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SPECTRUM

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Spectrum is an e-magazine with the comprehensive collection of all the papers that have been published in our journal over the last two months — Volume 10, Issue 6 (November-December, 2024). This edition brings together 75 papers by 157 authors from 67 institutions. Each entry links to the abstract and the full paper.

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ABSTRACTS

1 Evaluation of the Use of Visualizations in Data Journalism Articles on Mwananchi and the Chanzo Websites in Tanzania

Paper ID V10I6-1139 · Pages 1-6 · Journalism And Mass Communication

George Helahela, Student, St. Augustine University of Tanzania, Dar es Salaam
Camilius Nikata, Lecturer, St. Augustine University of Tanzania, Dar es Salaam

This study evaluated the use of visualizations in data journalism articles on Mwananchi and The Chanzo websites in Tanzania. The study had three specific objectives: to examine the frequency of journalists' data visualization usage; to identify the appearance of data visualizations in data-driven articles; and, to uncover the challenges journalists face in using visualizations. The study employed mixed-methods approach. Purposive sampling was used to select 59 respondents from Mwananchi and The Chanzo. The study used questionnaires and content analysis to collect data, which were analyzed using the Statistical Package for the Social Sciences (SPSS). The findings revealed that 34% of journalists rarely used data visualizations; while 25% used them occasionally; 17% used often; 16% never used; and 8% used very often. Among the 52 analyzed articles, 38% included visualizations, with Mwananchi having a slightly higher usage rate (42%) compared to The Chanzo (35%). The Findings means that still there is low usage of visualizations in most of the data articles. The study recommends comprehensive training programs to enhance journalists' data journalism skills, access to advanced visualization tools, and ongoing support to improve data-driven storytelling.

Keywords: Data Visualizations, Data Journalism, Infographics, Website

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2 From Classroom to Career: Analysing Employability Challenges and Opportunities for Graduates in the AI Era in India and China

Paper ID V10I6-1136 · Pages 7-12 · Education And Employment In The Context Of Artificial Intelligence (ai)

Ashita Anosh Gavit, Student, Independent Researcher

The relentless pace of artificial intelligence (AI) advancement is recalibrating the employment landscape, yielding a complex interplay of opportunities and obstacles for fresh graduates in India and China. This study delves into the employability dichotomy confronting graduates in these nations, underscoring the pressing issues of skills disparity, educational revitalization, and mental well-being. Through a comparative analysis, this research endeavors to unearth innovative solutions for bridging the employability chasm, ensuring graduates are adeptly equipped to navigate the AI-driven job market. The findings underscore the imperative of a synergistic triad – educational institutions, industries, and policymakers – to converge and cultivate a future-ready workforce, fostering resilience, adaptability, and technological fluency.

Keywords: Artificial Intelligence (AI), Employability, Graduates, Skill Mismatch, Educational Reform, India-China, Labor Market, Workforce Development, Vocational Training, Mental Health, Industry-Academia Collaboration, Soft Skills, Technical Skills, Project-Based Learning, Policy Recommendations, Economic Development, Resilience Training, Job Market Dynamics,

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Interdisciplinary Education

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3 The Role of Shamba Mtaji Program on TBC-FM in Improving Soil Fertility in Tanzania: A Case of Mbwawa Ward, Kibaha Town Council in Coastal Region, Tanzania

Paper ID V10I6-1148 · Pages 13-17 · Communication

Innocent Byarugaba, Student, St. Augustine University of Tanzania, Dar es Salaam
Dr. Francis Ng'atigwa, Lecturer, St. Augustine University of Tanzania, Dar es Salaam

This study explores the impact of the radio program Shamba Mtaji, broadcast on TBF-FM, on promoting soil fertility practices in Mbwawa Ward, Kibaha Town Council, Tanzania. The research was supported by three central objectives: identification of problems in soil fertility raised in the program, analysis of the methods used in the production of the program, and assessment of perceived strengths and weaknesses of the program among its listeners. It utilized a case study design wherein 114 respondents from three streets in Mbwawa Ward, namely Mbwawa, Miswe Duka, and Miswe Chini, were surveyed using questionnaires, focus group discussions, interviews, participatory rural appraisal, and document review. This study is informed by the diffusion of innovation and uses and gratifications theories. Results indicate that Shamba Mtaji is valued by both crop and livestock farmers due to its emphasis on soil fertility. However, most of the listeners did not realize that facts, and issues relating to soil fertility were relatively new to many of them. It concludes by suggesting a need for a change in the timing of the program to make it more accessible to its audience; secondly, its message should be complemented through other channels such as loudspeaker announcements; and thirdly, holding advocacy meetings to enhance farmer participation. With these suggestions put into practice, this may lead to sustainable agriculture and more responsible use of land resources where the selling of land to non-agricultural enterprises will be minimized.

Keywords: Radio, Radio Program, Soil, Soil Fertility, Improvement of Soil Fertility, Communication, Broadcasting Radio, Radio Program, Soil, Soil Fertility, Improvement of Soil Fertility, Communication, Broadcasting Radio, Radio Program, Soil, Soil Fertility, Improvement of Soil Fertility, Communication, Broadcasting

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4 Assessment of Social Media Usage in Enhancing Organisational Performance in Tanzania: A Case of Drug Control and Enforcement Authority Headquarters

Paper ID V10I6-1147 · Pages 18-22 · Communication

Lilian Matho, Research Scholar, St. Augustine University of Tanzania, Dar es Salaam
Dr. Rajendran Britto, Lecturer, St. Augustine University of Tanzania, Dar es Salaam

This study examines the role of social media usage in enhancing organizational performance at the Drug Control and Enforcement Authority (DCEA) Headquarters in Tanzania. The research aims to evaluate how staff utilize various social media platforms, identify the most frequently used platforms, and analyze their impact on internal communication and productivity. Employing a descriptive study design, data were collected through

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structured questionnaires and interviews from a sample predominantly composed of respondents (60%) aged 30 and above. Analysis using SPSS version 23.0 revealed that WhatsApp was the most widely used platform (60%), followed by Instagram (20%), Facebook (12.5%), and Twitter (7.5%). Additionally, 78.8% of respondents accessed social media primarily through smartphones, highlighting the significant role of mobile technology in daily operations. The findings indicate that social media is vital for facilitating internal communication, with 85% of respondents using it for work-related information sharing and collaboration. Furthermore, 75% acknowledged that social media enhances productivity by enabling faster access to information and improving connectivity among colleagues. However, concerns regarding privacy (38.8%) and potential distractions (3.8%) were also noted. To optimize the benefits of social media while addressing associated risks, the study recommends developing clear organizational policies to govern its use. These guidelines should define appropriate usage boundaries, establish protocols for safeguarding sensitive information, and promote responsible engagement aligned with organizational objectives. Additionally, training programs on effective social media use could further enhance staff awareness. This research provides valuable insights into the strategic implications of social media within organizational settings, emphasizing the need for tailored approaches to effectively harness its benefits.

Keywords: Social Media Utilization, Organizational Performance, Productivity, Mobile Technology, Information Dissemination, and Collaboration

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5 The Use of Social Media in Enhancing Voluntary Tax Compliance in Tanzania: A Case of Tanzania Revenue Authority (TRA) Headquarters in Dar es Salaam

Paper ID V10I6-1144 · Pages 23-30 · Communication

Benedict Liwenga, Student, St. Augustine University of Tanzania, Dar es Salaam
Dr. Francis Ng'atigwa, Lecturer, St. Augustine University of Tanzania,Dar es Salaam

This paper presents selected findings from the research entitled "Assessing the Use of Social Media in Enhancing Voluntary Tax Compliance in Tanzania: A Case Study of the Tanzania Revenue Authority (TRA) Headquarters." It investigates the impact of social media on voluntary tax compliance within Tanzania. Utilizing a qualitative methodology and a case study framework, data were gathered through interviews, observations, and document analysis involving 15 staff members of the TRA. The results indicated that platforms such as Facebook, Twitter, and WhatsApp are crucial in promoting taxpayer engagement and compliance. The study concluded that well-implemented social media strategies can significantly enhance tax compliance rates by increasing transparency and delivering timely information. This study recommends that the TRA improve its social media strategies by integrating interactive content that addresses taxpayers' concerns and inquiries. This paper presents selected findings from the research entitled "Assessing the Use of Social Media in Enhancing Voluntary Tax Compliance in Tanzania: A Case Study of the Tanzania Revenue Authority (TRA) Headquarters." It investigates the impact of social media on voluntary tax compliance within Tanzania. Utilizing a qualitative methodology and a case study framework, data were gathered through interviews, observations, and document analysis involving 15 staff members of the TRA. The results indicated that platforms such as Facebook, Twitter, and WhatsApp are crucial to taxpayer engagement and compliance. The study concluded that well-implemented social media strategies can significantly enhance tax compliance rates by increasing

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transparency and delivering timely information. This study recommends that the TRA improve its social media strategies by integrating interactive content that addresses taxpayers' concerns and inquiries.

Keywords: Social Media, Tax Compliance, Motivation, Voluntary Tax, Enhancing

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6 Project Report on the Long-Term Changes in the Food Industry Post the Pandemic

Paper ID V10I6-1143 · Pages 31-39 · Management

Prisha Sheth, Student, H.R. College of Commerce and Economics, Mumbai.

The project report is based on extensive research about the blow faced by the hospitality industry. The pandemic has impacted almost all industries but this industry faced a harsh hit in terms of customer engagement and sales. They experienced a massive dip in the numbers and the project deeply explores the business side of things. It explains the limitations, and effects, and helps understand consumer behavior in brief. It also briefly discusses the future developments in this extremely competitive industry. It discusses the long-term effects caused by the virus how restaurants were affected and how they lost a major share of the market. This project helps in understanding how luxury hotels dealt with the crisis on hand, but most importantly the evolution of consumer behavior, habits, tastes, and adaptability with respect to the hospitality industry. A survey has been conducted with a sampling of 32 people and it covers their response to various questions about the current situation, the management during the pandemic, and the ultimate future of how hotels and restaurants will work. The survey takes into consideration people’s preferences, opinions, and how they look at the hospitality industry during the pandemic. It also focuses on the shift and reliance on food delivery applications and how they have largely affected the food experience of people. The project report is based on extensive research about the blow faced by the hospitality industry. The pandemic has impacted almost all industries but this industry faced a harsh hit in terms of customer engagement and sales. They experienced a massive dip in the numbers and the project deeply explores the business side of things. It explains the limitations, and effects, and helps understand consumer behaviour in brief. It also briefly discusses the future developments in this extremely competitive industry. It discusses the long-term effects caused by the virus how restaurants were affected and how they lost a major share of the market. This project helps in understanding how luxury hotels dealt with the crisis on hand, but most importantly the evolution of consumer behaviour, habits, tastes, and adaptability with respect to the hospitality industry.

