, environmental science, and industrial microbiology. This study employs a comprehensive microbial strain database that includes key attributes such as Strain ID, Species Name, Genus, Genome Size (Mb), GC Content (%), Habitat, Toxin Production, Chlorophyll Content (mg/L), Carotenoid Content (mg/L), and Sample Location. The dataset, sourced from [mention source, e.g., NCBI, Environmental Microbiology Lab, or any specific repository], represents a diverse collection of microbial strains from various ecological environments. The primary objective of this research is to classify microbial strains based on their biological attributes using machine learning techniques. Two supervised classification models, Decision Tree and Random Forest, were implemented to evaluate their effectiveness in microbial strain classification. The Random Forest model achieved an accuracy of 93%, surpassing the Decision Tree model (89%). Model performance was assessed using precision, recall, and F1-score across three microbial categories: non-toxin-producing strains, moderate toxin/pigment-producing strains, and high toxin/pigment-producing strains. The Random Forest model demonstrated superior recall (0.97) for moderate toxin-producing strains, making it the more robust classification method. To visualize model performance, confusion matrices and classification performance plots were utilized. The results underscore the effectiveness of machine learning in microbial classification, offering a reliable approach for identifying strains with industrial and ecological significance. Future research can integrate deep learning techniques to enhance classification accuracy and strain differentiation.

**Keywords:** *Microbial Classification, Machine Learning, Decision Tree, Random Forest, Toxin Production, Pigment Analysis*

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**ALOE VERA AND PSIDIUM GUAJAVA LEAVES EXTRACT GREEN  
SYNTHESIS OF SILVER-TITANIUM DIOXIDE NANOPARTICLES  
USING AND IT'S ANTIBIOFILM ACTIVITY**

**U. BOOMINATHAN<sup>1</sup>, V.P. LAKSHMIPRIYA<sup>2</sup>**

<sup>1</sup>Department of Biotechnology,  
St. Joseph College (Arts & Science), Chennai, Tamil Nadu, India

<sup>2</sup>Department of Microbiology,  
Sri Narayana Guru College, Coimbatore, Tamil Nadu, India.

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**Abstract:**

This research focuses on the biosynthesis of silver-titanium dioxide (Ag-TiO<sub>2</sub>) nanoparticles using *Aloe vera* and *Psidium guajava* leaf extracts as natural reducing agents. The synthesized nanoparticles were characterized using UV-Vis spectrophotometry, FTIR spectroscopy, XRD, and SEM analysis. The findings revealed that the silver and titanium dioxide nanoparticles were predominantly spherical, with an average size ranging from 80 to 100 nm and 130 to 210 nm, respectively, as observed under SEM. These nanoparticles were incorporated into an epoxy resin polymer matrix and coated onto glass petri dishes, imparting photobactericidal properties. The antibacterial effectiveness was evaluated against biofilm-forming microorganisms, *Staphylococcus aureus* and *Escherichia coli*, using the crystal violet binding assay. The results demonstrated approximately 85% biofilm inhibition in Epoxy/Ag-TiO<sub>2</sub> nanocomposites, suggesting that the effective dispersion and controlled release of biocidal agents played a key role in their antibiofilm activity. This study highlights the potential of silver-titanium dioxide (Ag-TiO<sub>2</sub>) nanoparticles synthesized using *Aloe vera* and *Psidium guajava* leaf extract as effective antibiofilm agents against *S. aureus* and *E. coli*.

**Keywords:** Green synthesis, Ag-TiO<sub>2</sub> NPs, Anti- Biofilm Activity, Biocidal Agents

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**PHYTOCHEMICAL ANALYSIS, ANTIBACTERIAL AND  
ANTIOXIDANT PROPERTIES OF *TABERNAEMONTANA*  
*DIVARICATE***

**K. PRIYA**

Assistant Professor, Department of Biotechnology,  
St. Joseph's College (Arts & Science), Chennai, Tamil Nadu, India.

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**Abstract:**

*Tabernaemontana divaricata* (TD), a member of the Apocynaceae family, is known for its traditional medicinal applications, including anti-inflammatory, antioxidant, and antimicrobial properties. To assess its bioactive potential, a phytochemical analysis was conducted, revealing the presence of secondary metabolites such as saponins, alkaloids, phenolic compounds, flavonoids, acetylcholinesterase, carbohydrates, proteins, and amino acids. The antibacterial efficacy of TD flower extracts was tested against both Gram-positive (*Bacillus* sp., *Streptococcus* sp., and *Staphylococcus aureus*) and Gram-negative bacteria (*Escherichia coli*, *Klebsiella* sp., and *Pseudomonas* sp.) using extract concentrations of 25, 50, 75 and 100 mg/ml. Among these, the 75 mg/mL aqueous extract exhibited notable antibacterial activity. Additionally, due to its strong antioxidant properties, a DPPH assay was conducted to evaluate its free radical scavenging potential. Future studies will focus on formulating and assessing the wound-healing efficacy of a standardized ethanolic TD leaf extract in experimental wound models using guinea pigs, following a design of experiment approach.

**Keywords:** *Phytochemicals, Antibacterial, Antioxidant, Metabolites, Medicinal*

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**PRODUCTION AND OPTIMIZATION OF LIPASE ENZYME FROM BACTERIAL STRAINS ISOLATED FROM OIL INDUSTRY WASTE****Dr.AJI JOVITHA A.T<sup>1</sup>, Dr.DEIVASIGAMANI B.<sup>2</sup>**<sup>1</sup>Assistant Professor, St. Joseph's College (Arts & Science),  
Kovor, Chennai, Tamil Nadu, India.<sup>2</sup>Associate Professor, Centre for Advanced Studies in Marine Biology,  
Faculty of Marine Sciences, Annamalai University, Parangipettai, Tamil Nadu, India.

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**Abstract:**

Lipases are a significant hydrolytic protein with various applications and mechanical potential. The current investigation intended to create lipase enzyme from bacterial strain. Bacterial strain was segregated from oil industry waste by serial dilution method. Olive oil was utilized as the substrate in tween agar medium for screening and showed the zone of action in five of those bacterial strains. Under lowered maturation conditions, a significant degree of lipase enzyme was found at 37 C with pH  $6.0 \pm 0.5$ . The presence of 3% sucrose and 5% yeast separate in the medium improved chemical creation when contrasted and other carbon and nitrogen sources. Synthesized lipases were partially purified by 40–60% (w/v) ammonium sulfate precipitation technique followed by dialysis. The molecular weight of the partially purified lipase was assessed to be 43–66 kDa by SDS-PAGE.

**Keywords:** *Lipase, Bacterial strains, submerged fermentation, Optimization process, SDS-PAGE analysis*

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## STARCH -BASED BIOPLASTICS: A GREEN SUSTAINABLE ALTERNATE

\*NANDITA JENA<sup>1</sup>, TUSHAR DAS<sup>2</sup> and CHINMAYA S.PATTNAIK<sup>3</sup>

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<sup>2</sup> PhD Scholar, Biotechnology and Biochemical Engineering, IIT, New Delhi

<sup>3</sup> PhD Scholar, Dept. of Crop Physiology, IAS, SOA DU, Bhubaneswar, Odisha

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### **Abstract:**

Non-degradable plastics now found in the water sources, soil and air in the form of micro plastics and contaminating the environment. Ultimately these toxic plastic wastes accumulated in both fresh and marine aqua-bodies, as it is easily palatable by aquatic inhabitants, even in case of grazing animals in the terrestrial lands, creating serious health hazards. Certainly, to reduce toxic plastic waste contamination, use of bioplastics is more acceptable presently due to its nontoxic, biodegradable and eco-friendly nature. Starch - based bioplastics mostly produced from plant derived natural sources such as corn, potato, rice, agar, cassava, arrowroot, taro, sweet potato, jack fruit, banana, avocado etc. Quality of bioplastics varied according their tensile strength, elongation break, moisture content, WVTR, solubility in water. Sago starch + 25% pectin (75:25) resulted maximum tensile strength and elongation at break (%) was resulted 10.32mpa and 186.1% respectively, but declined when protein composition was increased in Sago + 50% pectin(50:50) to 4.01 mpa and 8.11% respectively against the control as Sago starch (100:0) with 2.45mpa and 100.89% respectively. But compared to 25% protein, Sago starch + 50% protein showed less WVTR (17.03g/m<sup>2</sup>/Day) and moisture content (8.81%) than 25% protein over control. Solubility % increased with moisture content. Hence, the quality, strength, durability and self-life of materials depend on source material and types of plasticizer proportion used in bioplastic preparation along with other physico-chemical properties, which is no doubt a sustainable alternative against plastic pollution.

**Keywords:** *Bioplastics, Plasticizer, Starch, Sago, Tensile Strength, WVTR*

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**ASSESSMENT OF LAND USE/LAND COVER CHANGE DETECTION  
BY USING REMOTE SENSING TECHNIQUES: NOYYAL  
WATERSHED IN COIMBATORE DISTRICT, INDIA.****<sup>1</sup>MADHUMITHA G. and <sup>2</sup>LIKETHA**

<sup>1</sup>Assistant Professor, Department of Biotechnology,  
St. Joseph's College (Arts & Science), Kovur, Chennai  
2. Research Scholar, Department of Environmental Science,  
PSG College of Arts & Science, Coimbatore

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**Abstract:**

The land use and land cover study (LULC) play an essential role in natural resource management to develop sustainable development in vegetation changes, water quantity and quality, land resources, and coastal management. Remote sensing and GIS technologies could efficiently use to analyse the changes occurred in study area. Post classification comparison-based change detection method was used to identify the changes in LU/LC. The study shows an increase in compact built-up and industrial areas and a decrease in agricultural land, wetlands, and water bodies over the past decade. The unsupervised classification method was done by using an iterative self-organizing data analysis algorithm to compare the images and to classify the images into various land cover categories. Kappa statistics were used to assess the validation of the present study. The analysis suggests the total forest covered in 1999 was 22.69% and that of 2008 was 24.04% and reduced to 6.09%, in 2017. The agricultural land of 17.8% is reduced to 3.11% in 2008 and 0.86% in 2017. The settlements increased from 15.59 to 24.21% in 2008 and 27.14% in 2017. Increase in deforestation leads to increase in barren land. In 1999, the percentage of barren land was 17.2%; in 2008, it was 13.19%, and 50.93% in 2017.

**Keywords:** *LULC, Watershed, Deforestation, Coimbatore, Post Classification, Unsupervised Classification, Kappa statistics*



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## **REVIEW: VERMICOMPOST AND ITS MULTIDIRECTIONAL APPLICATIONS**

**Dr .R. SABARISH,**

Assistant Professor, Department of Biotechnology,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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### **Abstract:**

Vermicomposting is described as "oxidation of biological material and stabilization of organic material involving the synergy action of earthworms and microorganisms". Under appropriate conditions, worms eat agricultural waste and reduce the volume by 40 to 60%. Vermicompost produced by the activity of earthworms is rich in essential nutrients, vitamins, plant hormones, enzymes such as proteases, amylases, lipase, cellulose and chitinase and immobilized microflora. Conventionally vermicompost is used provide nutrients to the soil and their by enhance the soil fertility and act as a soil conditioner. It is excellent source of humus and plant nutrients, on application of which improve soil physiochemical properties and organic status of soil. Normally vermicomposting is used in the field of agriculture, but this review focusses on the multidisciplinary uses of vermicomposting. This review assesses the following topics: earthworm, vermicomposting, microbiology of vermicomposting, effect of vermicomposting in biomedical waste management, bio control action of vermicomposting against plant pathogens, biodegradation of industrial waste by vermicomposting. This review attempts to increase awareness on waste recycling management to create an eco-friendly environment.

**Keywords:** *Earthworm, Vermicomposting, Waste Management, Multidirectional Application*

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## GEOSPATIAL CLASSIFICATION OF DENGUE CASES IN INDIAN STATES AND UNION TERRITORIES USING MACHINE LEARNING

<sup>1</sup>CATHERINE REXY. D and <sup>2</sup>MANIMANNAN. G.

<sup>1</sup>Assistant Professor in Biostatistics, Department of Community Medicine,  
Karpaga Vinayaga Institute of Medical Sciences & Research Centre, Madhurandhagam,  
Chengalpattu District, Tamil Nadu.

<sup>2</sup>Associate Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Chennai.

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### Abstract:

This study to evaluate the dengue fever remains a significant public health concern in India, with its incidence varying across states and union territories. This study analyzes the geographical distribution of Dengue cases and fatalities using machine learning techniques for classification and cross-validation. Data spanning from 2015 to October 2021 was sourced from the National Vector Borne Disease Control Program (NVBDCP). The study employs key parameters are total affected cases, total death cases, and an additional variable are to categorize regions as high or low-risk areas. Classification models achieved an accuracy rate exceeding 91%, with a 9% misclassification due to data inconsistencies. High-burden states include Gujarat, Karnataka, Kerala, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, West Bengal, and Delhi, whereas lower-incidence regions encompass several northeastern states and union territories. The study further integrates spatial maps and bar charts for visualizing Dengue patterns, highlighting a rising trend between the years 2015-2017, followed by stabilization in certain regions. These findings provide valuable insights for public health interventions and vector control strategies.

**Keywords:** *Dengue, Machine Learning, Geospatial Analysis, Classification, Disease Mapping, Public Health*

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**MULTIVARIATE ANALYSIS OF HEALTH DETERMINANTS IN  
MENOPAUSAL WOMEN: A STATISTICAL APPROACH USING  
MULTIVARIATE ANALYSIS OF VARIANCE****<sup>1</sup> D. FLORA EVANGIL AND <sup>2</sup> MANIMANNAN G. and <sup>3</sup> R. LAKSHMI PRIYA**<sup>1</sup>Assistant Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Kovur, Chennai<sup>2</sup>Associate Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Kovur, Chennai<sup>3</sup>Assistant Professor, Department of Statistics,  
Dr. Ambedkar Govt. Arts College (Autonomous), Vyasarpadi, Chennai

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**Abstract:**

Menopause is a significant physiological transition in women, often associated with various health risks. This study employs Multivariate Analysis of Variance (MANOVA) to examine the impact of demographic, socio-economic, and clinical factors on menopausal women using health-related data from private and government hospitals in Chennai. The MANOVA results indicate no statistically significant group differences, as evidenced by Wilks' lambda ( $p = 0.2353$ ). However, Roy's greatest root suggests a potential influence of certain health parameters ( $F = 11.4363$ ,  $p = 0.0836$ ). Despite the non-significant overall results, exploratory visualizations, including boxplots and density plots, reveal trends in thyroid function, hemoglobin levels, BMI, and cardiovascular risk factors. These findings emphasize the need for further investigation into specific health determinants influencing menopausal well-being and call for targeted healthcare interventions.

**Keywords:** *Menopause, Multivariate Analysis, MANOVA, Women's Health, Body Mass Index, Thyroid Function and Cardiovascular Risk*

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**VERTEX PRIME LABELING OF MULTICYCLE GRAPHS****EZHIL.A<sup>1</sup> and REKHA. D<sup>2</sup>**<sup>1</sup> Assistant Professor, Department of Mathematics,  
T.K.G. Arts College, Vridhachalam, TamilNadu, India.<sup>2</sup> Research Scholar, Department of Mathematics,  
T.K.G. Arts College, Vridhachalam, Tamil Nadu, India.

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**Abstract:**

A Graph  $G = (V, E)$  with 'p' vertices and 'q' edges is said to be a vertex prime labeling if for each vertex of degree at least two, the greatest common divisor of the labels on its incident edges is one. A Graph  $G$  which admits a vertex prime labeling is called a vertex Prime Graph. In this paper we investigate the vertex prime labeling of Multicycle Graphs  $M(C_n)$ .

**Keywords:** *Vertex Prime labeling, Path, Cycle.*

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**PRIME LABELING OF HOUSE GRAPHS****EZHIL.A<sup>1</sup> and ARIGOVINDHAN. K<sup>2</sup>**<sup>1</sup> Assistant Professor, Department of Mathematics,  
T.K.G. Arts College, Vridhachalam, Tamil Nadu, India.<sup>2</sup> Research Scholar, Department of Mathematics,  
T.K.G. Arts College, Vridhachalam, Tamil Nadu, India

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**Abstract:**

A Graph  $G = (V, E)$  with 'p' vertices and 'q' edges is said to be a Prime labeling if assigning the integers to the vertices not exceeding 'p', so that the adjacent vertices are relatively Prime. A graph which admits prime labeling is called a Prime Graph. In this paper, we investigate the prime labeling of House Graphs.

**Keywords:** *Prime labeling, Path, Cycle, House Graph.*

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## QUEUING ANALYSIS OF TAMIL NADU BUS BOOKING PEAK HOURS: A MULTI-SERVER SIMULATION STUDY

<sup>1</sup>K. RENUGADEVI and <sup>2</sup>MANIMANNAN G.

<sup>1</sup>Assistant Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Kovur, Chennai

<sup>2</sup>Associate Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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### Abstract:

Efficient public transportation is crucial for managing peak hour demand and minimizing passenger delays. In this study, we analyze the Tamil Nadu government bus booking system by simulating a multi-server (M/M/C) queuing model using actual booking data extracted from a CSV database. Focusing on peak hours defined as 7–10 AM and 5–8 PM, the researcher employ a Poisson arrival process and exponential service times to replicate the operational dynamics at ticket counters. Our simulation, assuming two service counters, calculates critical performance metrics such as average waiting time, average service time, and total time in the system, and maximum waiting delays. The analysis, supported by visualizations including histograms of waiting times and timeline plots of customer arrivals versus service initiation, reveals substantial delays indicating potential system overload during peak periods. These findings underscore the need for enhanced service capacity and process optimization to improve operational efficiency and customer satisfaction.

**Keywords:** *Queuing Theory, Multi-Server Simulation, Poisson Process, Peak Hours, Public Transportation, Operational Efficiency.*

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## VERTEX PRIME LABELING OF THE TWO COPIES OF CYCLE GRAPHS

THENMOZHIL.S<sup>1</sup>, KARUNAKARAN.V<sup>2</sup>

<sup>1</sup>Assistant Professor. Department of Mathematics  
T. K. G. Arts College, Vridhachalam, TamilNadu India.

<sup>2</sup>Assistant Professor Department of Mathematics,  
T.K.G. Arts College, Vridhachalam, Tamil Nadu India.

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### **Abstract:**

A graph  $G = (V,E)$  with 'P' vertices and 'q' edges is said to have a vertex prime labeling if its edges can be labeled with distinct integers from  $\{1,2,3,\dots,|E|\}$  such that for each edge of degree atleast two. The Greatest Common Divisor of the labels on its incident edges is one. A graph G with admits vertex prime labeling is called vertex prime graph. In this paper. We discuss the vertex prime labeling of two copies of the Cycle graphs and also using some graph operations like vertices and paths joining between the two graphs.

**Keywords:** *Prime labeling, vertex prime labeling, Cycle and Path.*

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**BAYESIAN CURE RATE MODEL: EXPLORING LAPLACIAN-P-SPLINES AND METROPOLIS-LANGEVIN-WITHIN-GIBBS SAMPLING APPROACHES****VIJAI B<sup>1</sup>, JAYASHREE P R<sup>2</sup>, PONNURAJA C<sup>3</sup>**<sup>1</sup>Research Scholar, Assistant Professor, Department of Statistics,  
Dharmamurthi Rao Bahadur CalavalaCunnan Chetty's Hindu College, Chennai<sup>2</sup>Associate Professor, Department of Statistics, Presidency College, Chennai<sup>3</sup>Scientist – 'F', Head and Department of Statistics,  
ICMR – National Institute for Research in Tuberculosis, Chennai

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**Abstract:**

Analysing survival data, the mixture cure model assumes that the population being studied is split into two groups: one set of recovered patients who will never encounter the event, regardless of how long they are followed up with, and another set of subjects who will encounter the occurrence of interest over a specific amount of time. This paper provides a sampling-free technique to quick and adaptive Bayesian inference in the mixed cure model using penalized B-splines and Laplace approximations. Additionally, a fully stochastic algorithm based on a Metropolis-Langevin-within-Gibbs (MLWG) sampler is proposed of two different chain lengths (5000 and 7000) and with two sample size of (200 and 300) an alternative to the suggested Laplacian-P-splines mixture cure (LPSMC) methodology the simulation data was utilized. Based to the findings, LPSMC may be used in place of MLWG for approximate Bayesian inference in typical mixed cure models. The main benefit of a unique approach is the ability to quickly and accurately approximate posterior distributions of latent variables, which helps to overcome the convenient aspects inherent in MCMC sampling. This can be accomplished by taking advantage of the complementary nature of P-splines, a modeling tool, and Laplace's method for posterior approximations.

**Keywords:** *Approximate Bayesian inference, Metropolis-Langevin-within-Gibbs, Laplacian-P-splines mixture cure rate, Survival analysis*



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## IMPACT OF METEOROLOGICAL FACTORS ON AIR POLLUTANT DYNAMICS IN CHENNAI CITY: A COMPARITIVE ANALYSIS OF URBAN AREAS

<sup>1</sup>S. SHEHNAZ FATHIMA and <sup>2</sup>P.S. SHEIK UDUMAN

<sup>1,2</sup>Department of Mathematics and Actuarial Science,  
B.S. Abdur Rahman Crescent Institute of Science and Technology,  
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<sup>1</sup>shhznfathima@gmail.com and <sup>2</sup>sheikuduman@crescent.education

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### Abstract:

Meteorological factors significantly influence air pollutant concentration by affecting their reactivity and dispersion, particularly in India, where dynamic weather patterns have notable impacts. This study analyzed  $\text{NO}_2$ ,  $\text{O}_3$ ,  $\text{PM}_{2.5}$ ,  $\text{SO}_2$ ,  $\text{NH}_3$ ,  $\text{PM}_{10}$  concentration in Kodungaiyur, Royapuram, Perungudi and Koyambedu during the year 2017-2023, were the data collected from the Tamil Nadu Pollution Control Board, Chennai. The analysis conducted with the python Jupyter notebook package, reveled key correlations: temperature negatively correlated with  $\text{NO}_2$ ,  $\text{PM}_{2.5}$  and  $\text{PM}_{10}$  but positively correlated with wind speed and  $\text{O}_3$ . Similarly,  $\text{NO}_2$ ,  $\text{PM}_{2.5}$  and  $\text{PM}_{10}$  showed negative correlation with wind speed and precipitation. Seasonal, temporal and weekly variations were observed with lower  $\text{NO}_2$ ,  $\text{PM}_{2.5}$  and  $\text{PM}_{10}$  concentration in summer on weekends and at midday, while higher levels occurred in winter, weekdays and night time. Conversely,  $\text{O}_3$  concentrations were higher in summer and midday but lower in winter and at night. The study emphasizes enhanced monitoring, pollution mitigation technologies, public awareness and further research for improved air quality management.