Keywords: Food Industry, COVID, Hospitality Industry

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7 Analysis of the Prevalence and Trends of Gender-Based Violence on Instagram in Tanzania

Paper ID V10I6-1156 · Pages 40-46 · Communication

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This study investigates the prevalence and trends of gender-based violence (GBV) discussions on Instagram in Tanzania, focusing on content from 12 prominent influencers. It highlights the role of social media in raising awareness and advocating against GBV. Using the Dragonfly Effect model, the research examines how targeted campaigns on social media can drive attention, engagement, and action. Data was collected through systematic sampling of Instagram posts and interviews with influencers. The findings reveal Instagram's potential to amplify awareness of GBV but also highlight persistent challenges such as misinformation and victim-blaming. The analysis shows alarming trends in GBV, especially affecting women and marginalized groups, with issues like harassment, discrimination, and hate speech hindering women's participation in online discussions. The study calls for a multi-faceted approach to combat GBV, including better policy enforcement, user education, and strategic influencer engagement. It recommends that Instagram improve its reporting mechanisms, implement stricter policies, and provide educational campaigns for awareness. The study also suggests enhancing algorithm transparency, establishing diverse moderation teams, creating dedicated support systems for victims, and fostering community support to ensure a safer online environment.

Keywords: Dragonfly Effect Model, Gender-Based Violence, Instagram, Prevalence, and Trends

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8 To Understand the Consumer Preference between Traditional Investment vs. Alternative Investment

Paper ID V10I6-1142 · Pages 47-50 · Finance

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The COVID-19 pandemic has significantly impacted traditional and alternative investments, with traditional investments experiencing the most impact. Liquidity, stability, diversification, regulation, and reduced costs are some benefits of traditional investments. However, they have drawbacks, such as passive investing, market volatility, and low returns. Commodities, real estate, hedge funds, and private stocks are examples of alternative investments that provide flexibility and capital growth possibilities. Alternative investments are riskier since they frequently produce better returns and have more intricate structures, even with higher fees and costs. A study surveyed 61 individuals aged 0 to 65+, with the largest age group being 18-25. The majority of respondents had invested in Traditional Investments, with 78.7% investing to increase income and capital appreciation. The most important factor for investment decisions was return, with 34 people valuing the safety of principal, 22 diversifying, and 1 seeking an adrenaline rush. The primary investment goals were growth of capital, income generation, capital preservation, and adrenaline rush. The majority of respondents invested in stocks, bonds, mutual funds, real estate, and fixed deposits, with a preference for traditional investments for 1- to 4-year periods. 63.9% of investors felt return was the most important factor for their investment decision.

Keywords: Traditional Investment, Alternative Investment, Financial Markets

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9 Smart Street Light Detection and Pole Location Tracking with Emergency Buzzer

Paper ID V10I6-1175 · Pages 51-57 · Computer Science And Engineering

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This write-up supplies the development plus application of a resourceful Internet of Factors (IoT)-- based solution concentrated on improving public security plus power effectiveness in city settings. The recommended system integrates wise roadway lights geared up with Light Dependent Resistor (LDR) sensing units allowing automated change of lights based upon sunshine discovery. Remote control capability using the net makes it possible for individuals to take care of roadway light procedures from any place. The system consists of innovative area monitoring innovation using GENERAL PRACTITIONER, helping with precise positioning of streetlight messages for city preparation and upkeep tasks. A panic switch is especially tactically put on each electrical post, supplying a punctual feedback system in emergencies. Upon pushing the panic switch, a prompt alarm system is installed at the neighbouring station house, boosting general safety and security for city homeowners. In addition, an emergency buzzer system enhances the suffering signals produced by the panic switches, guaranteeing an effective interaction network between people in danger along law enforcement agents. The system's energy-efficient style, with LDR sensing units and remote abilities, not only decreases power expenses but also reduces the ecological effect. In recap, this detailed IoT-based option incorporates power performance, sophisticated area monitoring, plus real-time emergency action attributes, making it a useful enhancement to the city framework.

Keywords: Smart Street Lighting, Light Dependent Resistor (LDR), Energy Efficiency, Emergency Response.

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10 AI-Powered Threat Detection in Cloud Environments

Paper ID V10I6-1200 · Pages 58-61 · Artificial Intelligence

Yash Kant Gautam, Independent Researcher

As cloud computing becomes ubiquitous, ensuring the privacy of sensitive data processed in cloud environments is of paramount importance. Organizations handling personal, financial, and healthcare data must adopt strategies that preserve data privacy while harnessing the power of artificial intelligence (AI). Privacy-preserving AI techniques such as federated learning, homomorphic encryption, and differential privacy offer promising solutions. This article explores these techniques in detail, their practical implementations, and the challenges they address, along with two real-world case studies. These methods enable organizations to build AI models on sensitive data while ensuring data confidentiality and regulatory compliance, opening the way for secure AI innovation in the cloud.

Keywords: AI, Cloud, Cyber Security

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11 Harjeet’s Synergistic Trigonometric Identities Part II

Paper ID V10I6-1203 · Pages 62-66 · Mathematics

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Dr.Manjit Kaur, Sr. Scientist, Rapture Biotech, Biotechnology Division, Dehradun

This paper presents Harjeet's Synergistic Trigonometric Identities Part II, continuing the exploration of fundamental trigonometric relationships introduced in Part I. In this work, I establish a basic identity that enhances our understanding of the connections between sine, cosine, and tangent functions. We demonstrate how these identities can simplify trigonometric calculations and solve various mathematical problems through straightforward derivations and illustrative examples. The findings reinforce the foundational principles of trigonometry, providing essential tools for students and practitioners alike. This work aims to contribute to the educational discourse surrounding trigonometric functions, encouraging further exploration and application of these identities in various mathematical contexts.

Keywords: Trigonometry, Trigonometric Functions, Algebraic Manipulation, New Formulae

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12 Exploring the Use of Instagram by Government Public Relations Practitioners in Facilitating Communication Engagement with the Public. A Case Study of TANESCO, TCRA, and TRA Dar es Salaam

Paper ID V10I6-1191 · Pages 67-75 · Journalism And Mass Communication

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The efficient use of social media is essential in today’s world, as it leads to faster and quicker communication which provides feedback to and from the public. The study explored the use of Instagram, to build good

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relations, and brand, enhancing PR practices and revealing how Instagram is being used by the public relations practitioners in government institutions of TANESCO, TCRA, and TRA in Dar es Salaam in facilitating communication engagement with the public. The study analyzed the type of information disseminated to the target audience, understood how public relations practitioners handle followers' feedback, comments, and responses, and determined the impact of using Instagram by TANESCO, TCRA, and TRA PR practitioners. The key findings showed that all three organizations use Instagram to disseminate educational, informational, awareness, and promotional content. They all focus on updates relevant to their services and have dedicated teams for managing social media pages. They respond publicly and privately, ensuring that queries are addressed promptly, and they all said that Instagram has a positive impact on communication engagement, as they can reach large audiences quickly and receive immediate feedback. Based on a qualitative approach, and an exploratory case study research design, data was collected through observation and in-depth interviews, Data collection tools of observation and interview guide were used and data was presented thematically. The study is a very crucial tool for PR practitioners in facilitating communication engagement with the public, and the emergence of SM like IG has changed the way how their organizations communicate. The study recommends the Communication Units of government institutions make more efforts to use Instagram as it minimizes the cost of running press conferences and reaches a large audience that will help them get feedback from the public more easily and faster.

Keywords: Instagram, Government, Public Relations Practitioners, Communication, Engagement, Public

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13 Evolution of Game Design

Paper ID V10I6-1189 · Pages 76-83 · Game Design

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This paper looks at how game design has evolved from simple early games to the complex ones we have today, focusing on the role of technology in said change. It explores how advancements in game engines, 3D modeling, and graphics technology have led this evolution, from basic 2D games to detailed, lifelike environments. The paper also examines how game mechanics, storytelling, and aesthetics have become more complex over time. Early games often had simple mechanics, while modern games now offer deeper, more interactive experiences. It also discusses how multiplayer systems have changed the way people play and connect through games, turning them into social experiences. By looking at the mix of creativity and technology, the paper shows how game design has become a more complex and influential field, with new tools allowing developers to push the boundaries of what games can achieve in both entertainment and art.

Keywords: Multiplayer, 3D, Programming, Virtual Reality, Graphics, Hardware.

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14 Assessing the Challenges Journalists Face in Spotting Fake News in Tanzania: A Case Study of TBC1 and Clouds Television

Paper ID V10I6-1219 · Pages 84-89 · Journalism And Mass Communication

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This research report aims to assess the role of TBC Tanzania Safari Channel in promoting the local tourism industry in Tanzania. This study aims to evaluate the level of awareness and training among journalists at TBC1 and Clouds Television in identifying fake news. Additionally, the study aims to investigate the tools and resources available to TBC1 and Clouds Television journalists to verify the accuracy of news stories, as well as explore the impact of organizational policies and newsroom culture at TBC1 and Clouds Television on the ability of journalists to identify and report fake news. The methodology used in this study includes questionnaires and interviews. The questionnaires were distributed to a journalist in the newsroom, while interviews were conducted with the editors to get valid information. This combination of quantitative and qualitative data will provide a comprehensive understanding of the challenges Tanzanian journalists face in spotting fake news. The findings of this research report revealed that Tanzanian journalists face numerous challenges when it comes to spotting fake news. These include a lack of training and inadequate access to reliable fact-checking tools and resources. Also, the study identified newsroom culture from both media houses significantly impacts the effectiveness of fake news detection. Based on these findings, several recommendations are proposed. First, media organizations should develop and implement comprehensive training programs specifically identifying and combating fake news. Second, media houses should invest in providing journalists with reliable and advanced fact-checking tools. Third, media houses should revise their editorial policies to emphasize the importance of accuracy over speed.

Keywords: Fake News, Misinformation, Disinformation, Journalists, Media

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15 Effect of Interest Rate Change on Probability of Banking Industry in India

Paper ID V10I6-1212 · Pages 90-95 · Casual Analysis

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Interest rate risk represents one of the key forms of financial risk faced by banks it has given rise to an extensive body of research mainly focused on the estimation of the sensitivity of banks' stock returns to changes in interest rates profitability is a major concern for the banking sector the public sector commercial banks are the backbone of Indian economy and it supports many ways many sectors like agriculture, small business, small industries, big industries, directly in providing the finance every research have its base and the outcomes are based on the type of study in the process of review of literature in books, journals, annual reports, websites of banking sector it has been observed that there are many deficiencies in the performance of the banking sector. It is expected that banks have to monitor, maintain, and manage their assets and liabilities portfolios in a systematic manner taking into account the various risks involved in these areas. Profit and loss account and balance sheet risk of a bank can have a significant influence on interest rate risk the rise and fall in the interest rate have a great impact on the profitability return on equity and return on assets. The present

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research work focuses on the impact of interest rate changes on the profitability of the banking industry in India the study covers 30 years and a model that was developed was regression analysis to valid the study with a minimum of 0.05 level of significance is considered very important to justice the impact of an interest rate change on the profitability of the public sector and Commercial banks.

Keywords: Interest Rate Fluctuations, Bank Profitability, Indian Banking Industry, Panel Data Analysis.

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16 Strengthening Cybersecurity in Indian Healthcare – Lessons from the Recent Ransomware Attacks on Hospitals

Paper ID V10I6-1225 · Pages 96-105 · Cyber Security

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The recent rise in ransomware attacks against healthcare institutions highlights some critical gaps in global cyber security, but most notably in India. More and more reliant on digital systems, Indian hospitals are now becoming hot targets for attackers. Attacks reveal vulnerabilities in data security and continuity of operations and financial integrity. It is a comparative study of repeated vulnerabilities in health care information security based on a thorough analysis of existing previous research on ransomware attacks-from both Indian and international contexts. Periodicals disclose similar themes: continued usage of antiquated infrastructure, inadequate investment in cyber security resources, and failure to prepare for incident response. Through such synthesis, this study propounds that what is articulated aptly in the Indian context could be reaffirmed by a multi-layered approach at cyber security, including zero-trust frameworks, encryption protocols, and very much more collaboration between the public and private sectors. Therefore, these strategic suggestions must aid in growing resilience and capacity to confront and counter potential attackers so that this health care system protects sensitive information and delivers all critical services with advances in cyber attacks. Thus, for a strategic stake in safety, this paper recommends a multi-layer approach towards cyber security in Indian healthcare. This will make an attempt at ascertaining insights from various international best practices in reforms that go beyond changing regulations and law enforcement while incorporating technological innovations. Instead, such recommendations would include AI-based threat detection systems, zero-trust architecture, and powerful incident response plans. Main research areas identified are workforce training, stakeholder collaborations, and government-led initiatives in the enforcement of cyber security standards. Following lessons learned from the recent ransomware attacks, this paper suggests a roadmap for the betterment of Indian healthcare institutions toward more resilient cyber security frameworks that can protect it better against emerging cyber threats in the future.

Keywords: Cyber security, Ransomware, Indian Healthcare, Hospitals, AI-based Threat Detection, Zero-Trust Architecture, Incident Response, Data Privacy,Future Improvements, Algorithms.

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17 IoT Based E-Waste Facility Locator

Paper ID V10I6-1179 · Pages 106-112 · Computer Science And Engineering

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The escalating concern of digital waste (e-waste) prompts the immediate demand for an ingenious service, plus the IoT-based e-waste administration system offers a substantial improvement in resolving this expanding worry. E-waste, filled with harmful products poses considerable ecological as well as health and wellness dangers when poorly handled. To tackle this issue the system utilizes innovative formulas such as artificial intelligence as well as anticipating analytics to procedure information from ultrasonic sensing units released in e-waste collection containers. These formulas allow real-time tracking of container fill degrees, permitting waste administration authorities to intend collections exactly. By maximizing hills plus source allotment with the main cloud system, the system not only lowers the threat of overrunning containers but likewise reduces unneeded waste collection lorry journeys therefore lowering gas intake together with greenhouse gas exhausts. This detailed method not only boosts the logistical facets of e-waste administration but also cultivates openness and responsibility, making it a useful payment to worldwide initiatives in advertising accountability as well as lasting e-waste disposal techniques.

Keywords: Ultrasonic Sensors, Waste collection containers, Overflow prevention, Central cloud platform, Data-driven decisions.

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18 Intersecting Psychopathologies: Analyzing Delusional and Hallucinatory Presentations in Schizophrenia and Dementia Patients

Paper ID V10I6-1207 · Pages 113-123 · Clinical Psychology

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This study examines the intersection of psychopathologies between schizophrenia and dementia, focusing on delusional and hallucinatory presentations that complicate diagnosis and treatment. Both disorders exhibit overlapping psychotic symptoms, including hallucinations and delusions, yet are driven by distinct neurobiological and cognitive underpinnings. This research aims to improve diagnostic accuracy and guide individualized therapeutic strategies for patients presenting with overlapping psychotic features. Findings emphasize the importance of tailored neuropsychological assessments and the potential benefits of adapting therapeutic approaches from schizophrenia treatment for dementia patients experiencing psychosis. This study contributes to the evolving understanding of neuropsychiatric overlaps and distinctions, underscoring the need for further research on targeted interventions.

Keywords: Intersecting Psychopathologies, Delusion, Hallucination, Schizophrenia, Dementia

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19 Optimizing Leadership Through Effective Time Management: A Comprehensive Review

Paper ID V10I6-1234 · Pages 124-128 · Management

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Effective time management is a cornerstone of successful leadership, where leaders must adeptly balance numerous responsibilities, deadlines, and competing priorities. This study provides a comprehensive analysis of time management strategies specifically tailored for leadership roles, drawing on a thorough literature review and empirical findings. Key time management techniques are identified, alongside their relevance to the distinct demands of leadership, with a particular focus on how these practices contribute to organizational success (Covey, 1994; Claessens et al., 2007). Furthermore, the paper investigates common challenges leaders encounter in managing time effectively, such as decision-making fatigue and priority conflicts (Macan, 1994). Practical, research-backed solutions are proposed to address these obstacles, aiming to support leaders in optimizing time management for enhanced productivity and influence. By synthesizing both theoretical and practical insights, this study contributes to the discourse on leadership efficacy, underscoring the vital role of effective time management in achieving strategic goals and fostering a productive work environment (Grissom et al., 2015; Gupta & Sharma, 2016).

Keywords: Teamwork, Time Management, Collaboration, Remote Work

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20 AI in Assembly Level Security Testing

Paper ID V10I6-1254 · Pages 129-135 · Computer Science

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Ensuring their security has become a critical challenge with the increasing complexity of modern software systems. Assembly-level security testing plays a crucial role in identifying vulnerabilities at the lowest layer of the code, where many sophisticated attacks can occur. This research investigates the application of artificial intelligence (AI) techniques in enhancing assembly-level security testing. We explore how AI, specifically machine learning models, can be leveraged to automate the detection of security flaws in assembly code by analyzing instruction patterns, control flow, and memory access behaviors. The paper presents a novel approach combining deep learning and static analysis tools to identify vulnerabilities such as buffer overflows, race conditions, and improper memory accesses. Experimental results show that AI-based techniques can significantly reduce the time and effort required for security analysis while improving the accuracy of vulnerability detection. Additionally, we discuss the challenges and limitations of applying AI in this context, particularly in terms of interpretability and integration with existing security tools. The findings highlight the potential of AI to revolutionize assembly-level security testing, paving the way for more efficient and robust vulnerability detection in low-level software development.

Keywords: Artificial Intelligence, Detection, Machine Learning, Assembly Program, Threat, and Security Testing.

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21 Efficacy of a Topical Ayurvedic Preparation (Zandu Universal Oil) – Relief from Cold and Associated Symptoms

Paper ID V10I6-1227 · Pages 136-142 · Ayurvedic

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Sadaf Nadeem, VP - Regulatory Affairs, Emami Limited, Kolkata

Zandu Universal Oil is a topical ayurvedic formulation comprising active ingredients such as Mentha sp., Gaultheria fragrantissima, Cinnamomum camphora, Eucalyptus globulus, Melaleuca leucadendron, Elettaria cardamomum oil, and Capsicum annuum in a base (q.s.). This study aims to evaluate the efficacy of this over-the-counter (OTC) product for relieving symptoms of cold and pain. A prospective, open-label, phase 4 study was conducted with consenting adults (n=30) who were experiencing cold-related symptoms. Each participant received one bottle of the product to use over a 6-day period and provided feedback on its effectiveness using a visual analogue scale. Efficacy scores were recorded on days 0, 2, 4, and 6. Results showed significant relief from cold and nasal congestion within 2 days, and a reduction in headache and body pain (measured as backache) associated with cold by day 6 (p

Keywords: Zandu, Common Cold, Pain Relief, Nasal Congestion, Headache

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22 Efficacy of a Topical Ayurvedic Preparation (Zandu Pain Relief Gel Ultra Strong) – Relief from the Symptoms of Joint Pain , Back Pain and Sprain

Paper ID V10I6-1226 · Pages 143-150 · Ayurvedic

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Zandu Pain Relief Gel Ultra Strong is a topical ayurvedic formulation comprising active ingredients such as Mentha sp. - Satva, Cinnamomum camphora - Satva, Trachyspermum ammi - Satva, Gaultheria fragrantissima - OL., Eucalyptus globulus - OL., Pinus longifolia - OL., Syzygium aromaticum - OL., Capsicum annum - Satva, Boswellia serrata - Oleo-Gum-Resin, Rosmarinus officinalis - OL., Zingiber officinale - Oleo-Resin, Linum usitatissimum - OL., Benzyl alcohol, Base: q.s.This study aims to evaluate the efficacy of this over-the-counter (OTC) product for relieving symptoms of joint pain, back pain, and sprain. A prospective, open-label, phase 4 study was conducted with consenting adults (n=30) experiencing symptoms of joint pain, back pain, and sprain. Each participant received one tube of the product to use over a 6-day period and provided feedback on its effectiveness using a visual analogue scale. Efficacy scores were recorded on days 0, 2, 4, and 6. Results showed significant relief from joint pain, back pain, and sprain within 2 days, with further reductions observed by day 6 ($p < 0.001$). Conclusion: Zandu Pain Relief Gel Ultra Strong is an effective remedy for alleviating the symptoms of joint pain, back pain, and sprain.

Keywords: Zandu, Joint Pain, Back Pain, Sprain, Pain Relief

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23 Efficacy of a Topical Ayurvedic Preparation (Zandu Vaporizing Cold Rub) – Relief from Cold and Associated Symptoms

Paper ID V10I6-1228 · Pages 151-157 · Ayurvedic

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Zandu Vaporising Cold Rub is a topical Ayurvedic preparation containing active ingredients such as camphor, turpentine oil, eucalyptus oil, and menthol. This study aims to evaluate the product's claims as an over-the-counter (OTC) remedy for cold and pain relief. A prospective, open-label, phase 4 study was conducted with consenting adults (n=30) experiencing cold-related symptoms. Each participant received one bottle of the product and used it over a 6-day period. Efficacy was measured through a visual analogue scale on days 0, 2, 4, and 6. The results showed a significant reduction in symptoms of a blocked nose, cold, and congestion within 2 days, and a reduction in cold-related headaches by day 6 ($p < 0.001$). Conclusion : Zandu Vaporising Cold Rub is an effective treatment for cold and its associated symptoms.

Keywords: Zandu, Common Cold, Nasal Congestion, Headache

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24 QR-Attendance System with Geo-Location

Paper ID V10I6-1279 · Pages 158-162 · Software Engineers

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The study outlines the development, deployment, and assessment of an innovative attendance management system based on QR codes integrated with geo-location verification specifically for educational institutions. This system addresses key shortcomings of traditional attendance tracking by incorporating Quick Response (QR) technology alongside geo-location validation and real-time photo capture. Through an extensive evaluation conducted with 500 students over three academic terms, the system achieved a 99.2% accuracy rate in tracking attendance. It reduced fraudulent attendance attempts by 97% compared to assessing academic performance. Conventional methods like manual roll-calls and card-based systems face substantial challenges related to efficiency, accuracy, and preventing fraud. Recent research suggests that around 15-20% of attendance records in traditional systems may be unreliable due to proxy attendance (Johonson et al., 2023).