**Key words:**  $\text{NO}_2$ ,  $\text{O}_3$ ,  $\text{PM}_{2.5}$ ,  $\text{SO}_2$ ,  $\text{NH}_3$ ,  $\text{PM}_{10}$

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**AN INTRODUCTION ON FUZZY SEMI – SUBMAXIMAL SPACE****<sup>1</sup>Dr. D.VIJAYAN <sup>2</sup>D. NIRAJA**<sup>1</sup>Associate Professor, PG & Research, Department of Mathematics,<sup>2</sup>Research Scholar, PG & Research, Department of Mathematics,  
Muthurangam Govt. Arts College (A), Vellore – 2, Tamilnadu, India

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**Abstract:**

This paper deals with the concept of fuzzy semi - submaximal topological spaces. Some of the several fuzzy characterizations of fuzzy semi - submaximal spaces is investigated. The condition under which the fuzzy semi – first category set is fuzzy semi – submaximal space. The condition under which fuzzy semi – submaximal space becomes fuzzy semi – dense and fuzzy  $G_\delta$  set. It is also obtained that the fuzzy semi – dense set in a fuzzy semi – submaximal space becomes fuzzy semi – Baire space. And also the condition for fuzzy semi – submaximal space becomes fuzzy strongly irresolvable space.

**Keywords:** *Fuzzy semi – open, Fuzzy semi – closed, Fuzzy semi – dense set, Fuzzy semi – nowhere dense set, fuzzy semi – submaximal spaces.*

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**FINDING THE MOST PREVALENT AGE GROUP OF DIABETICS  
PATIENTS BASED ON RTD AND CETD FUZZY MATRIX**

**Dr.D.VIJAYAN<sup>1</sup>, N.MYTHIL<sup>2</sup>**

Associate Professor of Mathematics<sup>1</sup>, Research Scholar of Mathematics<sup>2</sup>  
Muthurangam Government Arts College (Autonomous),  
Affiliated to Thiruvalluvar University, Vellore-632 001, Tamil Nadu, India

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**Abstract:**

The main objective of this paper to finding the most Prevalent age group Patients affected by diabetics and BP in Ranipet district by using RTD and CETD Fuzzy matrix. The data have been collected from rural hospital in Ranipet District Covering from 100 Peoples. Finally we identify the Peak age group in which Patients suffer the maximum health hazards.

**Keywords:** *ATD Matrix, RTD Matrix, CETD Matrix-Diabetic and Fuzzy Sets.*

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**A STUDY ON SOCIETAL IMPACTS OF TECHNOLOGICAL  
ADVANCEMENTS AMONG YOUNG GENERATIONS:  
A STATISTICAL AND MACHINE LEARNING ANALYSIS**

<sup>1</sup>SYED SAFOORA IRAM, <sup>2</sup>P.SHALINI, <sup>3</sup>GIRIJA LAKSHMLS,

<sup>4</sup>Dr. D. ANNAPOORNI

<sup>1, 2, 3</sup> Students, Department of Statistics

<sup>4</sup>Associate Professor, Department of Statistics

SDNB Vaishnav College for Women, Chrompet.

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**Abstract:**

This study investigates the societal impacts of technological advancements among young generations, focusing on key sectors such as education, healthcare, career development, communication, and the economy. A dataset of 725 individuals was collected from 291 males and 433 females using a structured questionnaire. Statistical and machine learning techniques were applied to understand patterns in technology usage, its benefits, negative consequences, and future perceptions. The questionnaire included demographic details, opinions on technological impacts, and behavioral changes due to technology. The study applied One-Way ANOVA to determine whether education level significantly influences perceptions of future technology trends. The independent t-test was used to analyze gender-based differences in technology dependence. A strong positive correlation was found between technology use and career development improvement. Regression analysis showed that technology reliance is a strong predictor of lifestyle changes, particularly in screen time-related health issues. Clustering analysis identified distinct groups: Tech-Optimists, Tech-Moderates, and Tech-Skeptics, highlighting varying attitudes towards technological advancements. The findings confirm that education and technology reliance significantly shape perspectives on technological advancements, providing insights into how young generations perceive and adapt to technology.

**Keywords:** *Technological Advancements, Societal Impact, Digital Transformation, Young Generations, Technology Dependence, Career Development, Regression Analysis, Clustering (k-Means, Hierarchical), Future of Technology, Machine Learning in Social Research, Behavioral Changes, Healthcare and Technology, Sustainable Technology Usage.*

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## LEARNER'S PERSPECTIVE TOWARDS ONLINE AND OFFLINE CLASSES

<sup>1</sup>DHARSHANAA M, <sup>2</sup>DEVI LAKSHMI R, <sup>3</sup>DHIVYA BHARATHI V C, <sup>4</sup>SIVA DHARSHINI B <sup>5</sup>Ms. KAMINI H

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Shrimathi Devkunvar Nanalal Bhatt Vaishnav College for Women, Chromepet, Chennai.

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### Abstract:

The study examines learners' perspectives on online, offline, and blended learning modes, focusing on their engagement, effectiveness, and aggregate learning experience. It explores how flexibility, live conversation, and academic discipline impact student preferences. Online learning is known for its mobility and accessibility, but it presents challenges like constrained interaction and technological hurdles. Offline learning is preferred for its organized atmosphere, hands-on involvement, and interactive response, but also faces challenges related to tight timelines and commuting. A structured questionnaire was compiled for 600 learners aged 15-40, and statistical techniques such as Frequency distribution, Violin plot, Chi-Square, ANOVA, Naïve Bayes, and k-NN were used to interpret the data. The study also examines the impact of technological advancements on learning modes and career roles using machine learning techniques. K-Nearest Neighbours (k-NN) and Naïve Bayes classifiers were employed to analyze variations in learning modes and career roles. The k-NN model achieved an accuracy of 86.89% in classifying individuals based on their current roles, while the Naïve Bayes model obtained 82.51% accuracy. Offline learning emerged as the most preferred, followed by blended learning, showcasing its advantages in engagement, flexibility, and focus. The findings highlight the potential of blended learning as a well-rounded approach that combines the strengths of online and offline methods.

**Keywords:** *Online and Offline learning, learner outlook, Learning mode preferences, academic interest, Engagement.*

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## PREDICTING HEART DISEASE RISK: A COMPARATIVE ANALYSIS OF CLASSIFICATION MODELS AND RISK FACTORS

<sup>1</sup>NITHYA SRI. K, <sup>2</sup>PADMAPRIYA. P, <sup>3</sup>JASWANTHI NAGASREE M G,

<sup>4</sup>THIVYALAKSHMI. B <sup>5</sup>A.POOMPAVAI

<sup>1,2,3,4</sup> Students, Department of Statistics

<sup>5</sup> Assistant Professor, Department of Statistics

SDNB Vaishnav College for Women

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### Abstract:

This study analyses a dataset containing 1,888 patient records drawn from five publicly available heart disease datasets. The dataset includes 14 key features used to predict the risk of heart disease, specifically the likelihood of a heart attack or stroke. The majority of participants are middle-aged or older, with ages ranging from 29 to 77, and a mean age of 54.35 years. Seventy-five percent of the individuals are younger than 61. The mean blood pressure is recorded at 94 mmHg, suggesting potential cardiovascular concerns. Cholesterol levels are generally elevated, with a median of 241 mg/dL, significantly exceeding the recommended level. The maximum heart rate achieved is 71 bpm, which could reflect varying fitness levels or underlying health conditions. The study reveals a strong positive correlation between chest pain type and the risk of a heart attack, indicating that certain types of chest pain are associated with higher risk. Additionally, a significant statistical relationship between sex and heart attack risk was observed. To analyze non-normally distributed data, the Mann-Whitney U-test was employed to compare two independent groups. Various classification models were evaluated for detecting heart disease and identifying healthy individuals. Among the models tested, Random Forest demonstrated the highest accuracy, sensitivity, and specificity, making it the most reliable classifier for predicting heart disease risk.

**Keywords:** *Cholesterol, Chest Pain, Pairplot, Non-Parametric, Machine Learning, Algorithms.*

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## EVALUATING REGIONAL AIR QUALITY: AN IN-DEPTH EXAMINATION OF ENVIRONMENTAL AND DEMOGRAPHIC INFLUENCES

<sup>1</sup>DIVYA. S, <sup>2</sup>DIVYA LAKSHMI. S, <sup>3</sup>KAVYA. C, <sup>4</sup>SONIYA. R <sup>5</sup>A. POOMPAVAI

<sup>1, 2, 3, 4</sup>Students, Department of Statistics,

<sup>5</sup>Assistant Professor,

Department of Statistics, SDNB Vaishnav College for Women, Chennai

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### Abstract:

Air pollution is a worldwide issue that significantly threatens public health, ecosystems, and the climate. A major contributor to air pollution is population growth, particularly in densely populated regions where the challenges are exacerbated by increased energy use, vehicle emissions, and waste generation. This study investigates the intricate relationship between population trends and air pollution, with particular emphasis on how urbanization, industrialization, and human activities contribute to the release of harmful pollutants, such as particulate matter, nitrogen oxides, and carbon monoxide. Densely populated regions experience more severe air quality issues due to higher energy consumption, vehicle emissions, and waste. The disproportionate impact of air pollution on vulnerable populations highlights the necessity for equitable solutions. To mitigate pollution while supporting population growth, the study recommends sustainable approaches such as adopting renewable energy, optimizing urban planning, and conducting public awareness campaigns. Using the Rotated Component Matrix, the study identifies two major categories of air pollution: gaseous pollutants driven by urbanization and industrialization, and particulate pollutants primarily stemming from industrial and vehicle emissions. The findings reveal that areas near industrial zones show a negative correlation with pollution levels, suggesting that industries significantly contribute to gaseous pollutants. PM2.5 and PM10, however, appear independent of gaseous pollutants, indicating they originate from different sources, such as construction, dust, and combustion. In conclusion, two primary types of air pollution were identified: gaseous pollutants influenced by urban and industrial activities, and particulate pollutants mostly resulting from industrial and vehicular emissions. This factor structure efficiently captures the sources of pollution and their correlation with environmental factors.

**Keywords:** *Air Quality, CO2, Pollution, Industrial Areas, Correlation, Factor Analysis.*

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## MACHINE LEARNING MODELS FOR REAL-TIME TIME SERIES FORECASTING WITH SEASONAL VARIABILITY

KANNAN THIRUVENGADAM<sup>1</sup>, CATHERINE REXY<sup>2</sup>, RAJENDRAN KRISHNAN<sup>3</sup>

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<sup>2</sup>Assistant Professor, Karpaga Vinayaga Institute of Medical Sciences & Research Centre, Chengalpattu, India <sup>3</sup>Scientist – E

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### Abstract:

Forecasting time series with seasonal variability is essential for real-time control systems that optimize processes, reduce costs, and improve efficiency across activities. Even in, predicting disease trends enables better resource allocation. This article evaluates machine learning methods and data-pre-processing techniques for time series forecasting, focusing on accuracy and computational efficiency. The study examines SARIMA, Holt-Winters Exponential Smoothing, ETS, Facebook Prophet, XGBoost, and LSTM networks, implemented in Python. Each method is assessed for forecasting seasonal variability. Data pre-processing, including handling missing values, normalization, and outlier detection, is critical for accuracy. Real-world sensor data is used to ensure practical applicability. A novel approach allows accurate predictions even with limited historical data, addressing data collection and storage constraints.

The models achieved an R-Squared accuracy of over 0.95, demonstrating strong predictive capabilities. Computation time was minimized, making them suitable for real-time applications. XGBoost was the most efficient, requiring under 10 seconds for model building and 0.2 seconds for predictions. SARIMA and LSTM, though accurate, had longer training times. Continuous sensor functionality is assumed; interruptions in data collection require reaccumulating historical data before resuming predictions. This study demonstrates the feasibility of real-time forecasting with high accuracy using machine learning models. Optimized computation times make these models suitable for embedded systems and applications like climate analysis, disease trend forecasting, and resource optimization. As industries increasingly adopt data-driven decision-making, real-time forecasting will play a vital role in enhancing efficiency and automation.

**Keywords:** *Time series Forecasting, Seasonal variability, Machine-Learning Methods, Disease Burden Trends*

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## **MACHINE LEARNING-BASED DIABETES PREDICTION IN CHENNAI: A COMPARATIVE ANALYSIS OF LOGISTIC REGRESSION, RANDOM FOREST AND SVM**

<sup>1</sup>N SRIRAM, <sup>2</sup>P ARUMUGAM, <sup>3</sup>MANIMANNAN G

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<sup>2</sup>Associate Professor, Department of Statistics, Annamalai University, Chidambaram

<sup>3</sup>Associate Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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### **Abstract:**

This research paper to assess the accurate and early prediction of diabetes is essential for effective clinical management and intervention. This study evaluates the performance of Logistic Regression, Random Forest and Support Vector Machine (SVM) models on a dataset of 769 patients from Chennai to assess their predictive capabilities. The results indicate that SVM achieves the highest accuracy (78%) followed by Logistic Regression (77%) and Random Forest (76%), with no statistically significant difference ( $p = 0.3484$ ) among the models. While SVM offers slightly better classification performance, Logistic Regression provides interpretable risk factors, making it useful for clinical decision-making. Random Forest aids in identifying key predictors influencing diabetes risk. These findings suggest that machine learning models can support early screening and personalized treatment planning in diabetic patients. Further enhancements with additional clinical parameters may improve prediction accuracy, benefiting medical practitioners in risk assessment and patient management.

**Keywords:** *Diabetes Prediction, Machine Learning, Support Vector Machine, Logistic Regression, Random Forest, Clinical Decision-Making, Risk Assessment.*

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## THE IMPACT OF CROSS DEGREE IN THE CAREER BASED ON GENDER

<sup>1</sup>SHREYAA S, <sup>2</sup>LIZZIE ANGELINA P

<sup>1</sup> Department of Mathematics, Stella Maris College, Chennai

<sup>2</sup> Department of Mathematics, Women's Christian College, University of Madras, Chennai

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### **Abstract:**

In today's world the ratio of students' education differs in different aspects. There is a change in students' perspective of choosing their courses. The education system has witnessed the transition from same degree courses to cross-degree courses. Certain fields may still exhibit varying gender ratios due to societal perceptions or historical trends. These trends are gradually shifting as more individuals, irrespective of gender, opt for diverse academic paths that align with their passions and aspirations. The impact of degree courses on gender in the developing technological world is demonstrated in this research analysis through the utilization of the statistical method "Chi-Square test".

**Keywords:** *Education, Courses, Same degree, Cross - degree, Gender, Analyze, Chi-Square test.*

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**EFFICIENCY AND PRODUCTIVITY ANALYSIS OF PM<sub>2.5</sub>  
AND PM<sub>10</sub> IN INDIAN METROPOLITAN CITIES****ARFAN PARVAIZ<sup>1</sup>, P.S. SHEIK UDUMAN<sup>2\*</sup>**<sup>1,2</sup>Department of Mathematics and Actuarial Science, B.S. Abdur Rahman Crescent  
Institute of Science and Technology, Chennai

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**Abstract:**

This study investigates the environmental efficiency and productivity of metropolitan cities in India by analyzing daily air quality data, specifically focusing on PM<sub>2.5</sub> and PM<sub>10</sub> concentrations, from January 1, 2023, to December 31, 2023. The assessment utilizes Data Envelopment Analysis (DEA) to measure environmental efficiency and applies the Malmquist-Luenberger Productivity Index (MLPI) to evaluate productivity changes over the study period. The findings reveal considerable variations in efficiency scores across the cities, with PM<sub>10</sub> contributing more significantly to pollution levels than PM<sub>2.5</sub>. The results also indicate that technological advancements have played a pivotal role in enhancing productivity for managing these pollutants. Furthermore, the regional analysis highlights distinct pollution patterns: northern, eastern, southwestern, and western cities experience higher PM<sub>2.5</sub> pollution levels compared to southern, south-central, and central-western cities. Similarly, PM<sub>10</sub> pollution is more pronounced in northern, western, south-central, and eastern regions, whereas southwestern, central-western, and southern cities exhibit lower PM<sub>10</sub> concentrations.

**Keywords:** *Air quality; DEA; Efficiency; Malmquist-Luenberger index; Productivity.*

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## AI-DRIVEN EMPLOYMENT INSIGHTS: PREDICTING SALARIES USING MACHINE LEARNING

<sup>1</sup>Dr. V SELVAKUMAR, <sup>2</sup>AKHIRANAND BODDANI, <sup>3</sup>CHUNDURI VYSHNAVI  
CHOWDARY

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<sup>2,3</sup>Senior under Graduate Students, Department of Mathematics and Statistics,  
Bhavan's Vivekananda College of Science, Humanities & Commerce,  
Hyderabad, Telangana, India.

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### Abstract:

Employment trends in high-demand disciplines such as data science have been considerably impacted by the increasing integration of AI into the job market. This study investigates the influence of AI-driven predictive modeling on salary estimation, offering a comprehensive understanding of the changing payment scenario. A comprehensive salary prediction model is created by utilizing machine learning techniques to estimate earnings based on key employment factors, including experience, job role, work mode, and company location. To improve the accuracy of our models, we implement sophisticated data preprocessing, which involves the application of log transformations for normalization, feature encoding, and scaling. We evaluate multiple regression models across various train-test splits, including Multiple Linear Regression, Ridge Regression, Random Forest, Gradient Boosting, XGBoost, LightGBM, and CatBoost. Results show that an ensemble Stacking Regressor (combining XGBoost, LightGBM, and CatBoost) delivers superior performance, achieving the lowest RMSE of 0.51506. This highlights the power of AI-driven ensemble learning in understanding salary patterns, offering valuable insights for both employers optimizing compensation strategies and job seekers navigating market trends. This study demonstrates how AI enhances salary forecasting and underscores its growing influence on employment dynamics. Future work will explore hyperparameter tuning, advanced feature engineering, and AutoML techniques to refine predictive performance further, reinforcing AI's role in shaping the future of work.

**Keywords:** *Machine Learning, Salary Prediction, Stacking Regressor, Ensemble Learnings, Feature Engineering, RMSE*

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**EVERY TREE IS A SUBTREE OF A GRACEFUL UNICYCLIC GRAPH**

**CHINNASAMY P**

Assistant Professor, St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

Acharya (1982) showed that every connected graph can be embedded in a graceful graph. The generalization of this result that any set of graphs can be packed into a graceful graph was proved by Sethuraman and Elumalai (2005). Sethuraman and Ragukumar (2015) have shown that, every tree can be embedded in a graceful tree. Inspired by these fundamental structural properties of graceful graphs, in this paper, we show that every tree can be embedded in a graceful unicyclic graph. More precisely, an algorithm is designed to achieve this embedding.

**Keywords:** Graceful tree, Graceful unicyclic graph, Graceful tree embedding, Graceful labeling, Graph labeling.

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## EXPLORING HEALTH RISK FACTORS AND THEIR ASSOCIATIONS WITH LIFESTYLE BEHAVIORS

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<sup>2</sup>Associate Professor, Department of Statistics, Annamali University, Chidambaram

<sup>3</sup>Associate Professor, Department of Mathematics,

St. Joseph's College (Arts & Science), Kovur, Chennai

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### Abstract:

This study explores the relationships between health-related risk factors, such as smoking, alcohol consumption, and age, using statistical methods including heatmaps, t-tests, Pearson correlation, and multiple regression analysis. A heatmap visualization of correlation coefficients revealed weak associations among most variables, with some moderate positive correlations, such as between smoking and yellow fingers. A t-test comparing mean age differences between males and females found no statistically significant difference ( $p=0.2921, p = 0.2921, p=0.2921$ ). Pearson's correlation analysis showed a negligible and non-significant negative correlation between age and smoking ( $r=-0.0199, p=0.05865, r = -0.0199, p = 0.05865, r=-0.0199, p=0.05865$ ). A multiple regression model predicting age based on smoking and alcohol consumption indicated weak negative associations, but these effects were not statistically significant. The model's low explanatory power ( $R^2=0.0008, R^2 = 0.0008, R^2=0.0008$ ) suggests that additional factors are needed to better explain variations in age. These findings contribute to understanding health risk behaviors and their limited direct association with age.

**Keywords:** *Health Risk Factors, Lifestyle Behaviors, Smoking, Alcohol Consumption, Behavioral Risk Factors*

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**EMPIRICAL AND PHILOSOPHICAL APPROACHES TO  
SUSTAINABILITY: A STATISTICAL ANALYSIS OF UTOPIAN  
ETHICS**

**V. VIJAYANAND**

Assistant Professor, Department of Philosophy, St. Joseph's College (Arts & Science),  
Kovur, Chennai

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**Abstract:**

This research paper attempt to assess the Sustainability is not only a technological challenge but also a deeply philosophical one. Traditional utopian visions often neglect ecological limitations, while modern sustainability efforts struggle to integrate ethical considerations. This paper examines the intersection of philosophy and empirical research in sustainability by analysing ethical theories, sustainability indices, and experimental philosophy surveys. Using content analysis, statistical modelling, and game theory, this study evaluates how philosophical principles align with real-world environmental policies. The findings suggest that deep ecology, social justice, and alternative economic models provide a viable framework for sustainable governance.