Keywords: QR-Attendance Systems, Geo-Location Verification, Educational Technology, Student Authentication, Real-Time Attendance Tracking, Location-Based Services

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25 Translating Modern Indian Literature: Bama's Karukku and Sangati

Paper ID V10I6-1270 · Pages 163-166 · Translation

M. Tharun, Professor, Gobi Arts and Science College, Gobichettipalayam, Tamil Nadu

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As a discipline, Interpretation studies is nearly new and is still during the time spent planning its region because the method of communicating social components through scholarly interpretation is a confounded task enveloping a summary of encounters: including history, social construction, religion, customary customs, and ordinary use. The interpretation is key to enquiring about one language's tenor into one more without giving the focal felt feelings. It has been observed that interpretation has at any point been rudimentary to Indian English writing. Showing interpretation quickness in India is even a moderately new furthermore, interesting break. Since the vernacular scribbles have been converted into English, it's getting easier for the perusers to figure out the perspective of the scribers. It is the strength of this vernacular pen that makes compositions so powerful in Indian dialects. In the Indian setting interpretation of English colossally works likewise as an understanding as it brings the voices of dissent and those of the inferior too, to the benefit, what's more, the strong testing them in their space. This examination will particularly zero in on Marathi's inferior works converted into English and their impact on the perusers, particularly the writing made by Dalits, one of India's most draining and taken advantage of networks.

Keywords: Interpretation, Cultural Construction, Religion, Traditions

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26 Advanced Methods and Techniques for Enhancing Soil Quality in Civil Engineering Applications

Paper ID V10I6-1297 · Pages 167-171 · Soil Engineering

Macchindranath Nagoji Kumbhar, Dr Bapuji Salunkhe Institute of Engineering and Technology, Kolhapur, Maharashtra
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A. V. Bhanvase, Assistant Professor, Sveri’s College of Engineering, Pandharpur, Gopalpur, Maharashtra

The soil quality plays a crucial role in civil engineering, affecting the safety, durability, and stability of constructed structures. This paper explores advanced soil improvement techniques in civil engineering applications, such as foundations, road construction, and slope stabilization. Both traditional and cutting-edge methods are examined, including soil stabilization with chemicals, the use of geosynthetics, and biotechnological approaches. Additionally, this paper evaluates these techniques' environmental and economic impacts, providing a holistic view of soil enhancement practices in modern engineering.

Keywords: Soil Quality, Soil Stabilization, Geosynthetics, Biotechnological Methods, Sustainable Construction, Geotechnical Engineering

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27 Analysis of Underground Circular and Rectangular Water Tanks by using Stiffener

Paper ID V10I6-1306 · Pages 172-183 · Structural Engineering

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This paper presents an analysis of a circular water tank using the finite element method (FEM). The tank's wall is examined for parameters such as moment and hoop tension at various levels, considering the effects of hydrostatic and soil pressures, along with the use of stiffeners. Additionally, the wall of a rectangular water tank is analyzed for vertical and horizontal moments at different levels, subjected to similar pressures. The analysis is performed using the FEM software STAAD-Pro V8i. For both tank types, the wall is modeled with its bottom fixed and top free. The wall is divided into several 4-node rectangular (quadrilateral) plate elements, and vertical beam elements are added up to the full height of the tank. The tank is then subjected to a triangularly varying hydrostatic load and soil load. Various types of stiffeners are incorporated into the tank design, and the results are compared with conventional design methods based on moment values.

Keywords: STAAD-Pro, FEM, Water Tank, Stiffener

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28 A Review of Distributed Denial of Service Attack Techniques and Mitigation Strategies

Paper ID V10I6-1277 · Pages 184-193 · Science And Technology

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This report extensively analyzes Distributed Denial of Service (DDoS) attacks, focusing on their motives, methodologies, and impacts across various sectors. It classifies different DDoS attack types, examining those targeting specific network layers and emphasizing unique attack patterns within cloud environments. The study also reviews trends highlighting the rising frequency of these attacks in government, finance, and onlinegaming sectors. To counteract these threats, the report outlines a range of preventive and mitigationstrategies. It covers traditional methods like IP blacklisting, filtering, and firewalls, as well as advancedsolutions involving real-time traffic monitoring and machine learning for dynamic anomaly detection. Theeffectiveness of cloud-based defenses, application-layer security practices, infrastructure resilience, and theintegration of blockchain technologies are also explored. This comprehensive analysis ultimately aims toprovide insights into the evolving landscape of DDoS attacks, advocating for a multi-layered approach toenhancing cybersecurity.

Keywords: Distributed Denial of Service, DDoS, Cybersecurity, Prevention Strategies, Machine Learning, Blockchain, Cloud Security, SDNs, Anomaly Detection

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29 Ingredients for Transforming from Wild to a Workable Multigenerational Team!!!An Appraisal Study

Paper ID V10I6-1313 · Pages 194-197 · Management

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The objective of this paper is to exhibit the study of the work variables influenced by multigenerational diversity and to understand how the cohorts would respond to them. An initial independent examination of the characteristics of the generation cohorts and work variables was done. A detailed listing of work variables followed by classifying them on the basis of their impact was done. The work variables are classified as Organizational, Group and Individual variables, which are highly influenced by multigenerational diversity. This paper intends to bring out the study done on the group category of work variables, which have affected the manner in which the team cohorts had reacted thereby inducing a sequel of events. The researcher collected data from secondary sources and through interviews among IT Project managers of large, medium and small projects and arrived at the identification of the work variables that are influenced by multigenerational diversity.

Keywords: Multigenerational Diversity, Group Variables, Generational Cohorts, Innovative Ideas, Constraints

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30 Phishing Web Detection using Machine Learning Technique

Paper ID V10I6-1316 · Pages 198-202 · Machine Learning

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Everyone is addicted to the internet these days. All of us have made reservations, recharged, shopped, and banked online. Phishing is a type of online threat to websites. Phishing, according to the original website, is an illegal attempt to collect information such as a credit card number, login ID, and password. We presented a successful machine learning-based phishing detection technique in this research. Overall, the experimental findings demonstrated that the suggested method performs best when used in combination with support vector machine classifiers, detecting 95.66% of phishing attempts and matching websites with just 22.5% of novel functionality. When compared to many popular phishing datasets from UCI's repository, the suggested method yields encouraging results. For machine learning-based phishing detection, the suggested method is, therefore, the one that is favoured and utilized.

Keywords: Phishing, Web, Machine Learning, Principal Component Analysis, Support Vector Machine, Random Forest, Decision Tree, Naïve Bayes

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31 Contribution of Artificial Intelligence Technology in Enhancing Organizational Communication Efficiency at Muhimbili University of Health and Allied Sciences

Paper ID V10I6-1318 · Pages 203-208 · Technology

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In 2022, the Tanzanian government made strides in Artificial Intelligence (AI) by establishing an AI laboratory in the capital city of Dodoma, focusing on healthcare, agriculture, and other initiatives. In recent years, the integration of AI technology in information systems has increasingly influenced organizational communication practices, with higher learning institutions experiencing a remarkable adoption of AI in learning. This study aimed to investigate the contribution of AI in organizational communication at Muhimbili University of Health and Allied Sciences (MUHAS), with a particular focus on its current applications, impact on communication roles, and ethical implications. The study employed a descriptive quantitative design involving surveys distributed to students and staff to assess AI usage, effectiveness, and ethical concerns. Data were analyzed through descriptive statistics and regression analysis. Findings show that 78% of respondents acknowledged AI technologies, such as chatbots and virtual meeting platforms, significantly improving organizational communication efficiency and accessibility. However, 45% raised concerns about data privacy and transparency with the use of AI. At the same time, AI-enhanced communication at MUHAS, data security and ethical challenges require attention. The study recommends expanding AI usage, improving data security, and providing training on the ethical application of AI in communication.

Keywords: Artificial Intelligence, Organizational Communication, Higher Learning Institution

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32 Thematic Analysis of Intimate Partner Violence (IPV) Coverage in Habari Leo and Mwananchi Newspapers: A Review of Stories from January to December 2023

Paper ID V10I6-1319 · Pages 209-213 · Mass Communication

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The study examined the thematic focus of intimate partner violence (IPV) stories in the Habari Leo and Mwananchi newspapers throughout 2023, utilizing a quantitative content analysis of 196 newspaper issues. Guided by the Agenda Setting Theory and Framing Theory, the analysis revealed that physical violence is the most frequently reported theme, appearing in 28% of the coverage. Emotional and psychological violence followed at 23%, indicating a growing awareness of its impact, while sexual violence accounts for 19%. Economic and financial abuse was mentioned in 13% of instances, showing an emerging understanding of its implications. Conversely, domestic homicides were covered only eight times (8%), suggesting these severe incidents may be underreported. Other forms of IPV, such as violence during pregnancy and cyber abuse, received minimal attention, highlighting areas that require greater media focus. The findings emphasize the dominance of physical and emotional violence in media narratives while underscoring the need for increased awareness of all IPV forms in Tanzanian society. The study recommends that newspapers enhance coverage of underreported IPV themes, ensure consistent reporting, improve the portrayal of victims and perpetrators, expand discussions on cyber abuse, and collaborate with stakeholders for awareness campaigns.

Keywords: Intimate Partner Violence, Thematic Focus, Media Coverage, Victim Portrayal, Awareness Campaigns

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33 Stem Cell Engineering in Alzheimer’s Disease

Paper ID V10I6-1332 · Pages 214-221 · Medicine

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Alzheimer's disease (AD) is a devastating neurodegenerative disorder marked by cognitive decline, neuronal loss, and the accumulation of amyloid plaques and tau tangles. Despite decades of research, effective treatments remain limited, primarily addressing symptoms without halting disease progression. Stem cell engineering offers a novel therapeutic approach with the potential to repair damaged neurons, modulate the immune response, and clear toxic protein aggregates. This review explores advances in the use of stem cells for developing disease-modifying treatments for AD. In this paper, the challenges and barriers to stem cell engineering for AD have been discussed despite the encouraging results from the preclinical and early clinical studies. With continued research and refinement, stem cell engineering holds significant promise for transforming AD treatment. However, further studies are needed to optimize delivery methods, mitigate risks, and fully unlock the potential of this innovative approach. The future of Alzheimer's therapy may lie not only in managing symptoms but also in repairing the brain itself through advanced stem cell technologies.

Keywords: Stem Cell Engineering, Alzheimer's Disease, Amyloid Plaque, Tau Tangles

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34 The Arc of Light

Paper ID V10I6-1331 · Pages 222-232 · Studio Portrait Photography

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The interplay of light and shadow is a fundamental element in the art of photography. By understanding how light behaves from every angle, photographers can harness its potential to create compelling and evocative images. This research, The Arc of Light: A Study of Shadows and Faces, delves into this intricate relationship, offering a comprehensive visual exploration of the transformative power of illumination. To systematically investigate the effects of light on a subject, we employed a rigorous methodology. A subject was captured from a constant angle while the light source was incrementally adjusted, allowing us to observe the subtle shifts in form, texture, and mood. To ensure accurate measurement and control of light intensity, a light meter was utilized throughout the process. By quantifying the amount of light falling on the subject, we were able to analyze its impact on the resulting image with precision. Through this meticulous study, we have gained valuable insights into the nuances of directional light, the character of shadows, and the evocative potential of light and shadow. By examining how light illuminates, obscures and redefines the subject, we can better understand the principles that govern the art of illumination. This knowledge empowers photographers to make informed decisions about lighting setups, camera angles, and exposure settings, ultimately leading to more creative and impactful imagery. This research serves as a valuable resource for photographers, artists, and enthusiasts seeking to master the art of illumination. By studying the principles and techniques outlined within these pages, readers can elevate their photographic practice and create visually stunning images that resonate with viewers. Whether you are a seasoned photographer or a budding enthusiast, The Arc of Light offers a wealth of knowledge and inspiration to help you unlock the full potential of light and shadow.