**Keywords:** *Sustainability, Utopia, Environmental Ethics, Game Theory, Empirical Philosophy*

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**AN ANALYTICAL STUDY OF CHEST GIRTH, VITAL CAPACITY  
AND RESPIRATORY OF INTER COLLEGE PLAYERS OF  
KABADDI GAME**

**Dr. M. MURUGAN**

Physical Director, Department of Physical Education,  
St. Joseph's College (Art & Science), Kovur, Chennai

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**Abstract:**

Purpose of this study was to determine the relationship between selected variables, namely the chest girth, Vital Capacity and Respiratory rate of inter college kabaddi players of three selected .the data for the current study was gathered from inter college kabaddi male players, SIMATS. Saveetha School of physical education, SIMATS has 30 male inter college players. Ten subjects from each selected sport were chosen for the study. The individual's ages ranged from 18 to 28 years. For the current investigation a basic random sampling method was adopted.

**Keywords:** *Chest Girth, Vital Capacity, Respiratory Rate, Inter-college Kabaddi Players, Male Players, SIMATS, Physical Fitness, Health Variables*



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## IMPORTANCE OF PHYSICAL EDUCATION FOR HEALTH & WELLNESS

**B.SELVANESAN**

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### **Abstract:**

Physical education plays a background role in Overall Health and wellness, Mainly Focus in schools Students develops lifelong habits. The Importance of physical education extends beyond improving physical fitness. Encourage the social skills, Emotional development. Regular Physical Activities through to Cardio vascular reduced the chronic diseases such as Obesity, Diabetes Contributes to a healthier lifestyle. In addition to physical benefits, Physical education also plays Key role in mental Health by Stress, Anxiety and depression while improving mood and cognitive function. Physical education encourages the teamwork, Co-operation, Leadership Skills, Helping Students build positive inter personal relationships. As frequency in Childhood obesity lifestyle Increases, Physical education in addressing these issues BY promoting Physical Activity Healthy Habits. This Paper explores the Multifaceted Benefits Of physical Education for integration into educational Curriculum to support a healthier more active society.

**Keywords:** *Physical Education, Health and Wellness, Lifelong Habits, Physical Fitness, Social Skills Emotional Development, Physical Activity.*

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## **SOCIAL CONNECTEDNESS THROUGH SOCIAL MEDIA BY YOUNG WOMEN OF SOUTH WEST NAGALAND: A CRITICAL STUDY**

**Mr. K. VELAYUTHAM**

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Research Scholar, St. Joseph University, Dimapur, Nagaland

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### **Abstract:**

This research paper aims to examine the impact of social media on the social behaviour and character development of young women in Kohima, Nagaland. Platforms such as Facebook, Twitter, Instagram, and LinkedIn offer opportunities for networking and information sharing while influencing users' behaviours, particularly among the youth. These platforms facilitate connectivity and social interaction, but they also contribute to both positive and negative outcomes. With the advancement of globalization and technology, social media has become a vital factor in shaping youth identity, enabling modern communication, yet also fostering potentially harmful traits like self-centeredness and narrow-mindedness. Through a critical review of existing literature, this study emphasizes the significant role social media plays in shaping the attitudes, social engagement, and behavioural patterns of young women, considering both the beneficial and detrimental impacts it has on their personal growth and societal integration. The research aims to offer a comprehensive understanding of how social media influences the behaviour and development of youth in today's society.

**Keywords:** *Social media, Youth behaviour, Social Connectedness, Character Development, Influence.*

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**FABRICATION OF BIO-HYBRIDIZED AG@RGO HYDROGEL  
NANOSTRUCTURE FOR ENHANCED CATALYTIC DEGRADATION  
AND BIOLOGICAL ACTIVITY**

**C. JOSEPH KIRUBAHARAN<sup>1\*</sup>, P.NIVEDHA<sup>2</sup>, YANG-CHUN YONG<sup>1</sup>**

<sup>1</sup>Biofuels Institute, School of Environment and Safety Engineering, Jiangsu University,  
Zhenjiang- 212013, China

<sup>1,2</sup>Department of Chemistry, Rajalakshmi Institute of Technology, Chennai 600124, India

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**Abstract:**

In-situ formations of bio-hybridized silver nanoparticles (Ag NPs) anchored reduced graphene oxide (Ag@rGO) hydrogel were synthesized via eco-friendly route, which was arbitrated with the leaves of *Thottea Siliquosa* extract. An Ag@rGO hydrogel has been investigated with various characterization techniques. Which confirms the formation of Ag NPs was formed over the rGO sheets. Morphological properties were confirms with crystalline and structural nature of synthesized Ag NPs and Ag@rGO hydrogel by TEM, FE-SEM and XRD analysis. A morphological result establishes that several square micron rGO were obtained due to large agglomerates and contact between the Ag NPs and rGO sheets. The catalytic efficiency of the fabricated nanocomposites were examine with the removal of rhodamine 6G (Rh-6G) dye wasevaluated with anti-oxidant and electrochemical performances. Nearly 99.2% of the Rh-6G dye was removed by Ag@rGO hydrogel within two minutes, while the Ag NPs removed about 88.5% in 30min. This work demonstrated the power of bio-hybridization for carbon supportive metallic nanoparticles and provided eco-friendly nanocatalysts for effective dye degradation.

**Keywords:** *Water pollution; biosynthesis; Nanocomposites; Reduced graphene oxide; Dye removal*

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**CRYSTAL STRUCTURE, HIRSHFELD SURFACES AND ENERGY  
FRAMEWORK STUDIES OF  
(3E)-3-(2, 3-DIFLUORO PHENYL) METHYLIDENE)-2, 3-DIHYDRO-  
4H-1-BENZOPYRAN-4-ONE**

**J. HEMALATHA**

Vel Tech High Tech DR.Rangarajan Dr.Sakunthala Engineering College (Autonomous),  
Chennai

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**Abstract:**

The title compound,  $C_{16}H_{10}F_2O_2$ , has been synthesized using the Claisen-Schmidt condensation reaction from the mixture of 2,3 dihydro-4H-1-benzopyran-4-one and 2,3-difluoro phenyl) methylidene using ethanol as solvent. The crystal has been characterized for its 3D structure and structural parameters were elucidated via the X-ray diffraction (XRD) method. XRD intensity data reveal that the title compound crystallizes in an Monoclinic crystal system with non-centrosymmetric space group Cc. The crystallographic parameters such as bond lengths, bond angles, torsion angles were estimated and are found to be in the normal range and comparable with the literature values. Hirshfeld surfaces namely  $d_{norm}$ , electrostatic potential, shape index, and curvedness were analyzed to visualize and to evaluate the weak intermolecular interactions, positive and negative potential regions, C-H... $\pi$ , and  $\pi$ ... $\pi$  stacking interactions, respectively. The 2D fingerprint plots for the whole and delineated interactions were generated and analyzed to estimate their contributions to the total Hirshfeld surfaces. The pairwise intermolecular interactions were calculated as the sum of four scaled energy components namely electrostatic ( $E_{ele}$ ), polarization ( $E_{pol}$ ), dispersion ( $E_{dis}$ ), and exchange-repulsion ( $E_{rep}$ ) and graphically represented as energy frameworks. The energy frameworks analysis reveals that the total stabilizing energy is highly influenced by dispersion ( $E_{dis}$ ) energy than the other components.

**Keywords:** *Claisen-Schmidt condensation reactio, Hirshfeld surfaces, 2D fingerprint plots, Biological activity.*

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**SYNTHESIS AND CHARACTERIZATION OF PURE AND FE DOPED  
ZNS NANOPARTICLES FOR THE ENHANCED PHOTOCATALYTIC  
PROPERTIES****R. HEMA CHANDRIKA\*, S. STELLA MARY<sup>1</sup>, N. PRABAVATHI<sup>2</sup>,  
A. SAM PASCAL<sup>3</sup>**<sup>\*,1,2,3</sup>Department of Physics, St. Peter's Institute of Higher Education and Research, Avadi,  
Chennai, Tamilnadu – 6000054, India

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**Abstract:**

ZnS-based materials continue to attract more attention for applications involving both photodegradation and biodegradation, due to their remarkable optoelectronic properties, plentiful natural availability, and low toxicity. In this present work, pure ZnS and Fe doped ZnS nanoparticles were synthesized using a simple chemical co-precipitation method. The structural and morphological studies were done using X-ray diffraction technique (XRD) and Scanning electron microscope (SEM). UV-Visible (UV-Vis) studies exhibited the decrease in the optical band gap energy of Fe doped ZnS nanoparticles of about 0.58eV. Raman studies confirmed the most stable cubic blende structure of ZnS. Zeta potential analysis showed the high surface charge for Fe doped ZnS NPs. PL analysis exhibited blue as well as green emissions and fluorescence quenching was also observed in Fe doped samples. Finally, the photocatalytic dye degradation studies were done which shows an improved photocatalytic efficiency of about 75.43 % for Fe: ZnS NPs.

**Keywords:** *Zinc Sulphide, Fe, Photocatalysis, Dye degradation.*

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**SYNTHESIS AND PHOTOCATALYTIC STUDY OF THE EFFICIENT  
VISIBLE LIGHT ACTIVE  $\text{Bi}_2\text{Ti}_2\text{O}_7$  PYROCHLORE****APARNADEVI N<sup>1\*</sup>, ASHWINI B<sup>1</sup>, and SUBASREE B<sup>1</sup>**<sup>1</sup> Department of Physics, Ethiraj College for Women, Chennai, 600008, India

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**Abstract:**

Pyrochlores have gained significant attention in contemporary scientific research owing to their distinctive optical properties, which render them highly efficient across a broad spectrum of photocatalytic applications, such as water remediation.  $\text{Bi}_2\text{Ti}_2\text{O}_7$  nanopowder with a pyrochlore structure was successfully synthesized through a hybrid approach combining co-precipitation and the Pechini method. The influence of this hybrid synthesis technique on the photocatalytic activity of pure  $\text{Bi}_2\text{Ti}_2\text{O}_7$  nanopowder was extensively studied. From XRD analysis, it is established that the synthesized  $\text{Bi}_2\text{Ti}_2\text{O}_7$  nanopowder possesses a pyrochlore structure and exhibits high crystallinity, as indicated by well-defined sharp diffraction peaks and has an average grain size of about 16 nm. UV-Vis spectroscopy revealed a narrow band gap of 2.72 eV, ideal for efficient photocatalytic activity under visible light. FTIR spectroscopy provided insights into the functional groups present, with wavenumbers at  $489\text{ cm}^{-1}$  and  $1380\text{ cm}^{-1}$  corresponding to the vibrations of Bi-O bonds, and at  $621\text{ cm}^{-1}$  associated with Ti-O-Ti stretching vibrations, further substantiating the formation of  $\text{Bi}_2\text{Ti}_2\text{O}_7$  pyrochlore. The investigated PL spectrum demonstrated the charge carrier recombination rate, which influences photocatalytic performance. Insights into the photocatalytic activity of  $\text{Bi}_2\text{Ti}_2\text{O}_7$  were acquired through the degradation of a methylene blue solution under sunlight. The results illustrated that maximum degradation was achieved within a brief period of 50 minutes and the apparent reaction rate constant of the catalyst was found to be  $12.3 \times 10^{-3}\text{ min}^{-1}$ . These findings highlight the potential of  $\text{Bi}_2\text{Ti}_2\text{O}_7$  as a promising photocatalyst for a wide range of environmental applications, including wastewater treatment and the removal of organic pollutants.

**Keywords:** Bismuth titanate, pyrochlore, photocatalysis, co-precipitation method, Pechini method.

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**PROFICIENCY STUDY OF ZnSe/ZnS CORE/SHELL QUANTUM  
DOTS AS BIO-MEDICAL WASTE DEGRADANTS**  
**MELENCIA FREDLINA A S, SHINY JERUSHAH A, JOHXY C, DORRY BREEZE  
G, MERLINE SHYLA J\***

Energy NanoTechnology Centre (ENTeC), Loyola Institute of Frontier Energy (LIFE)  
Department of Physics, Loyola College, Nungambakkam, Chennai – 600 034.

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**Abstract:**

The synthesis and characterization of nontoxic, highly luminescent ZnSe/ZnS core/shell Quantum Dots (QDs) and their use as advanced antimicrobial agents for bio-medical waste treatment is presented in this study. The QDs were synthesized via the sol-gel route and their phase, crystallinity, morphology and opto-electronic properties were characterized by X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), Energy Dispersive X-Ray Spectroscopy (EDX), and UV-Visible Spectroscopy (UV-Vis). The XRD pattern analysis indicated the zinc-blende crystal structure's crystallite size as ~11 nm, and SEM showed an average particle size of approximately ~26 nm of the as-prepared 3D ZnSe/ZnS core/shell structures. The EDX Analysis validated the composition's purity, while the optical analysis demonstrated the quantum sized characteristics with the major absorption peak value at 220 nm, in addition to the band gap of 4.9 eV. Antimicrobial characteristics were determined using well-diffusion assays, which proved significant bactericidal activity against bio-medical pathogens, especially E. coli, which had the highest inhibition zone of 15 mm. The results proved that ZnSe/ZnS QDs have incredible potential for the green management of biomedical waste thereby contributing to environmental sustainability.

**Keywords:** Sol-gel method, Quantum dots, antimicrobial, bactericidal, well-diffusion assay.

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## SYNTHESIS AND CHARACTERIZATION OF CDS NANOPARTICLES PREPARED BY CHEMICAL PRECIPITATION METHOD

<sup>1</sup>T KAVITHA AND <sup>2</sup>BHUVNESHWARI

<sup>1,2</sup> Assistant Professor, Department of Physics, St Joseph's college (Arts & Science)

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### **Abstract:**

The synthesized CdS semiconducting quantum dots using the chemical precipitation method, with Thioglycerol serving as the capping agent. The size, morphology, and crystalline structure of the synthesized material were characterized using X-ray powder diffraction (XRD) and transmission electron microscopy (TEM). The quantum dots exhibited a combination of cubic and hexagonal crystal symmetries, with an average diameter of 12 nm. Ultraviolet-visible (UV-vis) absorption spectroscopy was employed to determine the band gap and the blue shift in the absorption edge. Raman spectroscopy was used to study the confinement of optical phonon modes in the quantum dots, while Fourier-transform infrared (FTIR).

**Keywords:** *XRD, TEM, UV-vis, Raman Spectroscopy and FTIR*



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**COMPLEMENTING COMMUNITY EMPOWERMENT DIGITAL  
INCLUSION: BRIDGING THE DIGITAL DIVIDE****<sup>1</sup>. V. UTHIRIYA RATZAGADASS**

Researcher, St. Joseph University, Tindivanam.

**<sup>2</sup>. Dr. P. PUSHPA**Lecturer, School Of Software, East China University of Technology, Nanchang, China

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**Abstract:**

The absence of access and bandwidth, aka the digital divide, also referred to as one of the most challenging global challenges limiting access to economic opportunities, education, health care and social services for marginalized populations. This research includes digital inclusion for community empowerment, including both access to the technology as well as digital skills to allow the disadvantages to engage in the digital space and also digital inclusion policy which aims at bridging the digital divide. This employed a mixed-methods approach, using quantitative data from reports of the world and qualitative analysis from cases. Results show a positive correlation between socio-economic development and the use of the internet, but also that regions with higher levels of digital inclusion exhibit greater results in education and health access. Digital inclusion and its corresponding positive aspects are evident, with countries that have significant broadband penetration are much higher in terms of GDP per capital (World Bank, 2023). Better educational outcomes have been achieved as well through digital literacy programs, including those for students with home internet access, who scored 20% better on standardized tests than those without internet access in the home (UNESCO, 2022). The report also identifies best practices in digital inclusion, including the Google Project Loon in Kenya and India's Digital India initiative. Finally, the paper recommends that governments, private sector and NGOs need to work collaboratively in a multi-stakeholder approach and in concert to achieve sustainable digital equity. Policy changes and the long-term effects of digital inclusion initiatives should be the focus of future studies.

**Key words:** *Community Empowerment, Digital Divide, Digital Inclusion, Digital Literacy, Socio-economic Development.*

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**THE ROLE OF SOCIAL WORK IN ENVIRONMENTAL SUSTAINABILITY:  
ADVOCATING ECOLOGICAL JUSTICE FOR MARGINALIZED  
COMMUNITIES.**

**SAM SANGEETH<sup>1</sup> and JERIN SALES<sup>2</sup>**

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St. Joseph's College (Arts & Science). Kundrathur, Main Road, Chennai-128.

<sup>2</sup>Assistant Professor of Social Work, Department of Biotechnology,  
St. Joseph's College (Arts & Science). Kundrathur, Main Road, Chennai-128.

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**Abstract:**

This paper reviews the nexus between environmental sustainability and social work for empowerment of the marginalized, highlighting how social workers play a significant role in promoting ecological justice, advocating for sustainable policies, and engaging communities in climate adaptation efforts. This intersection will help us to understand the ecological health and human well-being. The paper examines pillars of sustainability, theoretical frameworks such as eco-social work, green social work, and sustainability-focused community practice, emphasizing their relevance in addressing environmental injustices towards marginalized. It also discusses strategies social workers employ, including policy advocacy, environmental education, and community empowerment, to foster resilience and sustainability. Furthermore, the abstract underscores the ethical responsibility of social workers. The paper calls for an interdisciplinary approach, bridging social work with environmental sciences and public health, to create holistic solutions to ecological and social challenges. By positioning social work as a key player in environmental sustainability, this research contributes to a growing discourse on Eco-social transformation, urging social workers to be proactive in mitigating environmental harm while advocating for vulnerable communities. Ultimately, integrating environmental sustainability into social work Environmental sustainability and social work are deeply interconnected, as both fields aim to promote well-being, justice, and resilience. Environmental challenges such as climate change, pollution, and resource depletion disproportionately affect marginalized communities, exacerbating existing social inequalities. Social workers, committed to advocating for human rights and social justice, increasingly recognize the need to address environmental concerns as part of their practice. By integrating ecological justice into social work, professionals can empower vulnerable populations, advocate for sustainable policies, and contribute to climate adaptation efforts. This article explores how social work can play a vital role in fostering environmental sustainability

**Keywords:** *Environmental Sustainability, Ecological justice, Marginalized, Sustainable Development Goals, Social Work.*

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## ENHANCING RESILIENCE IN DIABETES MANAGEMENT THROUGH INTEGRATED MENTAL HEALTH APPROACHES IN ZAMBIA

Y. MARY STELLA BAI

Ph.D. Research Scholar, Department of Social Work, DMI St. Eugene University, Zambia.

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### **Abstract:**

This review article explores the intersection of diabetes management and mental health resilience in Zambia, focusing on the challenges and strategies to improve care for individuals living with both conditions. Diabetes is increasingly prevalent in Zambia, with a rising burden on the healthcare system. Simultaneously, mental health issues, often exacerbated by the psychological toll of managing a chronic disease, pose a significant challenge to effective diabetes care. The article examines the factors contributing to poor diabetes outcomes, such as stigma, lack of mental health resources, and socio-economic barriers, while highlighting the importance of integrated care models that address both physical and psychological aspects of health. Additionally, it discusses community-based interventions and the role of healthcare providers in building resilience among patients through education, support systems, and culturally relevant approaches. The review concludes by emphasizing the need for a holistic approach to diabetes management in Zambia, advocating for policies that promote mental health integration in diabetes care to foster resilience and improve patient outcomes.

**Keywords:** *Mental Health, Diabetes Management, Healthcare, Holistic Approach, Community-Based Interventions, Zambia.*

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**ECOFEMINISM IN INDIAN LITERATURE: GENDER, ECOLOGY,  
AND RESISTANCE****ASEEMA**Student, Sociology Department, Lady Shri Ram College for Women, Lajpat Nagar - IV

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**Abstract:**

Ecofeminism, as a critical theoretical framework, explores the intersection of gendered oppression and environmental crises, emphasizing how entrenched patriarchal systems reinforce the marginalization of women and lead to ecological degradation. In Indian literature, ecofeminist narratives illuminate women's intrinsic relationship with nature, their indigenous ecological knowledge, and their resistance to environmental exploitation. These narratives challenge dominant discourses of industrialization, development, and progress that prioritize economic growth over environmental sustainability and social justice. By advocating for alternative modes of coexistence with nature, Indian ecofeminist literature promotes sustainability, equity, and ecological justice, offering a transformative vision for a more harmonious and just world. This paper aims to examine the representation of ecofeminist themes in Indian literature, exploring how literary works articulate the intersections of gender, ecology, and resistance. By analysing the writings of Sugathakumari, Kamala Das, Mahasweta Devi, and Vandana Shiva, the study investigates how women's experiences of environmental degradation are portrayed and how their roles as custodians of ecological knowledge and agents of resistance are emphasized. Through a qualitative textual analysis, this paper seeks to highlight how Indian ecofeminist literature critiques industrialization, deforestation, water crises, and corporate exploitation while envisioning alternative, sustainable ways of coexisting with nature. The study aims to contribute to the broader discourse on ecofeminism by demonstrating how literature serves as a powerful medium for ecological and social justice advocacy.