Keywords: Light Research, Photography, Artificial Light, Strobe Light, Flash-Light, Looks, Lights, Shadows, Studio Photography, Portrait

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35 Predictive Maintenance for Industrial Equipment using IIOT, AI and ML

Paper ID V10I6-1334 · Pages 233-237 · Machine Learning

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In Industry 4.0, predictive maintenance is transforming the way efficiency and reliability are enhanced in manufacturing. This study introduces a system with machine learning approaches, with a strong emphasis on the Random Forest algorithm., and embedded technology to predict and prevent equipment failures. By utilizing real-time data from IoT sensors, our approach accurately assesses machine health and schedules maintenance before any issues arise. The use of the Random Forest model ensures high predictive accuracy by analyzing complex, nonlinear relationships in data, enabling a robust estimation of equipment conditions. This proactive strategy significantly reduces unexpected downtime, lowers maintenance costs, and prolongs

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machinery lifespan. We review recent advancements in Prognostics and health management (PHM), estimation of the remaining useful life (RUL) of equipment, and condition-based maintenance (CBM). Additionally, We explore challenges such as model interpretability, scalability, and data diversity within industrial environments.

Keywords: Random Forest Algorithm, IoT Sensors, Machine Health, Machine Learning, Prognostics and Health Management (PHM), Condition-Based Maintenance (CBM)

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36 How Sports Affect One’s Mental Health

Paper ID V10I6-1294 · Pages 238-242 · Psychology

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Sports offer significant mental health benefits, including improved self-esteem, stress relief, and resilience. There is a difference between the health benefits derived by amateurs versus professionals regular participation enhances physical health and mental well-being, boosting mood and confidence. Research also found a correlation between certain sports and nationalistic behavior. While sports are generally positive for mental health, they also come with challenges, including performance and public perception pressures. Additionally, sports can impact societal issues such as aggression and unrealistic beauty standards.

Keywords: Mental Health, Sports, Endorphins, Psychology, Physical Well Being

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37 ConnectCraft – Simplifying Network Choices

Paper ID V10I6-1341 · Pages 252-254 · Machine Learning

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In our increasingly connected world, network quality is a fundamental concern for users. We propose an AI-powered solution to assist individuals in making informed decisions about their network service providers. This innovative application harnesses historical network data and real-time user feedback to predict and display potential network quality issues in specific geographic areas, by employing advanced Artificial Intelligence and Machine Learning algorithms, identifying trends and anomalies within this data, allowing it to forecast potential network issues accurately. Key features include predictive analytics, a visual representation of network quality problems on an interactive map, integration of real-time user feedback, provider comparisons based on historical data and reviews, personalized recommendations, and proactive alerts about potential network problems. This comprehensive solution empowers users to select the most suitable network provider for their specific needs, ultimately enhancing their network experiences and satisfaction in networks like JIO, Airtel, Idea, etc. It bridges the gap between consumers and network providers by providing transparency and data-driven insights into network quality, ensuring users can confidently make choices that align with their connectivity requirements.

Keywords: Data Integration, ML Model Development, Predictive Analytics, User Interface, Validation, Deployment

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38 Enhanced Security in Signature Verification System Using Dynamic Sign Retrieval

Paper ID V10I6-1353 · Pages 255-257 · Verification Systems

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Signature verification is the process of automatically and instantly determining whether a signature is genuine. Our system helps to determine whether the user's new signature matches the original signature in the database. Every person has a unique signature used primarily for personal identification and verification of important documents or legal transactions. Mostly used to authenticate checks, draughts, certificates, approvals, letters, and other legal documents. Verifying its authenticity is essential because a signature is used in such critical activities. This type of verification is critical in preventing document forgery and falsification in a variety of financial, legal, and commercial settings. Traditionally, signatures were manually verified by comparing them to copies of genuine signatures. This simple method may not be sufficient as technology advances, bringing with it new techniques for forgery and falsification of signatures.

Keywords: CNN (Convolutional Neural Network), Recurrent Neural Networks (RNNs), Cryptographic Hashing

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39 Developing an EOG-Based Communication Interface for Quadriplegic Patients: Prototype, Signal Processing, and Algorithm Design

Paper ID V10I6-1342 · Pages 258-264 · Biomedical

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Electrooculography (EOG) is an electrophysiological signal that determines the human eye orientation and is therefore widely used in Human Tracking Interfaces (HCI). The purpose of this project is to develop a communication method for quadriplegic patients using EOG signals aimed at text and voice generation. The system consists of 3D eye movement tracking embedded using a custom-built prototype to measure the eyeball's left-right and up-down movements. The ESP32 board, which has a set of parameters to convert the data into content displayed on LCDs and MP3 players, is used to capture and process the signal. Helps people by facilitating more natural and efficient symptom expression. The blink system will be able to incorporate face masks and more eye tests as it continues to develop. Even if it might work, more research and clinical trials are needed to evaluate the system's usefulness and ensure that it performs as planned in real-world scenarios. With this project, assistive technology will make significant progress and improve the lives of many who suffer from severe motor impairments.

Keywords: Electrooculography (EOG), Human-Computer Interaction (HCI), Assistive Technology, Signal Processing, Quadriplegic Communication Interface

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40 A Survey on Improved Dehazing System for Underwater Night Light Fog Images Using Machine Learning Algorithm

Paper ID V10I6-1362 · Pages 265-268 · Machine Learning

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The absorption of light in water and scattering leads to the degradation of images captured at night under the water. This degradation causes low brightness, diminished color, and distinguishable objects in the image affected by the night light. Many researchers worked to improve the images underwater during daylight using contrast stretching and the white balance method. The majority of investigations were done using white balance to reduce the greenish effect due to absorption of higher wavelength, which is reduced when propagated through water, this survey presents many works like guided filter transmission used as an edge-preserving smoothly operator and also “CLAHE” (“contrast limited adaptive histogram equalization”) & RGB model. These methods helped to change the intensity of the dehazed image and the level of contrast in the image. All these methodologies developed by the previous researchers were on the dehazing of daylight fog images. Hence, there is a scope for developing an improved dehazing of night light fog images.

Keywords: Guided-Filter, Convolutional Neural Network, Dehazing, Marine, Underwater, Machine Learning, Night Light Fog

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41 Real-Time Health Monitoring System of a Distribution Transformer

Paper ID V10I6-1373 · Pages 269-271 · Electrical And Electronics

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All Transformers are vital components of power systems, and their failure can significantly disrupt the balance of the entire system. Damage to transformers is often caused by overcurrent or excessive temperatures. This project aims to monitor the health of distribution transformers in real time to prevent such failures. Key parameters, including current, voltage, temperature, and oil level, are continuously monitored using sensors. The system leverages IoT technology, with a Wi-Fi module transmitting recorded data via the HTTP protocol, allowing remote access from anywhere. By automating this process, the system eliminates human error and enables quick responses to potential issues. Alerts are sent when parameters exceed predefined thresholds, helping prevent critical failures. The solution is scalable, adaptable to varying operational demands, and designed to enhance current monitoring practices. Data visualization and analysis are implemented using platforms such as ThingSpeak, which provides graphical representations of monitored parameters. Notifications are sent through IFTTT protocols, enabling timely and efficient maintenance responses. This real-time monitoring system ensures the reliable operation of distribution transformers, reduces manual intervention and improves overall efficiency. Its cost-effectiveness and versatility make it an ideal solution for modern power systems, offering a proactive approach to transformer health management.

Keywords: IoT, HTTP, Wi-Fi module

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42 AI-Powered SEO: Revolutionizing Digital Marketing

Paper ID V10I6-1374 · Pages 272-273 · Marketing

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Artificial Intelligence (AI) has redefined how digital marketing strategies are conceived and implemented, particularly in Search Engine Optimization (SEO). AI-driven tools now enhance SEO processes by offering predictive analytics, content generation, and advanced user behavior tracking. This paper explores the impact of AI on SEO, supported by statistical insights and real-world applications, and highlights the challenges and future trends associated with this technology.

Keywords: AI, Digital Marketing, SEO, Predictive Analytics, User Behavior, Content Optimization

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43 AI-Driven Portfolio Optimization: Enhancing Investment Strategies Using Machine Learning

Paper ID V10I6-1379 · Pages 274-278 · Quantitative Finance

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With the evolution of complexity in today's markets and investment opportunities, traditional methods of appropriate multi-asset portfolio optimization have become insufficient, exposing the funds to overly large levels of risk. This paper addresses the question of how decision-making and investment strategies involving portfolios are assisted by artificial intelligence (AI) and, in particular, machine learning (ML). Everything, including processes such as supervised learning, unsupervised learning, and reinforcement learning, is studied in the context of critical tasks within portfolio management such as investment, risk, and trading strategies. A portfolio processed using AI reported an increase of 12% in predictive accuracy and a decrease of 20% in computation time for backtesting simulations. This was mainly due to well-developed noise filtering features that enable the model to operate in unstable market conditions. Even the key results show that in terms of risk-adjusted performance and managing uncertainty in the market, AI-based models are far better than traditional approaches. In addition, this research draws attention to emerging data sources and ethical AI, AI-based models and practices that further increase transparency, and AI methods associated with ethical concerns and data biases. These results demonstrate how something like AI stands to completely revolutionize the concept of investment and the strategies that accompany it, bringing about a form of change that is very much needed in today's financial system.

Keywords: Portfolio Optimization, Artificial Intelligence (AI), Machine Learning (ML), Supervised Learning, Unsupervised Learning, Reinforcement Learning, Risk-Adjusted Performance, Noise Filtering, Market Conditions, Ethical AI, Investment Strategies, Data Biases.

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44 Smart EV Charging Station with Grid Green Power and Wireless Charging

Paper ID V10I6-1378 · Pages 279-284 · Ev &amp

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The demand for green charging has increased with the rapid growth of electric vehicles (EVs). This paper reviews a smart EV charging station integrating solar and wind power with on-grid electricity to support multiple charging modes: DC fast charging, AC charging, wireless charging, and grid-powered AC charging. An RFID-based system secures access to wireless charging, enhancing usability. This review looks into the design, benefits, and challenges of integrating renewable energy into EV charging, highlighting the system's potential for environmental and operation advantages in sustainable infrastructures.

Keywords: EV Charging Station, Renewable Energy Source, Energy Management

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45 A Comprehensive Analysis of B2B Marketing Strategies

Paper ID V10I6-1381 · Pages 285-286 · Marketing

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Business-to-business (B2B) marketing is an essential segment of modern commerce, where businesses market their products or services to other organizations rather than directly to individual consumers. B2B marketing

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strategies are nuanced and significantly differ from Business-to-Consumer (B2C) approaches. This research article aims to explore B2B marketing strategies, their unique characteristics, channels, challenges, and the metrics used to assess success. With a focus on digital transformation, relationship-building, and content creation, this study highlights the evolution of B2B marketing in the digital era. Additionally, it discusses how businesses can create personalized and value-driven strategies to improve customer engagement and foster long-term relationships.

Keywords: B2B Marketing, Digital Transformation, Content Marketing, Account-Based Marketing (ABM), SEO, Lead Generation, Business Relationships

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46 Literature Review on Exoplanets and Detection Techniques

Paper ID V10I6-1385 · Pages 287-288 · Astronomy

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The discovery of exoplanets since 1995 has revolutionized our understanding of planetary systems. This paper reviews major detection techniques such as radial velocity, transit photometry, direct imaging, gravitational microlensing, astrometry, and pulsar timing, focusing on their strengths, limitations, and findings. It also highlights significant missions like Kepler, TESS, Gaia, and future contributions of the JWST. A literature synthesis reveals the critical role of interdisciplinary approaches and advancing technology in the search for habitable exoplanets and extraterrestrial life.

Keywords: Astronomy, Exoplanets, Techniques, Detection

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47 Assessing the Knowledge and Skills Regarding Partograph Among Nursing Students

Paper ID V10I6-1386 · Pages 289-292 · Nursing

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The partograph is a critical tool for monitoring labor progress and ensuring maternal and fetal well-being. However, nursing students often face challenges in effectively understanding and utilizing it, influencing labor management outcomes. This cross-sectional descriptive study assessed the knowledge and skill levels regarding partograph use among 125 final-year DGNM and BSc Nursing students in a Chennai college. Data collection involved a 35-item questionnaire for knowledge and case-based scenarios for skill evaluation. Results showed that 66% of students had inadequate knowledge, 33% had moderately adequate knowledge, and only 1% demonstrated sufficient knowledge. Similarly, 67% had inadequate skills, 23% had moderately adequate skills, and 10% demonstrated adequate skills. Significant associations were found between knowledge and skills with demographic variables such as age and educational qualifications (p

Keywords: Partograph, Nursing students, Knowledge, Skill

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48 Marital Rape in India: The Intersection of Law, Society, and Structural Inequality

Paper ID V10I6-1359 · Pages 293-300 · Law

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Rape is a serious crime which violates the body and spirit of the victim. Marital rape remains an issue in India where the legal framework fails to protect women from the physical, emotional, and psychological trauma attempted by the husband. After the Nirbhaya Case, there was a lot of media attention on the topic of rape which further led to the implementation of the Criminal Law (Amendment) Act, of 2013. But marital rape is still a problem as the law states specific circumstances in which the husband can be held accountable for committing the crime of raping his wife without consent. This research paper aims to explore and elaborate on the legal framework in place to protect women from the horrific crime of spousal rape. For example how the constitution has laws that contradict themself, how the sacred bond of marriage and the sanctity of the family is more important than a woman facing abuse from her husband, how the law undermines marital rape reports and lets the perpetrator (husband) walk off free, how rape affects a women's body and mind. This paper will answer all these questions and also aim to unfold all the harsh realities that many women in India face every day in the name of marital rape.

Keywords: Rape, Specific Circumstances, Consent, Sanctity of Family, Sacred Bond of Marriage

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49 A Hyperparameter Tuning Optimized Convolutional Neural Network for Classification of Fruit Type and Quality through Computer Vision

Paper ID V10I6-1395 · Pages 305-317 · Machine Learning And Data Science

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Food poisoning is a problem affecting people on a global scale, killing 420,000 people a year as of 2022. This problem is exacerbated by the distribution of already-rotten food from farms to vendors and can be mitigated by preventing infected food from ever leaving farms in the first place, or by identifying rotten foods before vendors sell them. Thus, this study summarizes the building of a hyperparameter-optimized deep learning model that uses a Convolutional Neural Network (CNN) to identify the kind of fruit and its quality by looking at an image of a fruit, a simple process. This automation of food classification and safety allows lower-income farmers and vendors to escape the time and monetary cost of manually verifying whether or not each fruit they distribute/sell is safe to eat.

Keywords: Food safety, Spoilage, Hyperparameter-optimized deep learning model, Convolutional neural network, Computer vision

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50 Campus Navigator

Paper ID V10I6-1370 · Pages 318-321 · Location-based Services

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This paper introduces Campus Navigator, a web-based application developed using Python, Django, and map APIs to assist in navigating a university campus with multiple colleges. The system enables new students and visitors to easily locate specific destinations, such as buildings, classrooms, or faculty cabins. By integrating an intuitive interface with real-time map functionality, Campus Navigator ensures users can efficiently find their way around the campus. The platform also provides administrators with tools to manage and update campus data, ensuring accuracy and scalability.

Keywords: Campus Navigation, Python, Django, Map APIs, University Guide, Location Services

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51 Skin Cancer Type Detection using Deep Learning

Paper ID V10I6-1399 · Pages 322-324 · Skin Cancer

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The research "Detection of Skin Cancer Types Using Deep Learning" addresses the serious issue of skin cancer. There's an urgent need for early diagnosis to help patients get better treatment. Skin cancer, especially melanoma, can be hazardous and often leads to high death rates when not caught early. Traditionally, doctors mainly rely on visual checks, which can vary from person to person. This can lead to misdiagnoses and delayed treatments. So, we decided to use a technology called Convolutional Neural Networks (CNNs) to create a machine that recognizes different types of skin cancer using specialized images. We did a thorough review of current methods and identified their limitations. This will help us build our approach while also making it easier for places with fewer resources to access. By studying things like color, texture, shape, and size in dermoscopy images—and using fresh techniques like transfer learning—we hope to boost accuracy and efficiency in diagnosis. Ultimately, we look forward to helping improve skin cancer treatments.

Keywords: CNN (Convolutional Neural Network), HAM (Human Against Machine), ReLU (Rectified Linear Unit), AI (Artificial Intelligence)

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52 Smart Shield: An IoT-Based Fall Detection, GPS Tracking, and Health Monitoring System Using ESP8266

Paper ID V10I6-1412 · Pages 325-328 · Family Health

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The proposed Smart Belt is a wearable device designed to enhance personal safety and health monitoring through advanced technologies. It incorporates a fall detection system powered by the MPU6050 sensor and a custom-built dataset generated from real-life fall and non-fall scenarios. This dataset trains a machine-learning model whose weights and biases are deployed on an ESP8266 microcontroller. The belt detects falls accurately and mitigates false alarms by allowing users to cancel alerts within 20 seconds via an emergency button. In the event of a confirmed fall, the device triggers SMS alerts containing real-time GPS coordinates, ensuring continuous location tracking. A geofencing feature enhances safety by notifying caretakers if the wearer moves beyond predefined boundaries. Additionally, the belt features an MAX sensor and OLED display for health monitoring, providing real-time SpO2 and heart rate (bpm) readings when a finger is placed on the sensor. The Smart Belt is equipped with a user-friendly emergency button that sends immediate alerts in critical situations, offering additional layers of safety. Its robust design includes a rechargeable lithium battery with USB Type-C charging support, ensuring prolonged usability. This innovative solution combines safety, health monitoring, and connectivity in a compact and efficient system, making it a reliable companion for individuals needing constant monitoring and assistance. With its multifunctionality and focus on user safety, the Smart Belt is a significant step toward enhancing wearable technology for personal health and security.

Keywords: GPS Tracking, Geofencing, SpO2 Monitoring, Heart Rate Monitoring, Wearable Technology, Emergency Alert, Health Monitoring, Rechargeable Lithium Battery

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53 Metaverse: The Future of Recruitment and Talent Engagement

Paper ID V10I6-1427 · Pages 329-330 · Human Resource

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The Metaverse represents a groundbreaking frontier in recruitment, offering virtual environments that transcend geographical boundaries and reimagine the hiring process. This paper delves into the utilization of the Metaverse in recruitment, highlighting its transformative potential, key functionalities, and measurable impacts. By leveraging real-world data, we explore how organizations are capitalizing on this immersive technology to attract top talent, streamline operations, and enhance candidate experiences.

Keywords: Metaverse, Virtual Reality (VR), Augmented Reality (AR), Artificial Intelligence (AI), Blockchain, NFTs, Digital Economy, Social Interactions, Gaming, Digital Assets, Privacy, Governance, Enterprise Solutions, Digital Identity, Interoperability, Virtual Real Estate.

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54 An Outlook on Polynomials

Paper ID V10I6-1439 · Pages 331-332 · Mathematics

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This study explores the complexity and relevance of teaching polynomials in mathematics education. By conducting a literature review and a small informal survey among students across various grades, the research examines their experiences and challenges in understanding polynomials. The findings highlight that many students perceive polynomials as one of the more difficult topics in mathematics. Furthermore, the practical applications of polynomials appear to be limited to specialized fields such as engineering, raising questions about their broader utility for most students. The study concludes that while polynomials have specific applications, their complexity may outweigh their benefits for general use in mathematics education, suggesting a need to reevaluate their emphasis in the curriculum.

Keywords: Polynomials, Mathematics, Complexity, Education, Coefficients, Variables, Modeling, Usefulness, Engineering

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55 Web Application for Paying Guest Accommodation System using Laravel Framework

Paper ID V10I6-1435 · Pages 333-338 · Electronics And Communication Engineering

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The online paying guest system allows users to access a variety of lodging options near their work or desired location. In today’s digital age, web applications for rental purposes are including room accommodations, paying guest services, food services, and other daily needs are scattered across various platforms with separate modules. These modules can be complex and disjointed, making the process time-consuming and cumbersome. To address these issues, a unified solution is needed where users can manage and modify their rental accommodations efficiently using the Laravel tool for system design management. Overall, these advancements in web applications have greatly simplified the process of finding accommodations and accessing various rental services, Indeed, the convenience and flexibility offered by these online platforms have revolutionized the way people search for accommodations

Keywords: Guest, Rental Accommodations, Web Applications, Laravel, Online Platforms

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56 Zero Trust Architecture: A Comprehensive Review of Principles, Implementation Strategies, and Future Directions in Enterprise Cybersecurity

Paper ID V10I6-1452 · Pages 339-346 · Software Application Security

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In an era characterized by digital transformation and increasingly sophisticated cyber threats, traditional

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perimeter-based security models have become inadequate for safeguarding modern enterprise IT infrastructures. Zero Trust Architecture (ZTA) emerges as a pivotal paradigm shift, fundamentally redefining organizational cybersecurity by eliminating implicit trust and enforcing continuous verification of every access request. This review paper provides an in-depth examination of ZTA, tracing its evolution from foundational principles articulated by Forrester Research and the National Institute of Standards and Technology (NIST) to its contemporary extensions addressing the complexities of diverse and decentralized digital environments. Key components of ZTA, including context-aware and continuous authentication, device authentication, and robust encryption mechanisms, are meticulously analyzed to elucidate their roles in enhancing security posture. The paper also explores the logical architecture of ZTA, highlighting the interplay between Policy Engine, Policy Administrator, and Policy Enforcement Points, which collectively enforce stringent access controls and monitor ongoing activities. Despite its advantages, the implementation of ZTA presents significant challenges, such as integration with legacy systems, operational overhead, and vulnerabilities related to policy decision processes and insider threats. Best practices for successful ZTA adoption are discussed, emphasizing comprehensive asset inventory, strong identity and access management, micro-segmentation, continuous monitoring, and phased implementation approaches. Furthermore, the review identifies emerging trends and future directions, including the integration of ZTA with 5G networks, Internet of Things (IoT), edge computing, artificial intelligence, machine learning, post-quantum cryptography, and blockchain technology. By synthesizing insights from recent studies and industry frameworks, this paper aims to provide a holistic understanding of Zero Trust Architecture, offering valuable guidance for organizations seeking to enhance their cybersecurity resilience in an ever-evolving digital landscape.