**Keywords:** *Ecofeminism, Indian literature, gendered oppression, environmental justice, sustainability, Indigenous ecological knowledge, resistance*

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**IMPACT OF EMPLOYEE AWARENESS PROGRAMS TOWARDS  
OCCUPATIONAL HEALTH AND SAFETY AT KENMORE SHOES  
PVT. LTD., CHENNAI**

**S. FRANGLIN RAJA<sup>1</sup>, Dr. M. IGNATIUS<sup>2</sup> AND Dr.M.BABY<sup>3</sup>**

<sup>1</sup>PG Student, Department of Social Work,  
<sup>2,3</sup>Assistant Professor, Department of Social Work,  
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**Abstract:**

Occupational health and safety (OHS) play a vital role in ensuring employee well-being, productivity, and organizational sustainability, particularly in labour-intensive sectors like footwear manufacturing. This study focuses on understanding employee awareness programs on occupational health and safety at Kenmore Shoes Pvt. Ltd., Chennai, aiming to evaluate how employees perceive the effectiveness of existing safety policies, workplace hazards, and health programs implemented by the organization. A descriptive research design was adopted, and primary data were collected through a structured questionnaire from 50 employees out of a total workforce of 625 using simple random sampling by lottery method. Statistical tools were used to analyse the data and identify areas where employee perceptions indicate gaps or strengths in the current OHS framework. Findings reveal that consistent safety training, management responsiveness, availability of safety equipment, and clear communication of safety policies significantly influence positive employee perception of workplace safety. The study highlights the impact of employee awareness programs towards to enhance OHS practices. The research offers practical recommendations to improve health and safety policies.

**Keywords:** *Occupational Health and Safety, Employee Awareness Programs and Risk Management.*

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## ROLE OF EMPLOYEE WORK-LIFE BALANCE IN JOB SATISFACTION

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### **Abstract:**

Employee job satisfaction is critical to organizational success, employee retention, and overall workplace harmony. This study aims to explore employees' job satisfaction, focusing on the role of work-life balance and job responsibilities in shaping employee well-being. The research examines how factors such as workload, role clarity, flexible work arrangements, organizational support, and personal life commitments contribute to employees' overall satisfaction and well-being.

A descriptive research design was employed, and primary data were collected through a structured questionnaire from 50 employees out of a total workforce of 556 using simple random sampling by lottery method. Statistical tools were used to analyze the data and assess the relationship between work-life balance, job responsibilities, and job satisfaction. Findings reveal that a healthy balance between professional and personal life, clear role definitions, supportive work environments, and manageable workloads significantly enhance employee satisfaction. The study emphasizes the importance of developing HR policies that promote work-life integration, flexible work arrangements, and effective workload management to foster employee well-being and satisfaction. The research offers valuable insights for HR professionals, managers, and organizational leaders, providing practical strategies to enhance employee satisfaction, boost morale, and improve organizational performance.

**Keywords:** *Work-Life Balance, Employee Well-being, & Employee Engagement*

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## A STUDY ON IMPACT OF REWARDS AND COMPENSATION ON EMPLOYEE RETENTION

S. MUKESH<sup>1</sup>, Dr. M. IGNATIUS<sup>2</sup> and Dr.M. BABY<sup>3</sup>

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### **Abstract:**

Employee retention is crucial for manufacturing and service industries, particularly in the highly competitive footwear sector. Organizations must implement effective human resource management (HRM) practices to retain skilled employees and reduce turnover. This research focuses on employee retention at Kenmore Shoes Pvt. Ltd, Chennai, aiming to analyse the key factors influencing employee turnover, including socio-economic conditions, compensation, benefits, workplace culture, and engagement.

A descriptive research design was employed, and primary data were collected through a structured questionnaire from 50 employees out of a total workforce 625 using simple random sampling by lottery method. The study utilized statistical tools to analyse the data, revealing that HRM practices such as competitive compensation, work-life balance, career growth opportunities, and employee engagement significantly impact retention. Findings indicate that inadequate benefits, lack of growth prospects, and an unsupportive work environment contribute to turnover. The recommendations from this study can help businesses formulate better retention policies, leading to higher employee satisfaction, improved performance, and overall organizational success.

**Keywords:** *Employee Retention, Turnover, Workplace Culture, Compensation & Rewards*

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## **IMPACT OF TRAINING PROGRAMS ON EMPLOYEES WORK PERFORMANCE AND INVOLVEMENT**

**S.PRADHEEB<sup>1</sup>, Dr. M. IGNATIUS<sup>2</sup> and VINITHA.P<sup>3</sup>**

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<sup>2,3</sup>Asst. Professor, Department of Social Work,  
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### **Abstract:**

Employee training and development are critical for the success of manufacturing industries, particularly in the highly competitive automotive manufacturing sector. This study aiming to analyze key factors influencing training outcomes, including socio-economic conditions, training methods, skill development, workplace engagement and career growth opportunities.

A descriptive research design was employed, and primary data were collected through a structured questionnaire from 50 employees out of a total workforce of 556 using simple random sampling by lottery method. The study utilized statistical tools to analyze the data, revealing that HRM practices such as well-structured training programs, interactive learning methods, career development opportunities, and employee engagement significantly impact training effectiveness. Findings indicate that outdated training content, limited practical applications, and a lack of continuous learning initiatives reduce the impact of training programs.

The research offers valuable insights for HR professionals and policymakers in the automotive manufacturing industry, suggesting strategies to improve training programs, employee motivation, and overall organizational success.

***Keywords:*** *Employee Training, Workplace Engagement & Career Growth.*



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**WORKPLACE STRESS FACED BY WOMEN POLICE PERSONNEL  
WORKING IN POLICE DEPARTMENT**

**SHIKHA TIWARI**

Assistant Professor, Department of Human Development and Childhood Studies,  
Lady Irwin College (University of Delhi)

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**Abstract:**

Police work is normally considered to be a stressful occupation. In particular women police are perform challenging and extremely stressful job. High level of stress level to imbalances in the work life and family life of women police. Stress is an inevitable part of police personnel. The purpose of this research is to identify causes of stress and also empirically investigate the stress level among police personnel. Multistage random sampling method was employed to select sample 80 women police personnel in Lucknow. Findings revealed that work pressure, job insecurity, were the primary causes of stress among police personnel. It also emerged that stress is significantly more pronounced among those police personnel who are younger, more educated, posted in rural areas and have less work experience. The findings supplement existing body of knowledge and contribute to the understanding of causes of stress and stress level among police personnel.

**Keywords:** *Stress, Workplace stress, Police personnel, Level of workplace stress.*

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**GREEN MEDICINE FOR A SUSTAINABLE FUTURE:  
THE CONTRIBUTION OF HERBAL MEDICINE TO HUMAN  
HEALTH AND WELL-BEING ON THE GLOBE**

**<sup>1</sup>W. VIYAGAMMAL, <sup>2</sup>Dr. A. SELWYN LLOYD**

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DMI St. Eugene University, Chibomo, Zambia

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**Abstract:**

The world is shifting toward sustainable and eco-friendly practices, and healthcare is no exception. Green medicine, particularly herbal medicine, has been gaining attention for its potential to contribute to human health and well-being while promoting environmental sustainability. This paper explores the role of herbal medicine in providing sustainable healthcare solutions, highlighting its benefits, challenges, and future prospects. By examining the intersection of traditional knowledge, modern science, and environmental stewardship, we can unlock the full potential of green medicine to create a healthier, more sustainable future for all.

**Keywords:** *Green Medicine, Herbal Medicine, Sustainable Healthcare, Environmental Sustainability, Traditional Knowledge, Modern Science, Eco-Friendly Practices, Human health and well-being, Global Health, Alternative Medicine*

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## **EMPOWERING WOMEN FOR A SUSTAINABLE FUTURE: THE ROLE OF GENDER EQUALITY IN ACHIEVING THE SDGS**

**Dr. L. ARUL SEELI<sup>1</sup>, Dr. PRAMODINI MAGH<sup>2</sup>**

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<sup>2</sup>Assistant Professor and Head, Department of Social Work, St. Joseph University, Dimapur, Nagaland.

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### **Abstract:**

The achievement of the Sustainable Development Goals (SDGs), as outlined by the United Nations, heavily depends on the empowerment of women and the realisation of gender equality. This article explores the critical role that gender equality plays in advancing the SDGs and fostering a sustainable future. It examines how empowering women directly contributes to eradicating poverty, improving education, enhancing health outcomes, stimulating economic growth, promoting climate action, and facilitating peacebuilding. Despite significant progress, barriers such as cultural norms, legal restrictions, and gender-based violence continue to impede the full participation of women in societal development. Social workers play an indispensable role in empowering women and promoting gender equality. Through advocacy, community development, direct support, education, and leadership training, social workers help dismantle barriers to women's participation in economic, political, and social spheres. The article emphasises the need for a comprehensive approach that involves both women and men in promoting gender equality and overcoming these obstacles. By addressing these challenges and enhancing women's access to resources, opportunities, and decision-making, gender equality can catalyse the achievement of the SDGs and create a just, inclusive, and sustainable world for all. Empowering women is essential for the successful realisation of the SDGs by 2030. Through these efforts, gender equality contributes to the broader SDG goal of reducing inequalities (SDG 10) and ensuring that "no one is left behind" (SDG 5).

**Keywords:** *Sustainable Development Goals (SDGs), Gender Equality, Women Empowerment, Poverty Eradication, Cultural Norms, Decision-Making.*

## **A STUDY ON THE IMPACT OF EMPLOYEES WORK-LIFE BALANCE ON PRODUCTIVITY**

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<sup>1</sup> PG Student, Department of Social Work,

<sup>2</sup> Asst. Professor, Department of Social Work  
St. Joseph's College (Arts & Science), Chennai

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### **Abstract:**

Work-life balance is critical to employee well-being and organizational success, particularly in the competitive automotive manufacturing sector. This study analyses key factors affecting employees' ability to effectively manage professional and personal responsibilities. The research explores working hours, flexibility, job stress, organizational support, and policies that impact work-life balance.

A descriptive research design was employed, and primary data were collected through a structured questionnaire from 50 employees out of a total workforce of 556 using simple random sampling by lottery method. The study utilized statistical tools to analyze the data, revealing that factors such as excessive workload, lack of flexible work arrangements, and inadequate leave policies negatively impact work-life balance.

The findings highlight the need for organizations to implement policies that promote a healthier balance between work and personal life, ultimately enhancing job satisfaction, employee morale, and overall productivity. This research provides valuable insights for HR professionals and policymakers in the automotive manufacturing industry, offering strategies to improve work-life balance and employee well-being.

**Keywords:** *Work-Life Balance, Employee Well-Being, Flexibility & Job Stress*

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**A STUDY ON THE IMPACT OF THE DRAVIDIAN MOVEMENT IN  
POST- COLONIAL ENGLISH LITERATURE IN TAMIL NADU**

**KISHORE KUMAR V**

St. Joseph's College (Arts & Science), Kovoor

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**Abstract:**

The study aimed to explore the impact of the Dravidian movement on post-colonial English literature in Tamil Nadu, with a particular emphasis on themes related to linguistic identity. The research analyzes select works by Tamil Nadu's English writers, examining how they incorporate the movement's influence in their narratives. Special attention is given to the treatment of caste, gender, and political reform, showcasing how English literature in TamilNadu evolved as a medium of resistance and assertion. The study argues that the Dravidian movement redefined literary expression in English, bridging the gap between colonial language and regional identity. By applying post-colonial literary frameworks, this research highlights the enduring legacy of the Dravidian movement in shaping Tamil Nadu's English literary landscape.

**Keywords:** *Dravidian movement, post-colonial literary frameworks.*

## **SUSTAINABLE DEVELOPMENT GOALS (SDGS) IMPLEMENTED IN CHENNAI**

**RAJ BHARATH C<sup>1</sup>, Dr J CHANDRASEKAR<sup>2</sup>, T RAJAN<sup>3</sup>**

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Madras School of Social Work, Egmore, Chennai – 08.

<sup>2</sup>Research Guide, Department of Social Work,  
Madras School of Social Work, Egmore, Chennai – 08

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### **Abstract:**

The Sustainable Development Goals (SDGs), established by the United Nations in 2015, provide a global framework for addressing social, economic, and environmental challenges. Chennai, a major metropolitan city in Tamil Nadu, has undertaken various initiatives to implement key SDGs, particularly in the areas of clean water and sanitation (SDG 6), affordable and clean energy (SDG 7), sustainable cities and communities (SDG 11), and climate action (SDG 13). This paper examines the city's efforts, including rainwater harvesting, renewable energy adoption, public transportation expansion, and climate resilience strategies. Despite these advancements, challenges such as rapid urbanization, funding constraints, and the need for greater public participation persist. The study highlights Chennai's progress and ongoing efforts, emphasizing the importance of collaborative and innovative solutions to achieve sustainable urban development by 2030.

**Keywords:** *Sustainable Development Goals, Chennai, urban sustainability, climate resilience, renewable energy, water management*

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**நெய்தல் திணை மயக்கமும் பேரழிவும்**  
**முனைவர் ந.தர்மராஜ்**  
**இணைப் பேராசிரியர்**  
**செயின்ட் ஜோசப் கல்லூரி (கலை மற்றும் அறிவியல்)**  
**கோலூர், சென்னை**  
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**dmpj1287@gmail.com**

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**ஆய்வுச் சுருக்கம்:**

இன்றைய நவீன காலகட்டத்தில் மனித வாழ்க்கையின் நிலை பல்வேறு மாறுதல்களுக்கு உள்ளாகி உள்ளது. மனித வாழ்க்கை முறையானது அவசர தேவை, அவசர இன்பம், அவசர முடிவு என்ற அவசரகதியான நிலை பேரழிவை அவர்களுக்கு பரிசாக தரவுள்ளது. இன்றைய உலக நாடுகளில் பல்வேறு பிரச்சனைகள் (பொருளாதார தீவிரவாதம்) போன்றவை காணப்பட்ட போதிலும் எல்லா நாடுகளுக்கும் பொதுவான பிரச்சனையாக உருவெடுத்துள்ளது” புவி வெப்பமடைதல்” என்ற நிகழ்வாகும்

இந்த புவி வெப்பமடைதல் என்ற நிகழ்வுக்கு பல்வேறு காரணங்கள் உள்ளன இது தொடர்பான ஆய்வு முடிவுகள் வந்து கொண்டே இருக்கின்றன இருந்த போதிலும் கட்டுரை பூவி வெப்பமடைவதற்கான காரணங்களையும் அதனால் தோன்றக்கூடிய விளைவுகளையும் கூறுவதே நோக்கமாகும்

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**COMPUTATIONAL ANALYSIS OF LINGUISTIC AND STRUCTURAL  
FEATURES IN PONNIYIN SELVAN****<sup>1</sup>PASUPATHY S and <sup>2</sup>MANIMANNAN G**<sup>1</sup>Assistant Professor, Department of Tamil,<sup>2</sup>Assistant Professor, Department of Mathematics,  
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**Abstract:**

Kalki Krishnamurthy's *Ponniyin Selvan* is a monumental historical novel set in the Chola dynasty, renowned for its rich narrative and intricate storytelling. This study employs computational techniques to analyze the linguistic and structural aspects of the text, offering insights into its composition. The novel comprises 55,861 words with an average word length of 4.78 characters, indicating a balanced and immersive writing style. A total of 266,913 characters and 388,422 N-Grams highlight the complexity of the text, while a unique word percentage of 7.73% showcases its diverse vocabulary. The punctuation count of 11,381 reflects the author's strategic approach to sentence structuring and expression. Additionally, the LIX Index score of 34.28 suggests a moderate level of readability, making the novel accessible yet intellectually engaging. This analysis integrates text mining techniques, including N-Gram frequency analysis and readability metrics, to provide a data-driven perspective on literary evaluation. The findings underscore the literary richness of *Ponniyin Selvan* and demonstrate the value of computational methods in digital humanities research.

**Keywords:** *Ponniyin Selvan, linguistic analysis, text mining, computational literature, readability metrics, lexical diversity, digital humanities*



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**WRAPPED EXPONENTIAL–GAMMA DISTRIBUTION WITH AN  
APPLICATION TO METROLOGY AND GEOLOGY**

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Higher Education and Research (Category -1 Deemed to be University), Porur,  
Chennai–600116, Tamilnadu, India.

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**Abstract:**

This paper introduces a new circular distribution wrapping a continuous distribution, a mixture of exponential and gamma distribution, called wrapped exponential–gamma (WEG) distribution. Explicit expressions are derived for its probability density function, cumulative distribution function, characteristic function, trigonometric moments, coefficients of skewness, and kurtosis. Additionally, the various properties of the proposed model are discussed, and the method of maximum likelihood estimation is employed to estimate the parameters. To demonstrate the applicability of the proposed distribution, the model is applied to three real-life datasets, and its performance is compared with that of competitive models available in the literature.

**Keywords:** wrapped exponential–gamma, trigonometric moments, coefficients of skewness.

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## REMAINING USEFUL LIFE (RUL) PREDICTION FOR BATTERIES OF EV VECHICLE

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Assistant Professor, MCA, Department of Computer Applications<sup>1,2</sup>

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B.S .Abdur Rahman Crescent Institute of Science and Technology, Chennai<sup>1,2</sup>

### **Abstract:**

Electric Vehicle (EV) battery reliability is crucial for efficiency, safety, and sustainability. This project focuses on enhancing EV battery performance using a data-driven approach with machine learning. By analyzing real-time and historical battery data, machine learning models can predict failures, optimize performance, and extend battery lifespan. Traditional battery management systems rely on fixed schedules or basic monitoring, which often leads to unexpected failures and higher maintenance costs. The proposed system overcomes these challenges by using predictive analytics to detect issues early, enabling proactive maintenance and improving overall efficiency. This approach not only enhances battery reliability but also reduces costs and supports the long-term sustainability of electric vehicles.

**Keywords:** *EV BATTERY, Machine Learning, Failures, Artificial intelligence, Remaining Useful Life, Life Span.*

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**PET STORE ONLINE SHOPPING WEBSITE****<sup>1</sup>L.BALA VIGNESH and <sup>2</sup>P.N.SHIAMMALA.**<sup>1</sup>Student, Department of Computer Application, VELS Institute of Science, Technology and Advanced Studies (VISTAS), Chennai, Tamilnadu, India.<sup>2</sup>Assistant Professor, Department of Computer Application, VELS Institute of Science Technology and Advanced Studies (VISTAS), Chennai, Tamilnadu, India.

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**Abstract:**

The Pet Store Online Shopping Website is a user-friendly e-commerce platform designed to provide a seamless shopping experience for pet owners. It offers a wide range of pet-related products, including pet food, accessories, grooming supplies, healthcare products, and toys, catering to different pet types such as dogs, cats, birds, and fish. The website features an intuitive interface with advanced search and filter options, allowing users to quickly find and compare products. Customers can securely register, log in, and manage their accounts while enjoying features like a shopping cart, wishlist, and order tracking. Secure payment gateways ensure a hassle-free checkout process with multiple payment options. Additionally, the platform supports product reviews and ratings to help buyers make informed decisions. Subscription services enable automated deliveries of pet essentials, making pet care more convenient. The website also includes customer support through live chat, email, and helplines for inquiries and assistance. Built using modern technologies such as HTML, CSS, JavaScript, and React.js for the frontend, and Node.js with MySQL for the backend, it ensures a smooth and secure shopping experience. By combining convenience, security, and a comprehensive product range, this online pet store serves as a one-stop solution for pet owners, making pet care easier and more efficient.

**Keywords:** *Online pet store, pet products, shopping cart, secure payment, order tracking, customer support, subscription services, pet care.*

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**ANTIMICROBIAL CHARACTERISTICS OF HYDROTHERMALLY  
DERIVED CUI NANOPARTICLES****G. DORRY BREEZE, S. R CHANDRA KESHVAR, AKSHARA SHERLINE J,  
VINODHA C, J. MERLINE SHYLA**Department of Physics, Energy NanoTechnology Centre (ENTeC),  
Loyola Institute of Frontier  
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**Abstract:**

This study outlines the synthesis process and characterization of CuI nanoparticles for environmentally sustainable biomedical waste treatment. CuI Nanoparticles were synthesized via a facile hydrothermal method. To observe the nanoparticle's morphological, opto-electronic, and anti-bacterial properties, the as-prepared samples were characterized using X-Ray Diffraction (XRD) Analysis, Field Emission Scanning Electron Microscopy (FE-SEM), Energy Dispersive X-ray (EDX) Spectroscopy and Bactericidal Studies by Agar well method. The XRD pattern confirmed the presence of Copper Iodide nanoparticles and the crystalline nature of the sample with an average crystallite size of ~ 17 nm. The morphology and particle size of the CuI nanoparticles, determined to be ~ 19 nm were probed using the Field Emission Scanning Electron Microscope. The purity of the sample with the presence of the elements Copper (Cu) and Iodide (I) was confirmed by EDX analysis. The antibacterial results showed that the tested CuI compound effectively inhibited the growth of both bacterial strains. Hence, it could be essentially concluded that the CuI nanoparticles are effective antibacterial agents inhibiting the growth of bacterial strain.

**Keywords:** *Copper Iodide, nanoparticles, hydrothermal, antimicrobial, bactericidal, sustainable.*

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**AD-HOC NETWORKS: ROUTE DISCOVERY AND LOAD BALANCING IN LRDV**

**Dr. M. JEYASREE,**

Assistant Professor

Department of Computer Science, St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

An Ad-Hoc network is a type of network in which mobile nodes form a self-creating, self-organizing and self-administering wireless network that communicates with each other without any external centralized control or established infrastructure. The wireless links in this network are prone to errors and go down often due to mobility of nodes, interference and less infrastructure. The intrinsic flexibility, lack of infrastructure, ease of deployment, low cost and potential applications make it an essential part of future pervasive computing environments. In recent years, several routing protocols have been proposed for mobile Ad-Hoc networks and well-known among them are DSR, AODV, ZRP, LRDV and TORA. This research paper provides an overview of these protocols with their characteristics, functionality, benefits, and limitations, how the load is balanced in LRDV and then makes their comparative analysis so as to analyze their performance.