Keywords: Zero Trust Architecture, Cybersecurity, Authentication, Encryption, Micro-Segmentation, Identity and Access Management, Digital Transformation, Cyber Threats, Enterprise Security, Post-Quantum Cryptography

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57 FastMonitor: Enhancing Data Access Control with Zero-Trust Architecture

Paper ID V10I6-1453 · Pages 347-351 · Software Application Security

Frank Mensah, Research Scholar, Paderbon University, Germany

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As organizations grapple with the escalation of data breaches and sophisticated cyber threats, ensuring robust and adaptive data access control has become a top priority. Traditional perimeter-centric security frameworks, once the backbone of enterprise protections, have increasingly shown limitations against evolving adversarial tactics. In response, Zero-Trust Architecture (ZTA) has emerged as a dynamic paradigm, rejecting implicit trust and demanding continuous verification of every access request. This article introduces FastMonitor, a data-access control solution designed to operationalize ZTA principles to their full potential. Introduced in June 2022, FastMonitor rigorously authenticates and authorizes each data access request, consolidating granular policies, comprehensive audit trails, and real-time monitoring into a single coherent system. By bridging theoretical concepts of ZTA with practical enforcement mechanisms, FastMonitor significantly mitigates unauthorized access, supports compliance with stringent regulatory frameworks, and strengthens organizational resilience. This study elucidates the architectural design of FastMonitor, demonstrates its capacity to enhance security in sectors as diverse as healthcare and automotive, and examines its role in fostering greater national cybersecurity readiness.

Keywords: FastMonitor, Zero-Trust Architecture, Data Access Control, Cybersecurity, Audit Logging, Compliance, Real-Time Monitoring

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58 A Support Vector Regression Model for Air Quality Prediction in Lucknow

Paper ID V10I6-1425 · Pages 352-356 · Aqi Study Of Lucknow Using Machine Learning

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Air quality significantly impacts public health, particularly in urban areas like Lucknow, where deteriorating air quality has been linked to severe health issues, especially in children and vulnerable groups. Accurate air quality prediction allows authorities to implement timely measures to shield these populations from harmful exposure. A lack of comprehensive data and robust algorithms has limited traditional forecasting methods. This study employs a Support Vector Regression (SVR) model to forecast pollutant levels and the Air Quality Index (AQI) in Lucknow using publicly available historical data from the Central Pollution Control Board (CPCB) and local monitoring stations. Among various configurations, the SVR model with a Radial Basis Function (RBF) kernel showed superior performance, achieving an accuracy of approximately 93.4%. Utilizing all available variables rather than relying on feature selection methods like Principal Component Analysis (PCA) improved prediction outcomes. The model effectively forecasts key pollutants, including sulfur dioxide (SO2), carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter (PM2.5 and PM10), and ground-level ozone (O3). This research demonstrates the potential of advanced machine learning techniques to address air quality challenges in Lucknow, offering valuable insights for policymaking and urban environmental management.

Keywords: Air Quality Index, Support Vector Regression, Lucknow City AQI

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59 Sustainable Information Retrieval Techniques for Onion Market Instability Prediction using Machine Learning and Deep Learning Approaches

Paper ID V10I6-1455 · Pages 357-362 · Machine Learning And Deep Learning

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Price is a critical determinant in financial activities, and sudden fluctuations in price often signal market instability. Machine learning offers robust techniques to forecast product prices and address these instabilities effectively. This study examines the application of machine learning models to predict onion prices in India, utilizing data collected from the Ministry of Agriculture, India. Various machine learning algorithms, including K-Nearest Neighbor (KNN), Naïve Bayes, Decision Tree, Neural Network (NN), and Support Vector Machine (SVM), were employed for classification purposes. Their performance was evaluated to identify the most accurate model. Additionally, this research integrates deep learning approaches, specifically Long Short-Term Memory (LSTM) networks, for forecasting onion prices. These methods classify onion prices into three categories: preferable (low), economical (mid), and expensive (high), providing valuable insights to address market volatility.

Keywords: Onion Price, Price Forecasting, Machine Learning, Deep Learning, LSTM, Market Volatility, Classification.

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60 AI-Based Cancer Detection using FRCNN, Random Forest, SVM, and Regression Models

Paper ID V10I6-1450 · Pages 363-366 · Artificial Intelligence

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Early detection of cancers, especially in the mouth, throat, and lungs, significantly improves patient survival rates. This paper presents a comprehensive AI-driven approach combining various machine learning (ML) and deep learning (DL) techniques such as Fast Region-based Convolutional Neural Networks (FRCNN), Random Forest (RF), Support Vector Machines (SVM), and Logistic and Linear Regression models to enhance cancer detection capabilities. Each model's strengths are leveraged to create a hybrid system that excels in detecting and classifying cancerous regions in medical images and analyzing patient data. The proposed workflow incorporates automated image analysis, feature selection, classification, and probabilistic risk estimation, enhancing diagnostic accuracy while addressing challenges like data availability, model interpretability, and computational requirements. This integrated AI-based approach demonstrates potential for real-time clinical application and personalized cancer diagnostics.

Keywords: FRCNN, Random Forest, SVM, and Regression Models, Cancer, Lung Cancer, Throat Cancer, Mouth Cancer

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61 Transforming Urban Traffic with AI: Insights from Singapore and Opportunities in India

Paper ID V10I6-1471 · Pages 367-369 · Urban Planning And Development

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Real-time traffic management has become the backbone of modern urban planning, with AI systems at the forefront of optimizing traffic flow and reducing congestion. With urbanization fast-paced worldwide, cities face unprecedented traffic challenges, such as increasing vehicle density, unpredictable congestion patterns, and growing environmental concerns. This paper reviews the AI-based traffic management system implemented in Singapore, a global leader in smart city innovation. Advanced techniques of AI are put forward by Singapore's LTA in managing traffic such that intelligent traffic lights come through predictive analytics, amongst its integration with public transportation means, cutting significant congestion, travel time as well as vehicle emissions levels alongside improving road safety all across. The potential applicability of such systems is also discussed in Indian cities like Mumbai and Bengaluru. With high population density, diverse traffic compositions, and infrastructure constraints, cities are more demanding and require innovative solutions to handle these challenges. AI-based traffic management could be applied to adjust the timing of traffic signals dynamically, optimize public transport efficiency, and reduce emergency response times for transformative changes in urban mobility. However, fragmented data systems, infrastructure limitations, and cost barriers pose huge implementation challenges in India. By comparing Singapore's success to the realities of Indian cities, this research highlights what's needed to adapt and scale AI technologies to meet local needs. It concludes that the integration of AI-driven systems can provide Indian cities with a sustainable path forward regarding traffic congestion, reduced environmental impact, and the quality of life in an urban setting.

Keywords: Traffic Management, Artificial Intelligence, Congestion, Urban Planning

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62 The Ecology of Forest Fires

Paper ID V10I6-1492 · Pages 370-373 · Biology

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Forest fires, while often perceived as destructive forces, play a complex role in the ecology of forest ecosystems. This paper explores the dual nature of wildfires, emphasising their capacity to disrupt biodiversity and impact the environment while also facilitating ecological succession and promoting biological diversity. It examines the effects of forest fires on carbon dioxide emissions and air quality, particularly in regions like California, where human activities have intensified fire occurrences. Additionally, the paper highlights the adaptive responses of flora and fauna to fire, showcasing examples such as the serotiny of Monterey pines and the dependency of wild lupine for the endangered Karner blue butterfly. A case study on forest fires in Latin America underscores the implications of agricultural practices and deforestation on wildfire frequency and intensity. This literature review emphasises the necessity of understanding the ecological benefits of fires while

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addressing the challenges posed by climate change and deforestation, advocating for a balanced approach to forest management that preserves the integrity of forest ecosystems.

Keywords: Forest Fires, Biodiversity, Latin America, Wildlife, Deforestation

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63 An Intelligent Multi-Criteria Optimization Algorithm for Enhancing Digital Marketing Strategies

Paper ID V10I6-1501 · Pages 374-378 · Finance And Marketing

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In the dynamic landscape of digital marketing, organizations face the challenge of simultaneously optimizing multiple interdependent objectives, such as maximizing audience reach, enhancing engagement, and minimizing costs. This study proposes an intelligent multi-criteria optimization algorithm that integrates the Analytic Hierarchy Process (AHP) and Genetic Algorithms (GA) to address these challenges systematically. The AHP framework establishes objective weights based on strategic priorities, while the GA iteratively refines marketing budget allocations across various channels. A simulation conducted on data for five marketing channels demonstrated that the algorithm successfully prioritized budget allocation towards the most effective channel - Social Media - achieving optimal reach (1.0), engagement (0.977), and cost efficiency (0.258). The convergence analysis revealed consistent improvements across generations, underscoring the algorithm's ability to balance conflicting objectives effectively. Comparative analysis indicated a 15% improvement in overall campaign performance and a 10% reduction in costs compared to traditional single-objective optimization approaches. These findings suggest that the proposed algorithm provides a scalable and adaptable tool for data-driven decision-making in complex digital marketing environments.

Keywords: Genetic Algorithm, Analytic Hierarchy Process, Digital Marketing, Multi-Criteria

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64 Exploring the World of Cryptocurrency

Paper ID V10I6-1473 · Pages 379-381 · Cryptocurrency

Dr. Hasith Soysa, Independent Researcher, Independent Researcher

Cryptocurrency represents a revolutionary shift in the world of finance, offering a decentralized, digital alternative to traditional currencies. Built on blockchain technology, cryptocurrencies ensure secure, transparent, and immutable transactions without the need for central banks or intermediaries. This journal explores the fundamentals of cryptocurrency, its underlying technology, and the potential benefits it offers, including faster transactions, lower fees, financial inclusion, and enhanced privacy. However, challenges such as price volatility, regulatory uncertainty, and misuse remain significant obstacles. By examining both the promise and the risks associated with cryptocurrencies, this guide provides a comprehensive overview of how digital currencies are shaping the future of finance.

Keywords: Blockchain Technology, Cryptocurrencies, Digital Currencies

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65 Investing on Gold

Paper ID V10I6-1498 · Pages 382-383 · Gold

Dr. Hasith Soysa, Independent Researcher, Independent Researcher

Gold, a rare and highly valued yellow metal, has held significant cultural, economic, and technological importance throughout history. With the chemical symbol Au and atomic number 79, gold is one of the least reactive elements, making it resistant to corrosion and tarnish, which contributes to its widespread use in coins, jewellery, and other ornamental items. Historically, gold has symbolized wealth, power, and prestige, serving as a medium of exchange and a store of value. Today, it continues to play a vital role in global finance and trade, while its applications have expanded into electronics, medicine, and various technologies due to its excellent conductivity and biocompatibility. Found in nature in its native metallic form, gold is often extracted through mining and panning, frequently alongside silver, its geological counterpart. As both a commodity and a cultural symbol, gold's enduring value remains integral to numerous industries, continuing to influence art, investment, and technological advancements.