**Keywords:** AODV, TORA, LRDV, DSR, IARP, Ad-Hoc.

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## SYNERGETIC EFFECT OF Ni DOPING IN $\text{Co}_2\text{MnO}_4$ ENHANCING PHOTOCATALYTIC PERFORMANCE FOR WASTE WATER TREATMENT

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### Abstract:

Spinel-structured cobalt manganite ( $\text{Co}_2\text{MnO}_4$ ) has emerged as a promising candidate for photocatalytic applications due to its mixed-valence states, narrow band gap, and enhanced redox kinetics. A Ni-substituted cobalt manganite spinel nanostructured  $\text{Co}_{2-x}\text{MnNi}_x\text{O}_4$  powder was successfully synthesized via the sol-gel route, and its structural, optical, and electronic properties were systematically characterized. X-ray diffraction (XRD) confirmed the formation of a single-phase cubic spinel structure (Fd-3m space group), with sharp and well-defined diffraction peaks, indicative of high crystallinity. A systematic shift in peak positions upon Ni incorporation suggested successful lattice substitution, inducing local structural distortions and modifying the crystal field environment. The estimated average crystallite size (~10 nm for  $\text{Co}_2\text{MnO}_4$  and 8 nm for  $\text{CoNiMnO}_4$ ) indicates a high surface area, favoring enhanced interfacial charge transfer. FTIR spectroscopy revealed characteristic vibrational modes at  $430\text{ cm}^{-1}$  and  $618\text{ cm}^{-1}$ , corresponding to the tetrahedral Co-O-Mn and octahedral Ni-O stretching vibrations, further substantiating the integrity of the spinel framework. UV-Vis diffuse reflectance spectroscopy (DRS) exhibited a red-shift in optical absorption, with a reduced band gap  $E_g$  (~1.8eV for  $\text{Co}_2\text{MnO}_4$  and 1.7eV for  $\text{CoNiMnO}_4$ ), signifying improved visible-light harvesting. Photoluminescence (PL) spectroscopy revealed a diminished emission intensity suggesting suppressed charge carrier recombination and prolonged electron-hole lifetimes, which are crucial for enhancing photocatalytic performance. The photocatalytic degradation of methylene blue solution under visible-light irradiation demonstrated accelerated kinetics, achieving near-complete degradation within approximately 60 minutes. These findings establish Ni-doped  $\text{Co}_2\text{MnO}_4$  as a highly efficient and structurally robust photocatalyst for sustainable environmental remediation applications.

**Keywords:** Spinel cobalt manganite, photo catalytic, dye degradation, waste water treatment

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## **A SYSTEMATIC REVIEW OF THE EFFECTS OF GAME-BASED LEARNING ON STUDENTS' EMOTIONAL AND ATTITUDINAL DEVELOPMENT IN MATHEMATICS EDUCATION**

**KULANDAI GRACY X**

Assistant Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Chennai

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### **Abstract:**

This systematic review explores the impact of game-based learning (GBL) on the affective domain of students in mathematics education. The affective domain encompasses emotions, attitudes, motivations, and values, which play a critical role in students' engagement and overall academic success. Despite the growing integration of GBL in educational settings, its influence on students' emotional and attitudinal development in mathematics remains underexplored. This review synthesizes existing research on how GBL impacts students' motivation, interest, confidence, and anxiety in mathematics learning. A comprehensive search was conducted across multiple academic databases to identify studies published in the last decade, focusing on both primary and secondary school students. The selected studies were analyzed for their methodologies, sample sizes, and key findings regarding the affective outcomes of game-based interventions in mathematics. The review reveals that GBL strategies often lead to increased motivation, positive attitudes toward mathematics, and reduced anxiety, contributing to enhanced engagement and a more enjoyable learning experience. However, the impact of GBL on students' long-term emotional development and its sustainability in classroom settings remains inconsistent across studies. This review highlights the potential of GBL to foster a positive emotional connection to mathematics, particularly in creating a low-stakes, interactive environment that encourages problem-solving and critical thinking. Despite promising results, the review suggests the need for more rigorous, large-scale studies to determine the long-term effects and optimal implementation strategies of GBL in mathematics education.

**Keywords:** *Game-Based Learning (GBL), Affective Domain, Mathematics Education, Student Motivation, Emotional Development.*

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**SUSTAINABLE EYE CARE SOLUTIONS: LESSONS FROM THE  
ARAVIND MODEL****Dr. NEENU MATHEWS**Guest Lecturer, MSW Disaster Management, Loyola College of Social Sciences  
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**Abstract:**

Visual impairment remains a critical global health issue, disproportionately affecting populations in low- and middle-income countries. Despite government-led initiatives, access to quality and affordable eye care services in India remains a challenge, particularly for rural communities, women, and economically disadvantaged groups. This article examines the role of innovative eye health care models in addressing avoidable blindness, with a specific focus on the Aravind Eye Care System in South India. The Aravind Eye Care System stands out as a sustainable and innovative approach to addressing needless blindness. The article is based on direct visits and observations at Aravind institutions, involving engagement with outpatient services, surgical procedures, community outreach programs, and training initiatives. Insights were systematically recorded to analyze service efficiency, patient-centered approaches, and sustainability strategies. Secondary sources, including institutional websites, reports and peer-reviewed literature, were reviewed to contextualize Aravind's impact within the broader framework of eye care services. The key takeaways from this model provide valuable lessons for other healthcare institutions seeking to balance social responsibility with operational excellence.

**Keywords:** *Eye care, public health, Sustainable healthcare, Aravind Eye Care, healthcare accessibility.*



## ENHANCING STUDENT EMPLOYABILITY THROUGH MACHINE LEARNING AND STATISTICAL ANALYSIS

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Kovur, Chennai.

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### **Abstract:**

This research paper is to investigate the key factors influencing student placement outcomes using a combination of statistical techniques and machine learning models. The research utilizes a dataset comprising academic performance metrics, extracurricular activities, aptitude scores, internship experience, and placement training participation. Findings indicate that higher CGPA, strong aptitude test performance, and active involvement in extracurricular activities significantly increase the chances of securing employment. Statistical tests, including Chi-square analysis, provide insights into the dependency of placement outcomes on various attributes. Additionally, machine learning algorithms such as logistic regression, gradient boosting, and AdaBoost are applied to predict student placement status, with gradient boosting proving to be the most effective model. The study highlights the importance of a data-driven approach in career guidance, enabling educational institutions to implement targeted interventions that enhance student employability.

**Keywords:** *CGPA, Aptitude Score, Placement, Regression, Machine Learning, Statistical Techniques*

## STATISTICAL ANALYSIS OF SURVIVAL OUTCOMES IN BREAST CANCER PATIENTS

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Kovur, Chennai.

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### **Abstract:**

This research paper is to evaluate survival outcomes in breast cancer patients using advanced survival analysis techniques to understand disease progression and treatment efficacy. Data from 300 patients at a private hospital, including socio-demographic characteristics, blood pressure, and other clinical parameters, were analyzed. The Kaplan-Meier method was applied to estimate survival probabilities over time, while the Cox proportional hazards model assessed the impact of various clinical factors. The findings revealed no significant differences in survival based on the site of surgery, age, height, weight, BMI, and post-operative analgesia. However, significant variations were observed in parameters such as patient group, first analgesia, heart rate, blood pressure, oxygen saturation, and patient satisfaction score. These insights highlight the importance of survival analysis in guiding early detection strategies and optimizing treatment approaches in breast cancer care.

**Keywords:** *Survival Analysis, Breast Cancer, Kaplan-Meier Estimation, Cox Regression Model, Clinical Outcomes.*

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**ASSESSING THE FIT OF PARAMETRIC DISTRIBUTION MODELS  
IN BREAST CANCER SURVIVAL ANALYSIS****<sup>1</sup>N. PARANJOTHI, <sup>2</sup>A. POONGOTHAI, and <sup>3</sup>MANIMANNAN G**<sup>2</sup>Associate Professor, Department of Statistics, Annamalai University, Chidambaram.<sup>1</sup>Assistant Professor, Department of Statistics,  
Muthayammal College of Arts and Science, Namkkal.<sup>3</sup>Associate Professor, Department of Mathematics,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

This study evaluates the effectiveness of parametric distribution models in survival analysis for breast cancer screening, focusing on data from 300 outpatient department (OPD) patients. Key parameters include socio-demographic factors, blood pressure, oxygen saturation, and diabetes-related indicators. Using the Survreg function in R, various parametric distributions were fitted to assess their goodness of fit. Additionally, the study explores the relationship between ASA Grade classification and the duration of surgery in relation to survival distributions. The findings contribute to a better understanding of survival trends and aid in optimizing model selection for accurate cancer prognosis.

**Keywords:** *Survival Analysis, Parametric Distribution Models, Goodness of Fit, ASA Grade, Cancer Prognosis.*

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**SYNTHESIS OF PURE AND FE DOPED ZNO NPS USING JUSTICIA  
ADHATODA LEAF EXTRACT FOR PHOTOCATALYSIS  
APPLICATION****N. PRABAVATHI<sup>1\*</sup>, S. STELLA MARY<sup>2</sup>, A. SAM PASCAL<sup>3</sup> and R. HEMA  
CHANDRIKA<sup>4</sup>**<sup>1\*,2,3,4</sup>Department of Physics, St. Peter's Institute of Higher Education and Research, Avadi -  
600054, Tamilnadu, India.

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**Abstract:**

In this present work, both pure and Fe-doped zinc oxide (ZnO) nanoparticles were synthesized through a simple and eco-friendly coprecipitation technique, utilizing the leaf extract of *Justicia adhatoda* as a reducing and capping agent. The synthesized nanoparticles were analyzed using XRD, UV-Visible spectroscopy, SEM, EDAX, FTIR, and Zeta Potential. The XRD analysis demonstrated the phase structure and crystalline characteristics of the nanomaterials, verifying that the ZnO nanoparticles synthesized through green methods displayed a hexagonal wurtzite structure. The UV-Visible spectral analysis indicated a decrease in the optical band gap energy for the samples that were prepared. SEM images revealed the nanosheet morphology, while EDAX spectra exhibited the elemental compositions of the nanoparticles. FTIR spectroscopy indicated the existence of functional groups in both the pure and Fe doped ZnO NPs. Further, the photocatalytic properties of the synthesized ZnO samples were assessed, showing that the Fe doped ZnO nanoparticles demonstrated an enhanced photocatalytic activity against pollutants compared to pure ZnO NPs.

***Keywords:*** Green synthesis; *justicia adhatoda*; ZnO; Photocatalysis; Zeta Potential

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**INVESTORS INVESTMENT PATTERN IN STOCK MARKET  
INSTRUMENTS WITH OTHER ASSET ALLOCATION IN CURRENT  
SCENARIO - AN EMPIRICAL STUDY**

**R. D. KARTHICK<sup>1</sup>, Dr. C. SANKAR<sup>2</sup>**

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<sup>2</sup>Associate Professor, PG and Research Department of Commerce, Vivekananda College of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode-637205

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**Abstract:**

This research paper investigates the investors Patten in investment in various asset classes with highlight the stock market instruments for better and flexible constant returns. For the last 5 months the Indian stock market is not enough for Indian investors and many FII moved out due to various countries stock market better performance. This study shows what the opportunity is and challenges the Indian investors faced and how to overcome with that with cut short decent returns in various asset classes with diversity in investment. This research paper attempt the risk tolerance of investors in basic asset instruments like bank deposits, gold, post office schemes which will be highly benefited to policymakers, financial institutions, and investors.

**Keywords:** *Investment patterns, foreign institutional investors, taxpaying year, stock market instruments, portfolio.*

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**A STUDY ON INVESTORS' PERCEPTION AND PATTERN OF INVESTMENT IN STOCK MARKET INSTRUMENTS WITH SPECIAL REFERENCE TO CHENNAI CITY**

**R. D. KARTHICK<sup>1</sup>, Dr. C. SANKAR<sup>2</sup>**

<sup>1</sup>Research Scholar, PG and Research Department of Commerce, Vivekananda College of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode-637205.

<sup>2</sup>Associate Professor, PG and Research Department of Commerce, Vivekananda College of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode-637205

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**Abstract:**

This research paper investigates the perception and investment patterns of individual investors in stock market instruments in Chennai, India. The study explores factors influencing investment decisions, risk appetite, awareness of financial instruments, and demographic variables. Using a mixed-method approach, data was collected from 400 respondents through structured questionnaires and analyzed using SPSS advanced tools, including regression analysis, factor analysis, and cluster analysis. The findings reveal that financial literacy, risk tolerance, and socio-economic factors significantly shape investment behavior. The paper contributes to understanding regional investment trends and offers recommendations for policymakers, financial institutions, and investors.

**Keywords:** *Investment patterns, investor perception, stock market instruments, Chennai, SPSS analysis.*

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**EXPLORING THE LINKS BETWEEN SUSTAINABILITY AND  
HUMAN HEALTH: A STUDY OF KANCHEEPURAM DISTRICT**

**Mr. D. RAJA<sup>1</sup>, Mr. RAM PRAKASH<sup>2</sup>**

<sup>1</sup>Assistant Professor, Department of Commerce,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

This study explores the intricate relationships between sustainability and human health in Kancheepuram district, Tamil Nadu, India. The research investigates the environmental problems posed by health care centers, such as hospital waste, air pollution and water pollution, and their impact on human health. A mixed-methods approach is employed, combining both qualitative and quantitative data collection and analysis methods. The study reveals that unsustainable practices in healthcare centers contribute significantly to environmental pollution; which in turn affects human health. There searching highlights the need for sustainable practices in healthcare centers and recommends strategies for promoting sustainability and reducing environmental pollution. The study's findings have implications for policymakers, healthcare professionals, and the general public, emphasizing the importance of adopting sustainable practices to ensure human health and well-being.

**Keywords:** *Sustainability, Human Health, Healthcare, Air Pollution, and Policy Makers*

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## **CHALLENGES FACED BY WOMEN FARMERS IN MARKETING AGRICULTURAL PRODUCE: A CASE STUDY OF THE EASTERN PROVINCE OF ZAMBIA**

**A.RANI MARY**

Ph.D. Research Scholar, Department of Social Work, DMI St. Eugene University, Lusaka.

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### **Abstract:**

#### **Introduction**

Women farmers play a pivotal role in agricultural production, yet they face numerous challenges that hinder their participation in formal markets, particularly in developing regions such as the Eastern Province of Zambia. This study aims to investigate the key barriers that women farmers encounter in marketing their agricultural produce and to explore potential solutions to enhance their market access and economic empowerment.

#### **Methods:**

The research adopts a mixed-methods approach, incorporating qualitative interviews and quantitative surveys to gather comprehensive data from women farmers, agricultural stakeholders, and policymakers. Key areas of focus include limited access to market information, inadequate transportation infrastructure, gender-based discrimination, insufficient financial resources, and the impact of cultural norms on women's economic activities.

#### **Results and Discussion**

The findings of this study will contribute to a deeper understanding of the systemic challenges that hinder women farmers' participation in the agricultural value chain. The study will also propose policy recommendations and community-driven interventions aimed at improving market accessibility, fostering gender equity, and promoting sustainable agricultural development in the Eastern Province of Zambia. This research has the potential to influence policy formulation and empower women farmers to become key drivers of rural economic growth.

#### **Conclusion:**

This study highlights the critical barriers that hinder women farmers in the Eastern Province of Zambia from fully participating in agricultural markets. These challenges, deeply rooted in structural and socio-cultural factors, restrict women's economic opportunities and perpetuate gender inequalities in rural areas. Addressing these issues requires a multi-stakeholder approach that integrates policy reforms, capacity-building programs, and community-driven initiatives. Empowering women farmers with better market access and resources can significantly boost rural development, enhance food security, and contribute to Zambia's economic growth. By tackling these challenges, women farmers can become central agents of change in the agricultural value chain.

**Keywords:** *Women farmers, Agricultural Marketing, Eastern Province, Zambia, Gender inequality, Market access, rural development, Agricultural Policies, Socio-cultural barriers, Economic Empowerment*



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**A STUDY ON EMPLOYEES WELL BEING AND WORK LIFE  
BALANCE IN IT SECTOR WITH SPECIAL REFERENCE TO  
CHENNAI CITY**

**Ms. L. SANGEETHA<sup>1</sup>, Ms. DHARSHINI<sup>2</sup> Ms. NARMADHA<sup>3</sup>,  
S. SANTHOSH KUMAR<sup>4</sup>**

<sup>1,2,3</sup> UG Students, St. Joseph's College (Art's & Science) Kovur, Chennai

<sup>4</sup>Assistant Professor- Department of Commerce, St. Joseph's College (Art's & Science)  
Kovur, Chennai

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**Abstract:**

This research explores the impact of work-life balance (WLB) policies on productivity. The findings in this area of research suggest that organizations that implement effective WLB policies experience higher levels of productivity among their employees. By providing the necessary support and flexibility, these policies enable employees to effectively manage their time and energy, leading to improved focus, creativity, and motivation. such programs in enhancing mental health, lowering burnout, and increasing employee happiness is examined in this research. Results indicate that work-life balance initiatives, when executed well, greatly enhance a more favorable work atmosphere, elevate

**Keywords:** *Employees Wellbeing, Work life Balance, Policy experience, Productivity*

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## THE REJUVENATION OF YOUTH EMPIRE: ENTHRALLING A SUSTAINABLE PROSPECTIVE

WASIM AZAM

Research Scholar, Department of English, Banaras Hindu University  
Varanasi, U.P., India

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### **Abstract:**

Youth power is an expansion of fulfilling all desires what should be needed for evolution and revolution. Youth take charge of their lives to transform consciousness through beliefs, values, and aptitudes. They are a major factor for achieving any goals or destinations that are necessary for holistic advancement. They are key delegates for growth and innovation. They are key agents for socio-political change, economic growth, and technological implementation of skills. Their critical thinking, innovation, and tech skills enrich effective advocacy through various platforms either offline or digital platform. They are progressive and industrious to attain the real estimate of nation's holistic advancement. They are able to tackle inequalities and discrimination on the parameters of color, race, caste, religion, education, language, culture, and social value. Young ones are able to drive the decade of action for sustainable future on the basis of climate action by eradicating gender biases, inequities, and inequalities. The objective of paper is to state the concept of United India where one can march forward towards an action under the divine inspiration. Education would be priority which we can use to manifest the new world of hopes and dreams. Youth activism drives certain innovations for gender equality and environmental communication.

**Keywords:** *Youth, Social, Initiative, Divinity, Sustainable, Education*

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## PHISHING URL DETECTION AND PREVENTION: A BROWSER EXTENSION

Dr. N. PARVIN<sup>1</sup> and H. MOHAMED AASHIQ ALI<sup>2</sup>

<sup>1,2</sup>Assistant Professor, MCA, Department of Computer Applications

B.S .Abdur Rahman Crescent Institute of Science and Technology, Chennai

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### Abstract:

Phishing continues to be a major cybersecurity challenge, exploiting users' trust by imitating legitimate websites to steal sensitive information. An innovative machine learning-based system is designed to detect phishing URLs and integrate the detection directly into a browser extension. The system generates a synthetic dataset by simulating both legitimate and phishing URLs through custom Python scripts. Meaningful features, including URL length, domain structure, numerical character ratio, and protocol security, are extracted and utilized to train a Random Forest classifier. The trained model is hosted on a Flask-based web server and interacts with a responsive front-end built using HTML and CSS, providing real-time feedback to users. Initial testing on the synthetic dataset demonstrates high accuracy and fast response times, indicating that the approach is practical and effective for real-world scenarios. The system also emphasizes scalability, maintainability, and robust data security measures. Future work will involve incorporating real-world phishing examples, further improving model performance, and enhancing cross-browser compatibility.

**Keywords:** *Phishing Detection, Machine Learning, Browser Extension, Random Forest Classifier, Flask, URL analysis, Real-time Security.*

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**FACTORS AFFECTING CONSUMER TO BUY ELECTRONIC  
VEHICLE IN RAJKOT CITY**

**Mr. ABHISHEK MIRANI<sup>1</sup> Mr. PARTH RANPARA<sup>2</sup> Mr. TASHIN KUKAD<sup>3</sup>  
Mr. JEET MADHANI<sup>4</sup>**

<sup>1, 2, 3</sup> Student, Department of Management,  
Faculty of Business and Commerce,  
ATMIYA University, Rajkoat, Gujarat

<sup>4</sup> Assistant Professor, Department of Management,  
Faculty of Business and Commerce ATMIYA University, Rajkoat, Gujarat

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**Abstract:**

In the automobile industry there is the electronic vehicle preference is increasing for the consumers all over the world and specifically in India. In current market ecofriendly and pollution free product is on demand in India. every people want to live in the ecofriendly environment, pollution free-society. Use of automobile increasing it will have negative impact on the environment. As a result, mode of transport is environment friendly. Purpose of this study is to explore factors affecting consumer to buy electronic vehicle in Rajkot city, and this study based on the multiple regression model by taking randomly samples from the Rajkot city. Analyze 133 samples that defines the factors that identified by this study is to financial incentives, price of the EV, charging infrastructure, environmental concern and researcher identified that there are all these factors affect to the consumers while buying electronic vehicle specially in Rajkot city. Key Words: Electronic Vehicle, Price, Environment Concern, Financial Incentives.

***Keywords:*** *Electronic Vehicle, Price, Environment Concern, Financial Incentives.*

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**IOT BASED INTRUSION DETECTION USING DEEP LEARNING****Dr. JOSE REENA K**

Assistant professor

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B. S. Abdur Rahman Crescent Institute of Science and Technology,  
Vandalur, Chennai, joserheena@gmail.com**A. ABUTHALIB**MCA, Department of Computer Applications,  
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**Abstract:**

The rise of cyber threats, traditional Intrusion Detection Systems (IDS) struggle to detect evolving attacks. This paper presents an AI-powered IDS leveraging Deep Learning (DL) techniques to enhance network security. The proposed system uses the NSL-KDD dataset, preprocesses network traffic data and applies Principal Component Analysis (PCA) for feature selection and Convolutional Neural Networks (CNNs) for intrusion classification. Evaluation metrics such as accuracy, precision, recall and confusion matrix demonstrate that the CNN-based IDS achieves superior detection accuracy. This research highlights the potential of AI-driven IDS to enhance cybersecurity, reduce false positives and detect sophisticated network intrusions in real time.

**Keywords:** *Intrusion Detection System (IDS), Network Security, Cyber Threat Detection, Deep Learning, NSL-KDD, Convolutional Neural Networks (CNN).*

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## REVIEW OF CELL-TO-CELL TRANSMISSION OF VIRUSES USING MATHEMATICAL MODELING

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<sup>2</sup>Associate Professor, Department of Mathematics, St. Joseph's College (Arts & Science), Kovur, Chennai

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### **Abstract:**

Mathematical models of cell-to-cell viral transmission have provided an important perception of how a virus enters the host. There has been huge evolution with complete biological progressions for mathematical models including immune system, antiviral therapy and simultaneous infection of two or more different pathogens. The typical assumption of each model is that they have come out from host cells and then moves through the space outside of cells and replicates on one more cell. This process is called as cell-to-cell transmission of viral infection. Moreover, the transmission can happen directly from one cell to another cell, or the virus affects the neighboring cells, and it will be continued to infect the healthy cells. Also, majority of the mathematical models have not been explained clearly the cell-to-cell viral transmission. This paper examines the present state of the mathematical modeling of cell-to-cell viral transmission clearly. Also, mathematical models have been established to study these processes, there are improvements needed to get more results to identify the viral transmission.

**Keywords:** *Cell-to-Cell Transmission, Virus, Mathematical Modeling, Syncytia, Viral Propagation.*

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## **ROLE OF AI IN LARGE – SCALE RETAILING**

**Dr. T. DEVI KAMATCHI,**

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**Abstract:**

Artificial Intelligence (AI) has revolutionized many industries, including large-scale retailing, enhancing customer experiences, streamlining operations, and optimizing business strategies. This study explores the significant role AI plays in retailing, focusing on its impact on customer behavior, inventory management, pricing strategies, and personalized marketing. By utilizing AI technologies like machine learning, natural language processing, and predictive analytics, retailers have transformed their operations. The research aims to provide insights into the current trends, challenges, and future potential of AI in the retail sector.

**Keywords:** *Artificial Intelligence (AI), Large-scale retailing, Customer experience, streamlining operations, Optimizing business strategies, Customer behavior*

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## IMPACT OF ESG FACTORS ON STOCK RETURNS OF NIFTY ENERGY STOCKS

**DEEKSHANNA S, Dr. PREMALATHA KP,**

PG Student, Department of Finance Cms Business School, Jain University, Bengaluru  
Department of Finance Assistant Professor, Cms Business School, Jain University

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### **Abstract:**

This study examines the relationship between Environmental Social, and Governance (ESG) factors and the stock returns of NIFTY Energy sector companies. With the growing emphasis on sustainable investing, understanding the financial impact of ESG metrics is essential for investors and policymakers. Using data from 2022 to 2025, this research applies correlation analysis, regression modeling, and risk-adjusted performance evaluations to assess the influence of ESG scores on stock returns. The findings suggest that governance factors play a significant role in stock performance, while environmental and social factors exhibit mixed effects. However, the overall impact of ESG scores on stock returns remains statistically insignificant. The study highlights the need for a broader approach to investment analysis, considering both ESG compliance and fundamental financial indicators. Additionally, this research explores why ESG factors fail to significantly impact stock returns and suggests avenues for future research on the role of ESG in financial markets.

**Keywords:** *Environmental Social, and Governance, NIFTY, ESG scores.*



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**THE SURVIVAL OF NAGA CULTURE AMIDST  
TECHNOLOGICAL ADVANCEMENTS**

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**Dr. PRAMODINI MAGH**

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**Abstract:**

The Nagas are believed to have migrated from southwestern China thousands of years ago. They inhabit Nagaland, parts of Manipur, Assam, Burma, etc. There is diversity in language and culture, sharing a set of core cultural elements that make them unique in the country. Like any other society, there is a tendency to surpass culture with the emergence and advancements in technology. However, there is a strong move towards the preservation of culture among the Naga tribes which has stimulated the revival of culture and tradition. This study was conducted to explore promotional areas of Naga culture including the programs and policies of the Government concerning the preservation and promotion of culture.

For this study, quantitative research methodology was employed. Using a cluster sampling technique 170 respondents were selected and the data collection, analysis, and interpretation of numerical data were conducted objectively. The study found that family, religion, society, economy, environment, politics and education were the best areas for promoting Naga culture. The modes of preserving culture varied accordingly. The study opened more avenues for Nagas to engage themselves in their culture productively.

**Keywords:** *Nagas, Culture, Survival, Technology, Advancements*

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## MACHINE LEARNING BASED PREDICTIVE MODELING FOR EARLY DETECTION OF CARDIOVASCULAR DISEASES

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<sup>3</sup>Assistant Professor, Department of Computer Applications,  
St. Joseph's College (Arts & Science), Kovur, Chennai – 600128.

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### **Abstract:**

This research paper attempts to identify the most effective machine learning model for predicting cardiovascular diseases (CVDs), a leading cause of morbidity and mortality worldwide. Early detection is crucial for timely medical intervention, and this study employs logistic regression and multi-layer perceptron (MLP) to assess CVD risk based on clinical, demographic, and lifestyle factors. The dataset was meticulously preprocessed, addressing missing values, encoding categorical variables, and normalizing numerical features. The logistic regression model achieved a high AUC of 0.9963 with a precision of 98.50%, while the MLP model demonstrated a superior AUC of 0.99978 and a precision of 97.50%. The findings emphasize the potential of machine learning in enhancing early CVD diagnosis, providing valuable decision-support tools for healthcare professionals, and improving patient outcomes.

**Keywords:** *Cardiovascular disease, machine learning, predictive modeling, logistic regression, multi-layer perceptron, early diagnosis, clinical decision support.*

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## **AI AND THE FUTURE OF WORK IN INDIA: BALANCING JOB DISPLACEMENT AND SKILL TRANSFORMATION**

**NILESH WAGDE**

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### **Abstract:**

The rapid advancement of Artificial Intelligence technologies has sparked significant debates about their impact on employment, particularly in developing economies like India. This study explores the dual impact of AI on employment in India, focusing on the tension between job displacement and the emergence of new skill demands. By analyzing recent trends, case studies, and government policies, the study highlights both the opportunities and challenges posed by AI adoption. While AI-driven automation threatens low-skilled and routine jobs, it also fosters demand for high-skilled roles in AI development, data analysis, machine learning. The paper underscores the critical need for reskilling and upskilling initiatives to prepare India's workforce for an AI-driven future. Additionally, it explores the role of public-private partnerships and policy frameworks in mitigating job displacement and ensuring inclusive growth. The findings suggest that a balanced approach, combining technological innovation with robust social and educational reforms, is essential to harness AI's potential while safeguarding employment in India. This research contributes to the ongoing discourse on AI and employment, offering insights for policymakers, industry leaders, and educators in navigating the evolving landscape of work in the AI era.

**Keywords:** *Employment, Indian Labor Market, Job Displacement, Skill Transformation, Social and Educational Reforms.*

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## ON TOTAL CORDIAL LABELING OF QUADRILATERAL SNAKE GRAPHS

**JAISHA P**

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**Abstract:**

A graph  $G(V, E)$  is said to be *cordial* if there exist a vertex labeling  $f : V \rightarrow \{0, 1\}$  which induces an edge labeling  $f^* : E \rightarrow \{0, 1\}$  defined by  $f^*(uv) = |f^*(u) - f^*(v)|$  for each edge  $uv \in E$ , such that  $|V_f(0) - V_f(1)| \leq 1$  and  $|E_{f^*}(0) - E_{f^*}(1)| \leq 1$  where  $V_f(0)$  is the number of vertices labeled with 0,  $V_f(1)$  is the number of vertices labeled with 1,  $E_{f^*}(0)$  is the number of edges labeled with 0 and  $E_{f^*}(1)$  is the number of edges labeled with 1. A cordial graph in which the number of vertices and edges labeled with 0 and the number of vertices and edges labeled with 1 differ by at most 1 (i.e.)  $\left| (V_f(0) + E_{f^*}(0)) - (V_f(1) + E_{f^*}(1)) \right| \leq 1$  is called as a *total cordial* graph. In this paper, we have proved the existence of total cordial labeling of Quadrilateral snake graphs.

**Keywords:** *Cordial Labeling, Vertex labeling, total cordial graph and Snake graphs*

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## **ROLE OF UNIVERSITIES IN ACHIEVING SELECTED SUSTAINABLE DEVELOPMENT GOALS**

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### **Abstract:**

The role of universities in achieving Sustainable Development Goals (SDGs) is increasingly significant, as they integrate sustainability into education, research, and community engagement. This study explores how higher education institutions contribute to SDGs, particularly SDG 4 (Quality Education), SDG 11 (Sustainable Cities and Communities), and SDG 17 (Partnerships for the Goals). Universities incorporate sustainability through curriculum reforms, campus sustainability initiatives, and partnerships with governments, NGOs, and businesses. However, challenges such as rigid governmental policies, limited collaboration, and a lack of standardized sustainability reporting hinder progress. A survey of 200 participants, including students, academics, and professionals, assessed awareness, attitudes, and engagement with sustainability. The findings indicate a strong recognition of education's role in sustainable development, with most respondents emphasizing the need for curriculum integration. Additionally, there was significant support for sustainable urban planning and energy-efficient campus operations. Respondents also acknowledged the importance of partnerships in advancing sustainability efforts, highlighting the necessity of multi-stakeholder collaboration. The study underscores that while universities play a vital role in fostering sustainability, achieving meaningful impact requires institutional commitment, interdisciplinary cooperation, and strategic leadership. Universities must bridge the gap between policy and practice by strengthening partnerships, improving sustainability reporting, and enhancing student and faculty engagement. Christ University serves as a case study, showcasing its proactive approach to sustainability through its SDG Cell, research initiatives, and campus programs. The research highlights the need for a holistic approach to integrating SDGs into higher education, ensuring long-term sustainability and societal transformation.

**Keywords:** Sustainable Development Goals, NGOs.

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**ENERGY HARVESTING THROUGH PIEZOELECTRIC EFFECT  
USING LITHIUM SULPHATE DOPED TRIGLYCINE SULPHATE  
SINGLE CRYSTAL**

<sup>1</sup>SRIKANTH SARAVANAN, <sup>2</sup>RAJESH PAULRAJ, <sup>1</sup>G M DEYANESH KRISHNA,  
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**Abstract:**

In this work, single crystals of triglycine sulphate (TGS) doped with lithium sulphate ( $\text{Li}_2\text{SO}_4$ ) were grown along the (1 0 0) direction using the Sankaranarayanan-Ramasamy (SR) method under ambient temperature conditions. Conventional TGS crystals show various growth planes, growth sectors, facets, and boundaries, which can influence their crystalline perfection, as well as their mechanical and electrical properties. For device fabrication, large, unidirectional bulk single crystals are preferred to ensure uniformity and enhanced performance. Therefore, efforts were made to grow large-sized, directionally controlled single crystals using the SR method. This method offers key advantages, including a simple experimental setup, controlled directional growth, and minimal thermal stress on the crystal during growth. Identical samples with the same orientation were subjected to various characterization techniques, including single-crystal XRD (X-ray diffraction), powder XRD, FTIR (Fourier transform infrared spectroscopy), UV-Vis (Ultraviolet-visible spectroscopy) transmittance, dielectric permittivity, dielectric loss, and photoconductivity studies. Multiple samples were analysed, and the results were found to be reproducible.

**Keywords:** *triglycine sulphate, Sankaranarayanan-Ramasamy (SR) method.*

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**ENTREPRENEURSHIP IN INDIA: AN ANALYSIS OF  
DEVELOPMENT UNDER THE 'STARTUP INDIA' SCHEME**

**Dr.R.ANDY,**

Assistant professor, Department of commerce (SF),  
N.M.S.S. Vellaichamy Nadar College, Nagamalai, Madurai – 625 019.

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**Abstract:**

Entrepreneurship plays a crucial role in driving a nation's economic development. It stimulates the economy by generating employment opportunities and increasing income levels. Additionally, it contributes to rural development and advancements in various industries. The sector fosters innovation and enhances export capabilities. In India, several initiatives have been introduced to promote entrepreneurship, reflecting the keen interest of policymakers in this domain. One significant initiative is the Startup India program, which aims to support private enterprises. However, there remains a segment of the population that underestimates the importance of entrepreneurship. This paper examines the landscape of entrepreneurship in India and evaluates the impact of the Startup India initiative. The research draws on a variety of sources, including books, academic journals, websites, and scholarly articles. As Peter Drucker noted, "*Entrepreneurship is a practice.*"

**Keywords:** *Entrepreneur, Entrepreneurship, Startup, Innovation, Development and Promotion.*

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## **CORPORATE GOVERNANCE IN INDIA: DEVELOPMENT AND CHALLENGES**

**Dr. C. KARTHIKKUMAR,**

Assistant Professor, Department of Commerce with Computer Applications,  
N.M.S. S.Vellaichamy Nadar College, Madurai.

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### **Abstract:**

This paper seeks to examine the various advancements in Corporate Governance within India. The advent of new technologies during the periods of globalization and liberalization has fundamentally transformed the landscape of business transactions. As business life cycles have evolved, these transactions have become increasingly intricate, making risk management a significant challenge for organizations. The issues surrounding corporate governance in India were primarily ignited by the Harshad Mehta stock market scandal in 1992, along with subsequent events involving companies issuing preferential shares to their promoters at significantly reduced prices, and the recent Satyam scandal. The concept of good corporate governance has emerged as a crucial element in addressing accounting scandals and alleviating concerns regarding the integrity of financial statements. In essence, Corporate Governance focuses on fostering fairness, transparency, and accountability within corporations.

*Keywords: Corporate governance, International integration, Deregulation, Fundamentals and Challenges.*



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**STATISTICAL INSIGHTS INTO TIRUVANNAMALAI GIRIVALAM:  
TOURIST POPULATION, INCOME DYNAMICS AND EVENT  
IMPACT ANALYSIS****<sup>1</sup>Dr. K. VALARMATHI and <sup>2</sup>MANIMANNAN G.**<sup>1</sup>Associate Professor, Department of Commerce<sup>2</sup>Associate Professor, Department of MathematicsSt. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

This research builds a comprehensive database of 1,000 samples covering key parameters of the Tiruvannamalai Girivalam, including daily tourist population, hotel bookings, and revenue streams from food stalls, transport services, and temple donations. The main objective is to explore the influence of seasonal trends and special events on tourist footfall and income generation. Results from descriptive statistics indicate that the average daily population is approximately 72,000 with a peak of over 400,000 on special event days. Total income on special event days averaged ₹12 lakh, nearly three times higher than non-event days. Correlation analysis revealed a strong positive relationship ( $r = 0.89$ ) between tourist population and total income. Visualization through pivot tables, time series plots, and pie charts demonstrated that temple donations accounted for the largest share of total income (up to 60%). These findings have important implications for local businesses, hotels, and policymakers, highlighting the need for enhanced infrastructure and services during peak periods to accommodate rising tourist inflows and optimize economic benefits.

**Keywords:** *Tiruvannamalai Girivalam, Tourist Population, Income Dynamics, Event-Based Trends, Statistical Results*

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**THE EFFECTS OF TRAINING AND DEVELOPMENT ON  
EMPLOYEE PERFORMANCE AND ORGANIZATIONAL  
EFFICIENCY AN EMPIRICAL ANALYSIS A SELECT STUDY ON  
R. K. STEEL MANUFACTURING COMPANY CHENNAI.**

**\*Dr.P.PORSEZIYAN,  
Head & Asst Professor, St.Joseph's College (Arts & Science)\*  
porseziyan@gmail.com**

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**Abstract:**

Steel is regarded as the foundation of human civilization and is essential to the growth of any modern economy. An important indicator of a nation's socioeconomic development and standard of living is the amount of steel consumed per person. It comes from a large, technologically complex industry with strong forward and backward links to material flows and revenue generation. The robust steel industry and the expansion of many of these economies characterize all major industrial economies. The main aim of this paper is to find out the factors which are influencing training and development Practices. In order to gain a more in-depth understanding, the perceptual differences that exist among the employees in relation to each of the aforementioned parameters are also investigated. Based on their experience, employees' perceptions of the impact dimensions of training and development have on job performance, self-development, behavioral changes, trainers, the learning environment, etc. were more favorable among employees in the higher age group. In addition, the executives' feelings and reflections regarding the majority of the impact dimensions of training and development on organizational aspects appear to be comparatively more mature and upbeat.

***Keywords:*** *Training & Development, Employee Performance, Organizational Efficiency, Steel Plant*

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**A STUDY ON OCCUPATIONAL STRESS AMONG IT EMPLOYEES****BHARATH KUMAR R M<sup>1</sup>, SAM SANGEETH. G<sup>2</sup> and Dr. M. BABY<sup>3</sup>**<sup>1</sup>II MSW, Department of Social Work, St. Joseph's College (Arts & Science), Chennai<sup>2,3</sup>Asst. Professor, Department of Social Work,  
St. Joseph's College (Arts & Science), Chennai

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**Abstract:**

Occupational stress has become a prevalent challenge in the fast-paced and demanding Information Technology (IT) sector, significantly impacting employee well-being and organizational productivity. This study focuses on occupational stress among IT employees with reference to Chennai. The aim of this study is to examine the occupational stress of IT employees. A descriptive research design was adopted. The simple random sampling design (lottery method) was employed in the study. The primary data were collected using a structured questionnaire administered to a sample of 50 randomly selected employees were selected. The collected data were analysed using statistical tools to understand the level of occupational stress. Findings reveal that excessive work pressure, lack of organizational support, inadequate stress management policies, and low job security significantly contribute to occupational stress. The study highlights the importance of proactive stress management strategies, including employee assistance programs, flexible work arrangements, clear role definitions, and regular stress assessments to foster a healthier and more productive work environment. The study recommends appointment of social worker in IT sectors.

**Keywords:** *Occupational Stress, IT Employees, Management Strategies, Regular Stress and Social Workers*

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## SYNTHESIS CHARACTERISTICS OF CUO NANO PARTICLES BY CHEMICAL PRECIPITATION METHOD

R.AMARAVEL\*, M. IGNATIUS<sup>1</sup> and M. VIGNESHWAR<sup>2</sup>

<sup>1,2,\*</sup> Assistant Professor, St Joseph's college (Arts & Science), Kovur Chennai

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### **Abstract:**

CuO nanoparticles (NPs) were synthesized using a chemical precipitation method. An aqueous solution of 0.9M NaOH was used as a reducing agent, along with a 100 mM CuSO<sub>4</sub> precursor to obtain the desired CuO NPs. The optical and morphological characteristics of the CuO NPs were investigated by ultraviolet-visible spectroscopy (UV-Vis) and scanning electron microscopy (SEM) respectively. The UV-Vis absorption spectrum of the CuO NPs showed a peak at 230 nm, corresponding to a band gap of 4.15 eV. The SEM images revealed clusters of nanostructures with widths ranging from 100 nm to 500 nm. The X-ray diffraction (XRD) spectra indicated that the CuO NPs were highly pure, crystalline and nano-sized. The SEM images also showed that the nanoparticles were spherical in shape, with a tendency of agglomeration. FTIR studies confirmed the interactions between copper and oxygen atoms in the CuO NPs.

**Keywords:** XRD, UV and FTIR

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**SOFTWARE TESTING AUTOMATION:  
IMPROVING EFFICIENCY AND RELIABILITY**

**Ms. R. JEEVITHA,**  
Assistant Professor, Department of Computer Applications,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

The automation of software testing has emerged as an essential element in the development lifecycle, driven by the on-going advancements in the software industry and the demand for timely delivery of high-quality products. By automating repetitive and labor-intensive tasks, organizations can significantly reduce human error, ensure uniform test coverage, and accelerate their development timelines. This paper evaluates various automation frameworks, tools, and techniques utilized in the field, highlighting their benefits and potential limitations. Additionally, it delves into the methodologies, tools, and best practices for effectively automating software testing.

**Keywords:** *Software Testing, Software Automated Testing, Automation Tools, Frameworks*

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## MATHEMATICAL MODELING OF EPIDEMIC DYNAMICS IN CHENNAI USING THE SIR MODEL

<sup>1</sup>K. SUJATHA, <sup>2</sup>D. FLORA EVANGIL, <sup>3</sup>K. RENUGADEVI and <sup>4</sup>MANIMANNAN G

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<sup>4</sup>Associate Professor, Department of Mathematics, St. Joseph's College (Arts & Science),  
Kovur, Chennai

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### **Abstract:**

This research Paper attempts to identify and analyzes the spread of an epidemic in Chennai using the Susceptible-Infected-Recovered (SIR) model with a dataset of 300 samples. The simulation begins with an initial susceptible population of 990,000, an infected population of 8,000, and a recovered population of 2,000, with an infection rate ( $\beta$ ) of 0.3 and a recovery rate ( $\gamma$ ) of 0.1. The model predicts that infections peak on day 50, reaching 150,000 active cases, before declining as recoveries increase. By day 150, the outbreak subsides, with less than 1,000 active infections and 800,000 recovered individuals. The susceptible population declines sharply, while the recovery curves continuously rises, demonstrating the establishment of herd immunity. Distribution analyses reveal a bell-shaped infection curve, a right-skewed susceptible curve, and a steadily increasing recovery curve, validating the epidemic's progression. These findings emphasize the critical role of public health interventions in controlling outbreaks and optimizing resource allocation.

**Keywords:** *SIR Model, Epidemic Dynamics, Disease Spread, Mathematical Modeling, Public Health, Chennai*

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## **CORPORATE GOVERNANCE IN INDIA: DEVELOPMENT AND CHALLENGES**

**Dr. C. KARTHIKKUMAR**

Assistant Professor, Department of Commerce with Computer Applications,  
N. M. S. S. Vellaichamy Nadar College, Madurai.