Keywords: Gold, Investment, Value, Diversify

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66 Big Data Analytics Unveiled Predicting Consumer Behavior through Data-Driven Strategies for Smart Retail Marketing

Paper ID V10I6-1512 · Pages 384-393 · Big Data Analytics Machine Learning And Deep Learning

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Big data analytics has changed the way one understands consumer behaviour and marketing strategies in any industry. According to Rakshit Negi, the article focuses on the role of big data in market segmentation and targeting, where it has proved to be an excellent tool for precise consumer insights through statistical analysis and clustering techniques (1). Similarly, the International Journal of Research Publication and Reviews explains in its analysis how data mining and machine learning algorithms may help track purchases and optimize the management of inventory; that is, the operational benefits that big data-driven retail strategies might be able to provide (2). The paper, published on ResearchGate, concerns itself with the impact of social media analytics and mobile payment data on consumer behaviour in the sense of tools like Apache Hadoop and sentiment analysis of actionable insights from different types of datasets (3). The study further emphasizes the significance of predictive analytics to predict consumer needs and optimize engagement metrics as companies reported a conversion rate boost up to 25%. The effect of big data on marketing strategies and consumer behaviour in the U.S., as studied by ResearchGate, shows that the increasing application of advanced technologies, including Tableau, Power BI, and machine learning models, to customize marketing campaigns

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yields a 30% improvement in target accuracy (4). It is, however, not without a cost. All reviewed studies are unanimous in their conclusion that, even in the long term, issues still prevail with respect to data integration and the skill gap in analyzing complex analytics. The erratic nature of consumer preferences makes a predictive model cumbersome; thus, it has to be upgraded constantly so that it remains current. However, despite such problems, the analyzed literature proves that big data analytics is inevitable for taking a competitive advantage in today's marketing scenario and consumer behaviour analysis. Various case studies presented across these papers illustrate real-world applications whereby companies successfully leveraged big data to align their strategies to consumer expectations, which also drives growth and customer satisfaction.

Keywords: Consumer Behavior, Big Data Analytics, Consumer Analytics, Retail Marketing, Market Segmentation, Analytical Tools, Inventory Optimization, Demographic Analysis, Cluster Analysis, Predictive Analytics, Predictive Analytics, Insights Visualization, Graphs and Heatmaps, Marketing ROI, Marketing Strategies.

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67 AI-Based Video Authenticity Checker: Detecting Manipulated Videos Using CNN and LSTM Architectures

Paper ID V10I6-1507 · Pages 394-395 · Artificial Intelligence And Machine Learning For Digital Media Forensics

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The rapid-fire increase in videotape content across digital platforms has boosted the need for effective results to decry manipulated videos. These include deepfakes and other phonies, which pose significant pitfalls to digital trust and security. This paper introduces a new approach, the" AI videotape Authenticity Checker," which employs a mongrel deep literacy frame. The model utilizes Convolutional Neural Networks(CNNs) for spatial analysis and Long Short-Term Memory(LSTM) networks for temporal analysis, furnishing a robust result for detecting fake vids. By preprocessing videotape data to regularize quality and format, the system ensures high trustability and scalability. Experimental results on standard datasets demonstrate a delicacy of 92, a perfection of 90, a recall of 91, and an F1-score of 90.5, showcasing its eventuality for real-world operations. This scalable and effective tool represents a critical advancement in videotape phoney discovery.

Keywords: Video Forgery Detection, Hybrid Deep Learning, CNN, LSTM, Temporal Analysis, Video Authenticity

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68 Assessment of Yield Parameters in Sweet Flag (Acorus calamus L.) Germplasm Under Northern Dry Zone of Karnataka

Paper ID V10I6-1505 · Pages 396-398 · Medicinal And Aromatic Crops

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The present investigation was carried out to evaluate the mean performances of sweet flag (Acorus calamus L.)

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accessions collected from different parts of India. The experiment was conducted at the College of Horticulture, Munirabad, Karnataka. A total of ten sweet flag accessions were evaluated with three replications in a Randomized Complete Block Design. Significant variation was observed among all the accessions with respect to growth, yield and yield-attributing characters. The mean performance of accessions for yield attributing characters revealed that accession SF6 - Hosur village (Vijayanagara) performed well among the ten accessions which recorded maximum fresh weight of rhizomes (29.16 q/ha), dry weight of rhizomes (15.63 q/ha), dry recovery (46.94 %) and maximum oil content (6.10 %). Hence, the Hosur village collection can be recommended for commercial cultivation in Karnataka and can also be utilized in further breeding programmes.

Keywords: Sweet Flag, Germplasm, Yield Parameters, Northern Dry Zone

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69 The Major Values of a Great Leader

Paper ID V10I6-1517 · Pages 399-405 · Leadership

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Effective leadership is a cornerstone of organizational success, and the qualities that define a great leader extend beyond skills and technical expertise. This article explores the eight major values that contribute to great leadership: integrity, vision, empathy, courage, humility, accountability, commitment to growth, and gratitude. Each of these values plays a pivotal role in shaping leaders who inspire trust, foster collaboration, and drive sustained success. Through an analysis of these values, this paper offers insights into how leaders can cultivate these principles to create a thriving and motivated team environment.

Keywords: Leadership, Organization, Growth Mindset

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70 Machine Learning-Based Collaborative Filtering Book Recommendation System

Paper ID V10I6-1523 · Pages 406-410 · Computer Science And Technology

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The project aims to develop a book recommendation system tailored to support and inspire individuals with an interest in reading. Leveraging a collaborative filtering approach that incorporates collaborative filtering based on K-nearest neighbors (KNN) the system identifies similarities among users or items based on their book interactions and book ratings. Through meticulous dataset preprocessing, including feature extraction of genre, author, and user preferences, the system ensures high-quality recommendations. Evaluation metrics such as

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precision and recall gauge system performance, while a user-friendly interface provides easy access to personalized book suggestions. Continuous user feedback drives ongoing improvements, fostering a culture of reading discovery and habit cultivation. Ultimately, the deployment of this system aims to encourage individuals to explore new literary works and develop a lifelong passion for reading.

Keywords: KNN, Collaborative Filtering, Book Recommendation System.

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71 Silicon Dielectric Resonator Antenna

Paper ID V10I6-1497 · Pages 411-416 · Antennas

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Any wireless network essentially requires an antenna for the network to enable wireless communication. In this paper, a silicon based dielectric resonator antenna, exciting in Hybrid mode, is presented for such applications. The proposed CDRA is designed to operate at 2GHz and simulated at the same center frequency to obtain perfect radiation patterns. This paper gives the key concept of DRA and also, a single element CDRA made with silicon is shown along with some measurement results. The proposed CDRA has the desired patterns, and various other parameters such as Return loss, Gain, Polarization, etc., are further discussed here. The CDRA is simulated in Ansys HFSS, successfully and then fabricated to verify the parameters.

Keywords: Silicon, DRA, Excitation Mode, CDRA, Radiation Patterns, Return Loss, Gain, Polarization

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72 CropSense: An Integrated Web App to Simulate an ML/DL-Based Decision Support System for Precision Farming and Agriculture

Paper ID V10I6-1514 · Pages 417-425 · Computer Science And Engineering

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This review explores the integration of machine learning (ML) and deep learning (DL) technologies in precision farming, highlighting the potential of web applications to improve agricultural decision-making through crop and fertilizer recommendations, disease detection, and aerial farm analysis. Precision farming technologies support sustainable agricultural practices by enabling real-time, data-driven insights for optimized resource use and yield enhancement. This review assesses various ML/DL models and their applications, including CNN-based disease detection and recommendation systems that utilize decision trees, neural networks, and satellite data analysis. Key challenges such as data quality, scalability, and security are discussed, along with future directions, including advancements in edge computing and federated learning. By identifying current limitations and prospective improvements, this paper aims to contribute to the development of comprehensive,

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scalable solutions that are accessible and effective for diverse farming environments.

Keywords: Precision Farming, Machine Learning, Deep Learning, Aerial Analysis, Decision Support Systems

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73 Mindsymphony: A Survey of Brain-Computer Interface Applications in Music Therapy Related Applications

Paper ID V10I6-1519 · Pages 426-430 · Brain Computer Interfaces And Ai

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Prof Anuja Gaikwad, Professor, MIT Art, Design and Technology University, Loni Kalbhor, Maharashtra

MindSymphony is an EEG-based dynamic music therapy system which displays the potential of BCI (brain Computer Interfaces)in regulating emotional states through real-time monitoring of brainwaves and adapting the music accordingly. This survey examines various current BCI applications in personalized music therapy, focusing on key algorithm methodologies, as well as the various challenges in EEG signal processing and emotion detection. This paper categorizes and compares existing approaches, addressing limitations and proposing strategies to enhance reliability and user experience in BCI-driven music therapy applications. It also discusses potential future research directions. This survey aims to provide a comprehensive overview of BCI-based adaptive music therapy and its applications.

Keywords: BCI, LDA, Linear Discriminant Analysis, Music, Music Therapy, Therapy, Brain-Computer Interfacing

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74 FESTIVAL BLACK EYES BEANS ou Niébé À PORT-BERGE et MAMPIKONY DANS LA REGION SOFIA, MADAGASCAR

Paper ID V10I6-1367 · Pages 431-458 · Sciences Sociales

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The Black Eyes Beans (BEB) or cowpea festival is a cultural festival in the Sofia region in the northwestern part of Madagascar, during which the organizers aim to promote the agricultural and cultural development of the region. This region is known as the Malagasy capital of BEB, whose farmers represent 80% of the region's inhabitants. The production area is mainly located in two districts: Port-Bergé and Mampikony. This work therefore aims to present the importance of black eyes culture but also to demonstrate the cultural richness in artistic music through the BEB festival in the Sofia region. To this end, many beneficiaries benefit from the organization of the festival. Mainly BEB producers for sale. It is a great opportunity for farmers and even for those who are not involved in the cultivation of said product to exhibit their productions. It is also a highlight for artistic festivities. Artists actively participate during the event by providing entertainment and making the days

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more festive. Thus, compared to other festivals in Madagascar, the BEB festival is typical of the Sofia region in view of the agricultural and artistic potential presented there. Behind this festival event lies an exploitation of enormous economic potential. Thus, recommendations are then proposed to all stakeholders, both farmers or producers, the organizer, and decentralized local authorities for the improvement and sustainability of the BEB festival.

Keywords: Festival, Culture, Production, Musical

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75 Real-Time Fire Detection and Automated Vendor Alert System

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Advancements in artificial intelligence (AI) have significantly improved environmental monitoring and safety measures, particularly in fire detection systems. Early fire detection is critical for minimizing response time and mitigating potential damage. Traditional sensor-based fire detection methods face limitations related to range, environmental conditions, and false alarms. In contrast, deep learning-based object detection models, such as the You Only Look Once (YOLO) architecture, enable accurate and efficient fire detection using video and image data. This study explores the capabilities of the latest YOLO version, YOLOv8, for real-time fire detection. YOLOv8's lightweight architecture, coupled with its ability to process high-resolution images with minimal latency, makes it a suitable choice for real-world applications. The system detects flame and smoke patterns in video streams or images and provides timely alerts to facilitate faster responses. Key improvements in YOLOv8 include enhanced detection speed, increased accuracy, and reduced computational complexity, making it particularly effective in remote or hard-to-monitor areas such as forests, industrial zones, and residential spaces. The system is trained on a comprehensive dataset encompassing diverse fire scenarios to reduce false positives and improve its ability to differentiate fire from non-fire elements. Expected outcomes include reliable real-time fire detection, scalability across various environments, and robust performance under varying conditions.

Keywords: YOLOv8, Convolution Neural Network, Fire/Smoke, Detection, Vendor Alert System

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