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### **Abstract:**

This paper seeks to examine the various advancements in Corporate Governance within India. The advent of new technologies during the periods of globalization and liberalization has fundamentally transformed the landscape of business transactions. As business life cycles have evolved, these transactions have become increasingly intricate, making risk management a significant challenge for organizations. The issues surrounding corporate governance in India were primarily ignited by the Harshad Mehta stock market scandal in 1992, along with subsequent events involving companies issuing preferential shares to their promoters at significantly reduced prices, and the recent Satyam scandal. The concept of good corporate governance has emerged as a crucial element in addressing accounting scandals and alleviating concerns regarding the integrity of financial statements. In essence, Corporate Governance focuses on fostering fairness, transparency, and accountability within corporations.

**Keywords:** *Corporate governance, International integration, Deregulation, Fundamentals and Challenges.*

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## TO MEASURE THE PSYCHOLOGICAL WELLBEING OF THE ADOLESCENTS

KEWIN DONOLD J<sup>1</sup>, SAM SANGEETH. G<sup>2</sup> and M. BABY<sup>3</sup>

<sup>1</sup>II MSW, Department of Social Work, St. Joseph's College (Arts & Science), Chennai

<sup>2,3</sup>Asst. Professor, Department of Social Work, St. Joseph's College (Arts & Science),

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Chennai

### **Abstract:**

Psychological wellbeing plays a pivotal role in an adolescence overall health, particularly it directs their personal and professional life even thou they are inss transitory and confusion state. Understanding the psychological wellbeing of individuals can assist in creating a more supportive environment particularly in educational institutions. This research aims to measure the psychological wellbeing of the respondents using the standardized psychological wellbeing scale (Joseph R D, Sivaprakash 2023). It has 7 domains with 56 items. A descriptive research design was used. Simple random sampling was employed and 60 samples were retrieved to ensure a diverse representation of individuals from different demographic characteristics. Statistical tool SPSS27 were employed to analyze the data, the outcomes were found. It will be discussed in the full paper. The results of this study can guide policymakers, mental health professionals, and educators in implementing interventions that promote mental health and improve the overall psychological wellbeing of adolescents.

**Keywords:** *Psychological Wellbeing, Emotional Wellbeing, Adolescents, Mental Health.*



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**REFUGEES MENTAL HEALTH****MADHU .D, SAM SANGEETH .G, M BABY**

PG Student, Department of Social Work, SJCK, Chennai 128

Assistant Professor, PG Department of Social Work SJCK, Chennai 128

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**Abstract:**

Refugees are individuals who are forced to flee their home country due to fear of Persecution, violence, war, or other Life-threatening conditions. They are Unable to return to their country of origin Because of the threat to their safety Refugees often seek asylum in another Country, where they may seek protection ,Shelter, and safety Refugees often experience significant mental health Challenges as a result of the traumatic experience. Frey endure such as conflict persecution displacement and the struggle to adapt to a new environment. Mental health issues such as post traumatic stress disorder (PTSD) depression and adjustment disorders are Prevalent among refugees population ( Black more R , Jacqueline .A 2020) .A descriptive research design was adopted, and simple random sampling (lottery method) was used to select participants. Primary data were collected through a structured questionnaire using DASS, administered to 30 randomly selected Rufugees. The collected data were analyzed using statistical tools to assess the mental health of refugees.

**Keywords:** *Refugees, post traumatic stress disorder (PTSD).*

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**PHARMACEUTICAL AND NUTRACEUTICAL POTENTIAL OF GUAVA LEAVES: A SUSTAINABLE APPROACH TO WASTE VALORIZATION**  
**S MAHALAKSHMI<sup>1</sup>, Ms. DEEPA S<sup>2</sup>**<sup>1</sup>Student, M.Sc., Food Technology, Hindustan Institute of Technology and Science,<sup>2</sup>Assistant Professor, Hindustan Institute of Technology and Science

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**Abstract:**

Guava leaves (*Psidium guajava* L.) are widely recognized for their diverse phytochemicals and pharmacological effects, making them significant in traditional medicine, modern therapeutics, and nutraceuticals, which is often underutilized. Rich in bioactive compounds such as flavonoids, tannins, terpenoids, saponins, and essential oils, guava leaves are a powerhouse of therapeutic agents. Nutritionally, they are abundant in proteins, dietary fiber, minerals like calcium and magnesium, and vitamins such as ascorbic acid and riboflavin, enhancing their overall health benefits. The antioxidant properties of guava leaves, attributed to phenolic compounds like quercetin and chlorogenic acid, combat oxidative stress and play a pivotal role in preventing chronic diseases, including cancer and cardiovascular disorders. Their antimicrobial effects against pathogens such as *Escherichia coli* and *Staphylococcus aureus* underline their importance in combating microbial infections. Additionally, guava leaves are effective in managing diabetes by improving glucose metabolism, enhancing insulin sensitivity, and inhibiting enzymes involved in carbohydrate digestion. Pharmacological studies highlight their anti-inflammatory, hepatoprotective, and antidiarrheal properties, supporting their use in addressing gastrointestinal and liver-related disorders. Their anticancer potential, demonstrated through selective inhibition of tumor growth, positions guava leaves as a promising adjunct therapy in oncology. Beyond therapeutic applications, guava leaves are utilized in functional foods like teas, jellies, and supplements, addressing both nutritional deficiencies and promoting health. Their incorporation into sustainable practices, such as aquaculture and natural food preservation, further amplifies their economic and ecological value. This review consolidates the phytochemicals and pharmacological properties utilization of guava leaves, emphasizing their potential in new product development in food industry, health and nutrition.

**Keywords:** *Guava leaves, phytochemicals, therapeutics, nutraceutical, waste valorization*

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**சிலப்பதிகாரத்தில் நெய்தல் திணைக் கருப்பொருளின் கூறுகள்**

**முனைவர் கி.ஜெயசீலன்.  
உதவிப்பேராசிரியர் , தமிழ்த்துறை  
சென் சோசப் கல்லூரி, கலை மற்றும் அறிவியல், கோலூர், சென்னை-128**

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**ஆய்வுச்சுருக்கம் :**

சிலப்பதிகாரத்தில் இடம் பெற்றுள்ள நெய்தல் நில மக்களின் கருப்பொருள் குறித்த இளங்கோவடிகள் சிலப்பதிகாரத்தில் எவ்வாறு பதிவுச் செய்துள்ளார் என்பதை ஆய்ந்து கூறுகிறது. குறிப்பாகக் கடவுள், மக்கள், ஊர்கள், தொழில், இசைக்கருவிகள், தாவரச்சூழல், பறவை போன்ற நிலைகளில் எடுத்துரைக்கிறது. இதைப் பற்றி அறிந்துகொள்ள முற்படும்போது கடல் வாழ் உயிரினங்கள் கடலில் கிடைக்கக்கூடிய செல்வங்களைப் பாதுகாக்கவும் கடல் சார்ந்த வாணிபங்களை அறிந்துகொள்ளுவதற்கு மிகவும் இவ்வாய்வுக்கட்டுரை துணையாக நிற்கும்.

**ஆய்வு நோக்கம்**

சிலப்பதிகார காலத்தில் மீனவ மக்களின் வாழ்வியலை வெளிக்கொண்டு வரும் பொருட்டே இவ்வாய்வு நிகழ்த்தப்பட்டுள்ளது.

**திறவுச்சொற்கள் :**

நெய்தல் திணைக் கடவுள், மக்களைப் பற்றிய பதிவுகள் , ஊர்கள் பற்றிய பதிவுகள், தொழில்கள், இசைக்கருவிகள் பற்றிய குறிப்புகள், தாவரங்கள், பறவை ஆகிய பொருண்மையின் அடிப்படையில் இவ்வாய்வுக் கட்டுரை வழங்கப்பட்டுள்ளது.

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**PSHYCOANALYTIC PERSPECTIVE IN MANJU KAPUR'S  
DIFFICULT DAUGHTER**

**D. MUGUNTHAPRIYA, Dr.R.ANNAM**

Research scholar, Bharat Institute of Higher Education and Research

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**Abstract:**

Manju Kapur's *Difficult Daughters* offers a rich exploration of Virmati's psychological struggles, making it a compelling subject for psychoanalytic analysis. Using Freudian and Lacanian psychoanalytic perspectives, this paper examines the Virmati's personality, concentrating on her unconscious impulses, inner struggles, and identity development. Inherent psychological tensions influenced by cultural conditioning, the Oedipus complex, and suppression are reflected in Virmati's connection with her mother, her yearning for Professor Harish, and her fight for independence. An unresolved sense of self, guilt, and alienation result from her quest for love and knowledge becoming a battleground between her own desires and those of others. This study examines Virmati's psyche to show how *Difficult Daughters* shows the confluence of patriarchal norms and individual psychology, making it an important work in feminist and psychoanalytic literary discourse.

**Keywords:** *Manju Kapur's, Virmati's psychological struggles.*

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**EXAMINING THE IMPACT OF GENDER EQUALITY ON JOB SATISFACTION: A STATISTICAL ANALYSIS IN CHENNAI**

**ANANDHAVEL.B**

Assistant Professor & Head in charge, Department of Statistics , DRBCCC Hindu College,  
Pattabiram, Chennai, India

**MANIMANNAN. G**

Associate Professor, Department of Mathematics, St. Joseph's College (Arts & Science),  
Kovur, Chennai, India

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**Abstract:**

This study examines the relationship between job satisfaction and gender equality among employees in Chennai, utilizing a primary dataset of 150 respondents. Key factors such as job satisfaction, work-life balance, salary satisfaction, career growth, and gender equality are analyzed using statistical methods, including regression analysis and principal component analysis (PCA). A correlation heatmap reveals a strong association between job satisfaction and work-life balance, while gender-based analysis highlights variations in satisfaction levels. Additionally, scatter plot visualization underscores the influence of work-life balance on overall job satisfaction. These findings provide valuable insights for organizations to develop gender-inclusive workplace policies and improve employee satisfaction.

**Keywords:** *Job satisfaction, gender equality, work-life balance, regression analysis, principal component analysis, workplace policies.*

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**GREEN MARKETING PRACTICES AND CONSUMER BEHAVIOUR**

**Dr.ILA.NAKKEERAN**

Assistant Professor

Department of Corporate secretaryship and Accounting & Finance,  
SRM Institute of Science and Technology, Faculty of Humanities, Kattankulathur,  
Chengalpattu

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**Abstract:**

Green marketing refers to the strategies and practices companies use to promote environmentally friendly products and services. This research explores the relationship between green marketing practices and consumer behavior. It examines how consumer's environmental consciousness, attitudes, and purchasing decisions are influenced by companies' green marketing initiatives. The study focuses on understanding how consumers perceive eco-friendly products, the role of sustainability in their decision-making process, and the effectiveness of green advertising. It also investigates the impact of green certifications, product labelling, and corporate social responsibility (CSR) in shaping consumer preferences. Findings reveal that green marketing practices significantly influence consumer behavior, particularly among environmentally aware segments, but the impact varies based on product categories, market conditions, and consumer knowledge.

**Keywords:** *Green marketing, consumer behavior, sustainability, eco-friendly products, corporate social responsibility.*

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**PRECISION AGRICULTURE & SMART FARMING - AI DRIVEN IOT  
ECOSYSTEM FOR CLOSED-LOOP PRECISION FARMING****DHANYA SHRI A M**

Department of Biotechnology, Faculty of Engineering And Technology,  
SRM Institute of Science and Technology, Tiruchirappalli, Tamil Nadu -621105, India

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**Abstract:**

Current agricultural systems are fragmented, lacking integrated IoT automation and AI-driven precision farming solutions. Farmers face challenges such as limited market access, inadequate expert guidance, and inefficient resource utilization, leading to unpredictable yields and financial instability. To address these issues, we propose a sustainable precision agriculture framework that optimizes farming operations through IoT, AI, and real-time market connectivity. Our approach includes a centralized AI agent that leverages IoT-enabled sensors to monitor soil health, climate conditions, and crop growth, ensuring efficient resource use and minimizing environmental impact. Additionally, a farmer-buyer community platform bridges the gap between producers and consumers, creating a dynamic market-driven ecosystem that enhances profitability and reduces wastage. This ensures sustainable agricultural practices while enhancing productivity and financial stability.

**Keywords:** *Sustainable Agriculture, Precision Farming, IoT Automation, Farmer-Buyer Connectivity*

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**IoT UNDER SIEGE: ADDRESSING SECURITY CHALLENGES IN A  
CONNECTED WORLD****Dr . CATHREEN GRACIAMARY<sup>1</sup>.A, S. JAYA SURYA<sup>2</sup>**<sup>1</sup>Assistant Professor, Department of Computer Applications,  
Agurchand Manmull Jain College, Chennai<sup>2</sup>Student, Department of Computer Applications, Agurchand Manmull Jain College, Chennai

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**Abstract:**

The Internet of Things (IoT) has significantly altered modern existence by facilitating unparalleled connections between devices, systems, and individuals. However, this technological advancement brings forth substantial security challenges that threaten the integrity, privacy, and safety of IoT ecosystems. Key issues include weak authentication practices, insufficient data encryption, device vulnerabilities, and the lack of standardized security protocols. The broad attack surface and susceptibility to botnet attacks further intensify these dangers. Additionally, concerns regarding privacy and threats to physical security complicate the landscape, while the limited capabilities of IoT devices hinder the implementation of robust security measures. This paper thoroughly examines these challenges, underscoring the critical need for proactive and innovative security strategies to ensure a secure and sustainable future for IoT.

**Keywords:** *Data attacks, Integrity, Privacy, Device vulnerabilities, Authentication*



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**INTEGRATION OF AI/ML MODELS ACROSS HETEROGENEOUS CLOUD PLATFORMS-OPPORTUNITIES AND CHALLENGES****Dr. K. UMAMAHESWARI<sup>1</sup>, DHRUVESH M<sup>2</sup>**

<sup>1</sup>Assistant Professor, Department of Computer Applications,  
Agurchand Manmull Jain College, Chennai

<sup>2</sup>Student, Department of Computer Applications, Agurchand Manmull Jain College, Chennai

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**Abstract:**

Integrating Artificial Intelligence (AI) and Machine Learning (ML) models across different cloud platforms like AWS, Azure, and Google Cloud can be challenging for organizations. Each platform has its own setup, rules, and security methods, making it hard to deploy and work together seamlessly. The lack of standard guidelines for connecting these cloud systems hampers the growth and effectiveness of AI security tools. This paper looks at these challenges and discusses possible solutions to improve compatibility and maintain security across various systems. This study suggests new ways to make it easier to use and connect AI and machine learning models across different cloud systems. It focuses on creating flexible frameworks that help these models work well together while improving their performance in multi-cloud settings. The results aim to help close the gap between deploying AI tools and using multiple cloud platforms. By finding better ways to integrate these technologies, we can make AI solutions more efficient, secure, and capable of handling complex tasks across various cloud environments.

**Keywords:** *Artificial Intelligence, Machine Learning, Cloud Platforms, Interoperability, Security.*

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**CLOUD-NATIVE SECURITY: IDENTIFYING AND MITIGATING EMERGING THREATS****Dr.V.HEMA, V. VINOTH**<sup>1</sup>Assistant Professor, Department of Computer Applications,  
Agurchand Manmull Jain College, Chennai<sup>2</sup>Student, Department of Computer Applications, Agurchand Manmull Jain College

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**Abstract:**

Cloud-native computing, characterized by the utilization of microservices, containerization, and dynamic orchestration, offers significant benefits in scalability, flexibility, and resilience. However, these advantages come with specific security challenges. The distributed and dynamic nature of cloud-native environments introduces risks such as vulnerabilities in container security, misconfigurations in orchestration, weaknesses in APIs, and issues related to data protection. Additionally, security gaps within DevOps practices and CI/CD pipelines can lead to the introduction of malicious code and unauthorized access. The ephemeral nature of cloud-native resources further complicates monitoring and threat detection efforts. This abstract explores the key security issues present in cloud-native environments and underscores the importance of implementing comprehensive and proactive security strategies to safeguard modern cloud applications.

**Keywords:** *Security, data protection, authentication, data vulnerabilities, threat detection.*

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**AI AND ITS CHALLENGES: INSIGHTS FROM SCIENCE, ETHICS, AND TECHNOLOGY**

**Dr.S.BORGIA ANNIE CATHERINE<sup>1</sup>, Ms. G.V. PRIYANKA<sup>2</sup>**

<sup>1</sup>Assistant Professor, Department of Computer Applications, Agurchand Manmull Jain College, Chennai-61

<sup>2</sup>Student, Department of Computer Applications, Agurchand Manmull Jain College

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**Abstract:**

Since the Industrial Revolution, technological advancements have transformed manual tasks, pushing beyond human limitations. AI now accelerates this transformation, augmenting or replacing human roles across industrial, intellectual, and social domains. With rapid advancements in machine learning and autonomous decision-making, AI is reshaping industries such as finance, healthcare, manufacturing, retail, logistics, and utilities. This study brings together expert insights to assess AI's opportunities, challenges, and future research directions across key sectors, including business, government, and technology. It highlights AI's profound impact on industry and society while considering the societal and industrial factors influencing its development.

**Keywords** – *Security challenges, Data Quality, Ethics, Privacy, Security, Automation*

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**ISOLATION AND CHARACTERIZATION OF B-ASARONE FROM ACORUS  
CALAMUS ENDOPHYTES AND ITS EVALUATION FOR ANTI-DIABETIC AND  
ANTIOXIDANT ACTIVITIES**

**STEPHEN NEHRU.G.AND Dr. AGASTIAN THEODER.P,**

Department of Plant Biology and Biotechnology, Loyola College (Autonomous)

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**Abstract:**

The present study explores the therapeutic potential of endophytic fungi isolated from the medicinal plant *Acorus calamus*, focusing on their anti-diabetic and antioxidant activities. Three endophytic fungal strains—*Chaetomium strumarium*, *Fusarium solani*, and *Colletotrichum gloeosporioides*—were isolated and identified using morphological and molecular techniques. Ethyl acetate extracts of these isolates were screened for their antioxidant capacity using DPPH and ABTS radical scavenging assays, while anti-diabetic activity was assessed by evaluating their inhibitory effects on  $\alpha$ -amylase and  $\alpha$ -glucosidase enzymes. Among the isolates, *Fusarium solani* exhibited the highest  $\alpha$ -glucosidase inhibition (IC<sub>50</sub>: 38.25  $\mu$ g/mL), suggesting significant anti-diabetic potential, while *Chaetomium strumarium* demonstrated superior antioxidant activity with the highest DPPH scavenging ability (IC<sub>50</sub>: 42.10  $\mu$ g/mL). *Colletotrichum gloeosporioides* showed moderate activity in both assays. Further bioassay-guided fractionation led to the isolation of  $\beta$ -asarone from *Fusarium solani*, which was confirmed by GC=MS, FTIR, and NMR spectral analyses. The isolated  $\beta$ -asarone displayed notable inhibitory activity against both  $\alpha$ -amylase (IC<sub>50</sub>: 45.50  $\mu$ g/mL) and  $\alpha$ -glucosidase (IC<sub>50</sub>: 33.80  $\mu$ g/mL), along with significant free radical scavenging activity. This comparative analysis highlights the potential of endophytic fungi from *Acorus calamus* as valuable sources of bioactive metabolites for the management of diabetes and oxidative stress-related disorders. The study provides scientific validation for  $\beta$ -asarone as a promising lead compound for future pharmaceutical applications.

**Keywords:** *Acorus calamus*, *Endophytic fungi*, *Anti-diabetic activity*, *Antioxidant potential*,  *$\beta$ -asarone*

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**IRIS BIOMETRICS: ENACHNING IDENTITY VERIFICATION THROUGH  
PATTERN RECOGNITION.****QURESHI ZAINAB GUL Y, SRIMATHI.B M<sup>2</sup>,****Mr. MOHAMMED JALALUDDIN. K<sup>3</sup>**

1,2 UG Student's, 3 Assistant Professor, Department of Computer Applications,  
B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai, India.

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**Abstract:**

In the era of digital security, ensuring accurate and reliable identity verification is a critical challenge. This project presents an advanced biometric authentication system that leverages iris recognition for secure identity verification. The system integrates pattern recognition, feature extraction, and QR code generation with predefined data to enhance security and efficiency in authentication processes. The process begins with iris image acquisition and preprocessing, ensuring high-quality input for feature extraction. Using advanced pattern recognition techniques, unique iris features are identified and encoded into a secure biometric template. To facilitate seamless authentication, a QR code is generated containing predefined identity data, which can be securely scanned and verified in various applications, including access control, financial transactions, and digital identity management. The system ensures robust security, accuracy, and scalability, minimizing the risks of identity fraud while offering a seamless verification experience. Designed for government, enterprise, and personal security applications, this biometric solution enhances privacy and security in digital interactions.

**Keywords:** *Iris Biometrics, Pattern Recognition, Identity Verification, QR Code, Feature Extraction, Digital Security*

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**ASSESSING THE INFLUENCE OF SOCIAL MEDIA ON ACADEMIC PERFORMANCE: INSIGHTS FROM A SURVEY-BASED ANALYSIS**

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**A.VENMANI**Department of Mathematics and Statistics, Faculty of Science and Humanities, SRM  
Institute of Science and Technology, Kattankulathur, India

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**Abstract:**

The widespread use of social media among students has raised important questions regarding its impact on academic performance. This study explores the relationship between social media usage and students' academic outcomes through a survey-based analysis. Data was collected from 302 participants, examining variables such as frequency of social media use, preferred platforms, multitasking habits, and perceived academic benefits and distractions. Using statistical methods, including regression and correlation analysis, the study identifies key patterns in social media's influence on learning behaviors. The findings indicate that while many students perceive social media as a valuable educational tool, excessive usage often leads to distractions that negatively impact academic performance. Platforms like YouTube were frequently used for educational purposes, whereas others, such as Instagram and Facebook, contributed more to non-academic engagement. A significant portion of students reported difficulties in distinguishing credible academic content from misinformation. The study underscores the importance of critical thinking skills and structured social media use in academic settings. These insights provide valuable implications for students, educators, and policymakers in balancing the benefits and challenges of social media in education. Future research should explore long-term trends and intervention strategies to optimize social media's role in enhancing academic success.

**Keywords:** *Social media, academic performance, distractions, critical thinking, statistical analysis.*

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**ESTERIFICATION OF LEVULINIC ACID WITH ALCOHOL CATALYZED BY HIERARCHICALLY POROUS ZSM-5 ZEOLITES: A STUDY ON CATALYST EFFICIENCY AND PRODUCT SELECTIVITY****MANIKANDAN KRISHNAMURTH, A.SHALINI, VALARMATHI NARAYANAN**<sup>1</sup>Department of Chemistry, Faculty of Engineering and Technology, SRM Institute of science and Technology, Ramapuram, Chennai -600089, Tamil Nadu, India.<sup>2</sup>Department of Chemistry, School of Advanced Sciences, Vellore Institute of Technology

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**Abstract:**

This study evaluates the catalytic performance of ZSM-5 zeolites synthesized using corn stem pith powder as a hard template in the esterification of levulinic acid with 1-propanol and heptanol. The structural and textural properties of the zeolites are characterized, revealing a hierarchical porous nature. The catalytic activity of the ZSM-5 is assessed in the esterification of levulinic acid with 1-propanol and heptanol, yielding corresponding esters with high selectivity. The effects of reaction parameters, including temperature, molar ratio, catalyst loading, and reaction time, are systematically studied to optimize reaction conditions. The reusability and stability of the catalyst are evaluated through multiple reaction cycles. The results are compared with those obtained using conventional ZSM-5, highlighting the advantages of the meso porous structure. This study provides valuable insights into the design of hierarchical zeolite catalysts for green and sustainable chemistry applications. The use of corn stem pith powder as a hard template enhances the textural properties of the zeolite while promoting sustainability and resource efficiency.

**Keywords:** ZSM -5, corn stem pith, zeolite

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**MOHANTY'S EASTERN AND WESTERN WAY OF THINKING ABOUT MAN:  
SUBJECT AND PERSON****PROF. Dr. K. SANTIAGU MARY**Head & Department of Philosophy St. Joseph's College (Arts & Science), Chennai

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**Abstract:**

To understand man, we must firmly grasp that he is an existent. His 'essence' lies in his existence. In order to understand man is to be encompassing in thought and language the whole field of his psycho-bodily being, his inner-outer dimensions, his subjectivity, the empirical-transcendental movement that he is. Mohanty is the person who has got a deeper understanding of 'person'. He says, as we understand a person to be a rational self-conscious being: the person is the only creature that is fully self-conscious. A person has a privileged knowledge of person through experiencing their self-consciousness. As a living organism, a person is 'self-maintaining', 'self-moving', and 'self-reproducing' as a center of consciousness, a person knows, represents and thinks. Every layer of man, the material, the biological, the psychological, the intellectual, in turn yields some great entity (a purusa or an atman), which is measured up to the ideal of greatness, supremacy of power and absoluteness conveyed by the Brahman-idea. In the spirit of the Upanisad the Gita identifies the two principles of the atman and the Brahman. The two are one, being of identical nature. The reality of this is a matter of each man's experience to be realized for him. However, in order to go deeper into Mohanty's Eastern and Western thinking about man, we have to take hold of some of his other thoughts-many of which are not as orthodox as those just mentioned, and to bring out their philosophical import. These thoughts are not systematically presented, but they are there. We may at first single them out before, at the end trying to ascertain the total view of man that emerges.

**Keywords:** *Mohanty, self-maintaining, Brahman-idea, Eastern and Western Thinking*



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**IMPACT OF CLIMATE CHANGE ON AGRICULTURE**

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**Dr.S.GOPALAKRISHNAN<sup>1</sup>, Mrs. PUSHPA<sup>2</sup>, Dr. KUSUMA HIREMAT Y G<sup>3</sup>,  
Mrs. RANJITHA N<sup>4</sup>**

<sup>1</sup>.Head, Department of Commerce, East Point College of Higher, Education, Bengaluru

<sup>2</sup>H S, Asst. Prof. Department of Management, East Point College of Higher Education

<sup>3</sup>.Faculty, Department of Commerce, Tumkuru University

<sup>4</sup>.Asst. Prof. Department of Commerce, East Point College of Higher Education,

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**Abstract:**

Climate change is one of the most significant challenges affecting agriculture, with profound implications for food security, water resources, and livelihoods. Karnataka, India, being highly dependent on rain-fed agriculture, is particularly vulnerable to climate variations. Erratic rainfall patterns, prolonged droughts, rising temperatures, and extreme weather events threaten crop yields and livestock health. Increasing occurrences of heatwaves, floods, and pest outbreaks further strain farming communities. This paper explores the impact of climate change on agriculture, emphasizing temperature fluctuations, precipitation changes, and extreme weather events. Analysis of climate data from 2011 to 2020 shows an increase in mean and maximum temperatures, leading to soil degradation, declining groundwater levels, and reduced agricultural productivity. Greenhouse gas emissions are a key driver of these changes, affecting crop cultivation, livestock rearing, and fisheries. The study also discusses adaptation and mitigation strategies, including improved water management, crop diversification, soil conservation, and climate-smart policies. Technology-driven solutions, such as remote sensing, precision farming, and AI-based weather prediction, can enhance agricultural resilience. Policy recommendations highlight the need for government support, farmer education, and investments in climate-resilient infrastructure. By adopting strategic adaptation measures, Karnataka's agricultural sector can mitigate climate risks, ensuring food security and sustainable livelihoods. This study provides insights for policymakers, researchers, and farmers in developing effective climate-resilient strategies.

**Keywords:** *Climate change, agriculture, temperature variation, precipitation, adaptation strategies, mitigation, food security.*

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**INVEIGLED IN RAVAGE; MALE DEPRESSION AND SEPARATION IN  
WAUGH'S A HANDFUL OF DUST****JOSEPHINE SILVIYA X**Assistant Professor, Department Of English, St. Joseph's College (Arts & Science), Kovur.

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**Abstract:**

In Evelyn Waugh's *A Handful of Dust*, the themes of male dejection and departure are complicatedly laced into the description, discovering the psychological and emotional unscrambling of its protagonist, Tony Last. The novel's representation of Tony's emotional worsening, set against a framework of societal outlooks and personal disenchantment, presents a deep evaluation of post-World War II British life, predominantly regarding the friable masculinity within upper-class society. The concept of being "inveigled in ravage" is reproduced in Tony's measured snare by the devious forces around him, notably his disloyal wife, Brenda, whose perfidy and eventual disappearance aggravate his emotional drop. Tony's challenges to continue the frontage of a gratified, traditional life in the geography are traumatised as he opposes the fragmentation of his marriage and personal individuality. The novel's investigation of male depression is also marked in Tony's inner segregation, where his quiet desolation distinctions abruptly with the external world's indifference. Waugh investigates into the existential departure between the individual and society, using Tony's scuffles to highlight the emotional invalid that convoys the disbanding of out-dated morals and relations. The dark humor and satirical tone in *A Handful of Dust* further accentuate the illogicality of Tony's situation, where his internal misery becomes both an individual and societal observation on the estrangement expert by men who cannot reconcile personal requirements with the strict realisms of the world around them.

**Keywords:** *Male depression, departure, inveigled, Emotional isolation, societal Disillusionment*

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**SYNTHESIS OF ZIRCONIUM NANOPARTICLES BY USING *SOLANUM TRILOBATUM* LEAF EXTRACT: CHARACTERIZATION AND THEIR ANTIMICROBIAL ACTIVITY**

**K. SANGEETHA SELVAN 1A\* MS HANFA NADIRA T.A 1**

Department of Chemistry, Islamiah womens arts and Science College

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**Abstract:**

This study reports the successful synthesis of Zirconium Nanoparticles (ZrNPs) through a facile and environmental-friendly procedure, utilizing the aqueous extract of *Solanum trilobatum* as an effective stabilizer and reducing agent. The synthesis method employed in this study offers a sustainable and eco-friendly alternative to traditional nanoparticle synthesis methods, which often involve the use of toxic chemicals and generate harmful byproducts. After the fabrication of ZrNPs, a comprehensive characterization study was conducted to determine their physical and chemical properties. The characterization study involved the use of various analytical techniques, including Fourier Transform Infrared Spectroscopy (FTIR) and X-Ray Diffraction (XRD), which provided valuable information on the molecular structure, crystallinity, and particle size of the synthesized ZrNPs. In addition to the characterization study, the bioactivity of the ZrNPs was also evaluated to assess their potential applications in biomedical fields. The antibacterial and antifungal activities of the ZrNPs were studied in detail, and the results showed that the nanoparticles exhibited significant antimicrobial activity against various bacterial and fungal strains. Thus, this article mainly focuses on the plant-based green synthesis method for the production of ZrNPs, highlighting its potential as a sustainable and eco-friendly alternative to traditional synthesis method. Future research could benefit from investigating the connection between nanoparticles and metal ions detection, as well as their applications in environmental remediation and dye degradation using electrochemical studies.

**Keywords:** *Zirconium Nanoparticles, Fourier Transform Infrared Spectroscopy, X-Ray Diffraction, environmental remediation*

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**IMPROVING EFFICIENCY AND SUSTAINABILITY IN CHENNAI'S LEATHER INDUSTRY USING IOT AND MACHINE LEARNING****PRIYADHARSHINI<sup>1</sup> AND MANIMANNAN G<sup>2</sup>.**<sup>1</sup> Assistant Professor <sup>2</sup> Associate Professor, Department of Computer Application,  
St. Joseph's College (Art's & Science), Kovur, Chennai

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**Abstract:**

This research paper aims to identify how an IoT-based smart monitoring system can improve production efficiency, reduce defects, and enhance sustainability in the leather industry. Secondary data were collected from leather manufacturing units in Chennai, covering manual, semi-automated, and fully automated operations. The study evaluates the performance of 536 manufacturing units using IoT-driven data collection and machine learning techniques. Key operational factors such as production capacity, machine usage, defect rates, environmental compliance, and market demand were analyzed using advanced models, including XGBoost, Neural Networks, and deep learning architectures (LSTM, CNN, ANN). Among these models, XGBoost demonstrated outstanding predictive accuracy, achieving 98.13%. Neural Networks trained over 50 epochs showed continuous improvement, with training accuracy increasing from 34.38% in the first epoch to 99.30% in the final epoch. However, validation accuracy peaked at 94.39% in epoch 15 and showed minor fluctuations afterward. The loss consistently decreased, confirming effective learning, though slight overfitting was observed. The findings highlight the transformative role of IoT-based smart monitoring in optimizing production processes, minimizing defects, and promoting sustainability. Additionally, the study underscores the importance of fine-tuning machine learning models and the need for government support to enhance profitability and operational efficiency. A bar chart illustrates the impact of machine usage on defect reduction, while further insights on energy consumption trends, production capacity versus profit margins, and XGBoost performance comparisons are available.

**Keywords:** *Leather Industry, IoT, Machine Learning, XGBoost, Deep Learning, Sustainability, Neural Networks, Clustering, Predictive Analytics*

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**ECONOMIC DEVELOPMENT THROUGH SUSTAINABLE  
ENTREPRENEURSHIP: A CASE STUDY APPROACH****Dr. NIDHI KULSHRESTHA**Assistant Professor (Economics) REVA University Affiliation Bengaluru, Karnataka

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**Abstract:**

Sustainable entrepreneurship has emerged as a critical factor in economic development, balancing profitability with environmental and social responsibility. This research examines the role of sustainable entrepreneurship in fostering economic growth through a case study approach. By analyzing businesses such as Patagonia, SELCO, and BioLite, the study highlights how enterprises can achieve economic sustainability while addressing pressing environmental and social challenges. The findings suggest that sustainable entrepreneurship contributes to economic development by promoting innovation, job creation, and resource efficiency. Furthermore, the study identifies key success factors, including supportive policy frameworks, access to financial resources, and strong market demand for sustainable products. Governments and policymakers play a crucial role in fostering an enabling environment for sustainable entrepreneurship through incentives, education, and partnerships. The research also outlines policy recommendations for integrating sustainability into business strategies to achieve long-term economic benefits. Future studies should focus on longitudinal analyses to measure the sustained impact of sustainable entrepreneurship on economic growth.

*Keywords: Sustainable Entrepreneurship, Economic Development, Green Innovation, Policy Frameworks, Social Responsibility, Renewable Energy, Business Sustainability*

## GREEN MARKETING STRATEGIES FOR HEALTHCARE INSTITUTIONS IN CHENNAI

**Mr.S.SARAVANAN, Dr.M.JENIFER EZHILARASI**

<sup>1</sup>Research scholar, St.Peter's Institute of Higher Education and Research.

<sup>2</sup>Assistant Professor , Department of Commerce , St.Peter's Institute of Higher Education and Research.

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### **Abstract:**

The growing environmental concerns and increased awareness of sustainability have led healthcare institutions in Chennai to adopt green marketing strategies. Green marketing in healthcare focuses on promoting environmentally responsible practices while ensuring high-quality patient care. This paper explores key green marketing strategies tailored for healthcare institutions in Chennai, emphasizing sustainability, digital engagement, and community involvement. Key strategies include energy-efficient hospital infrastructure, waste management programs, and sustainable procurement policies. Digital marketing techniques such as content marketing, social media engagement, and search engine optimization (SEO) help hospitals effectively communicate their green initiatives. Additionally, obtaining green certifications and collaborating with eco-friendly suppliers enhance the hospital's credibility and appeal to environmentally conscious patients. Community outreach programs, such as educational workshops and partnerships with environmental organizations, further reinforce a hospital's commitment to sustainability. By integrating these green marketing strategies, healthcare institutions in Chennai can reduce their environmental footprint, improve brand reputation, and attract patients who prioritize eco-friendly healthcare services. This study highlights the importance of sustainable practices in the healthcare sector and provides actionable insights for hospitals in Chennai to implement and promote green initiatives effectively.

*KEY WORDS ; Green Marketing, Healthcare , Digital marketing techniques*

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**ENHANCING OPERATIONAL EFFICIENCY IN THE LEATHER INDUSTRY OF  
TAMIL NADU THROUGH IOT AND MACHINE LEARNING FOR A DATA  
DRIVEN APPROACH****MUSKAN K SHAH, M. ANIJI AND MANIMANNAN G.**

<sup>1</sup>UG Student, <sup>2</sup>Assistant Professor, <sup>3</sup>Associate Professor <sup>1,2</sup>Department of Computer Applications, SRMIST, Kattangulathur, Chennai, Department of Computer Applications, St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

This study focuses on the implementation of Internet of Things (IoT) technology integrated with Machine Learning (ML) models to optimize the operational performance of the leather industry in Tamil Nadu. Using secondary data collected from multiple leather units across different regions of Tamil Nadu, key parameters such as industry ID, location, production capacity, raw material quality, labor count, machine usage, defect rate, environmental compliance, and energy consumption were analyzed. The primary objective is to boost operational efficiency by leveraging IoT for real-time data acquisition and applying ML algorithms including Decision Tree, Random Forest, SVM, Gradient Boosting, and Naive Bayes to predict manufacturing outcomes and process efficiency. The Decision Tree model achieved an accuracy of 96%, Random Forest reached 94%, SVM provided 90%, Gradient Boosting recorded 96%, and Naive Bayes outperformed others with a 98% accuracy. These results indicate that the integration of IoT and ML techniques provides substantial improvements in resource utilization, defect reduction, and process automation. The study's findings suggest that adopting these technologies can significantly enhance productivity, sustainability, and global competitiveness in the Tamil Nadu leather sector.

**Keywords:** *IoT, Leather Industry, Tamil Nadu, Machine Learning, Operational Efficiency, Predictive Analytics*

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**COMPARATIVE ANALYSIS OF MACHINE LEARNING CLASSIFIERS FOR  
THYROID DISORDER DIAGNOSIS****KALAIYARASI D AND MANIMANNAN G.**

1 Assistant Professor, Department of Computer Science,  
St. Joseph's College (Arts & Science), Kovur, Chennai  
2 Associate Professor, Department of Computer Science,  
St. Joseph's College (Arts & Science), Kovur, Chennai

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**Abstract:**

This research paper to evaluate the performance of machine learning classifiers in diagnosing thyroid disorders using a dataset collected from a private hospital in Chennai. The dataset comprises 15 clinical parameters from 281 patients, incorporating demographic details, hormone levels, and treatment responses. The study employs Random Forest, Logistic Regression, and k-Nearest Neighbors (k-NN) classifiers, assessing their accuracy, precision, recall, and F1-Score. Results indicate that Random Forest achieved the highest accuracy 98.8%, followed by Logistic Regression 91.8% and KNN 75.3%, with Random Forest demonstrating superior classification performance across all classes. Visualization techniques, including confusion matrices and statistical summaries, were utilized to interpret the findings effectively. The study highlights the potential of machine learning models in enhancing thyroid disorder diagnosis, with Random Forest emerging as the most reliable classifier for clinical application.

**Keywords:** *Machine Learning, Thyroid Disorder, Random Forest, Logistic Regression, K-Nearest Neighbors, Medical Diagnosis*



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**IMPACT OF SOCIAL MEDIA ON YOUTH BEHAVIOR A STUDY IN DIMAPUR  
DISTRICT  
MATHARASLV**

Ph.D. Research Scholar, Department of journalism and mass communication, St. Joseph  
University, Dimapur, Tamil Nadu, India.

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**Abstract:**

Today, social media is among the top ways for an individual to communicate with people around the globe. Social media provides an online statement that connects a group of communities and encourages networking and information sharing. Facebook, Wikipedia, Twitter, Google+, Pinterest, LinkedIn, Instagram, and Tumblr are examples of popular social networking sites. Each one of them is an online social network where users can publish information about themselves. Youths' understanding of human behaviour might be positively influenced by social media, while negatively they can develop fanaticism and selfishness. Social media is thus used by youths from various walks of life for both constructive and destructive purposes. Social media has been increasingly important in recent years in shaping cultural and behavioural trends. The extremely advanced and complicated technology has developed along with the way the world is now organised, introducing people to a variety of modern communication tools. Modernization in the current era of globalization makes it simpler for youths to go about their daily lives. However, the youths will experience both beneficial and negative effects from this sophistication. The objective is to examine how social media affects young peoples personality development and how social media influence Kohima youth's behaviour. The study is qualitative and is based on prior research and studies found in books, journals, and publications discussing how social media has an impact on the youth's behaviour. This article is done to reach a conclusive understanding of how social media influences youth behaviour.

**Keywords:** *Social media, youth, behaviour, communication, information, influences*

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**ENTREPRENEURSHIP IN THE SME SECTOR**

**Mrs.L.JANAKI**

Research Scholar, PG & Research Department of Commerce,  
Sri Sankara Arts And Science College, Kanchipuram

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**Abstract:**

SME is the abbreviation for Small and Medium Enterprises. These enterprises can be rightly called as the backbone of the GDP of India. The SME sector in India is growing at an exceptionally fast rate due to which it is proving to be beneficial to the Indian Economy. Small and medium enterprises play a very vital role in the economy of any country and it is more in a developing country like India. They play a role in boosting the economy of a country. The role of small and medium enterprises in the economic and social development of the country is well established. SME s emerges leaders during the period of recession, restoring jobs and business activity lost during the time despite a slow and fragile economy. It contributes almost 40% of the gross industrial value added in the Indian economy.

*Keywords: SME, GDP, Indian Economy, gross industrial value*

# **CONFERENCE PROCEEDING**

## **INTERNATIONAL CONFERENCE ON GLOBAL PERSPECTIVES ON SUSTAINABILITY (ICGPS - 2025)**

### **ABOUT THE COLLEGE**

**St. Joseph's College (Arts & Science)** is a co-educational Christian institution run by the management of Society for Education for Life. This college has been established in 1994 and has been taken over by **Rev.Fr.Dr.J.E.Arul Raj** OMI and managed by DMI Sisters from 2004. This college is Approved by Govt. of Tamilnadu, Affiliated to University of Madras, Accredited By **NAAC with "A" Grade, 2(f) Status of UGC Act,1956 and ISO 21001:2018 Certified Institution.** DMI is known for its time-honourable tradition of imparting quality education to the society and rendering social service without discrimination.

**Rev.Fr.Dr.J.E.Arul Raj** is the Founder and Chairman of the college. He is ably supported by **Rev.Sr.S.Lalitha**, Superior General of DMI and **Rev.Sr.S.Gnanaselvam**, Managing Trustee of the society. The vision of the college is to provide a discipline life with a spiritual base to remain '**Fully Alive and Fully Human**'. Further, it strives to achieve excellence and provides opportunities to the students to achieve technical excellence.

### **VISION**

To emerge as an institute of excellence by imparting quality higher education to the youth, not only focused on imparting subject knowledge and skills, but also to mould the students with better conduct and character, committed to the societal needs and national development.

### **MISSION**

To be innovative, inclusive and committed to excellence in teaching, research and knowledge transfer and to serve the social, cultural and economic needs of the Society. To innovate and offer educational programmes in various disciplines with synergistic interaction with the industry and society. To impart knowledge and skills to students equipping them to be ready to face the emerging challenges to the knowledge area. To provide equal opportunity to women students and prepare them to be equal partners in meeting the scientific and technological demands of the nation. To provide opportunity for the rural and underprivileged students to get collegiate education and make the first generation learners graduate and employable.

### **CONFERENCE THEME**

The International Conference on Global Perspectives on Sustainability aims to foster interdisciplinary discussions by bringing the experts together to explore the solutions for environmental, social, and economic challenges. The conference will highlight theoretical and practical approaches to sustainability by emphasizing global cooperation, community-driven initiatives, and the role of education. Key themes include sustainable practices, ethical frameworks, and technological innovations, promoting environmental protection, social justice, and economic resilience through research sharing and collaboration.

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