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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 11, Issue 3 (May-June, 2025). This edition brings together 65 papers by 180 authors from 72 institutions. Each entry links to the abstract and the full paper.

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ABSTRACTS

1 Advancing Ovarian Cancer Research for Enhanced Subtype Classification and Outlier Detection

Paper ID V11I3-1142 · Pages 1-8 · Medical Imaging

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Ovarian cancer is challenging due to late diagnosis and diverse subtypes. This study uses CNN-based models (MobileNet, DenseNet) for histopathological image classification and applies machine learning (Logistic Regression, Random Forest, XGBoost) for PCOS outlier detection. The system is supported by a Python backend and an intuitive web interface to assist clinicians. This integrated approach improves diagnostic accuracy and contributes to better patient outcomes.

Keywords: Ovarian Cancer, Subtype Classification, PCOS, CNN, MobileNet, DenseNet, Outlier Detection, XGBoost, Machine Learning.

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2 The Application of Artificial Intelligence in the Field of Mental Health: A Comprehensive Review

Paper ID V11I3-1141 · Pages 9-15 · Artificial Intelligence In Healthcare

Revati Sanjay Mahajan, Student, Tilak Maharashtra Vidyapeeth, Pune

The integration of Artificial Intelligence (AI) into mental health care has ushered in a paradigm shift in how emotional well-being is assessed, monitored, and treated. Among the various AI applications, sentiment and emotion analysis has emerged as a vital tool in extracting psychological insights from unstructured data sources such as clinical notes, therapy transcripts, social media interactions, and mobile health applications. Leveraging advanced models like BERT (Bidirectional Encoder Representations from Transformers) and GPT (Generative Pre-trained Transformer), alongside psycholinguistic tools such as LIWC (Linguistic Inquiry and Word Count) and VADER (Valence Aware Dictionary and sEntiment Reasoner), AI systems are now capable of understanding and interpreting nuanced emotional expressions in text and speech. This review paper presents a comprehensive synthesis of current research and methodologies related to AI-driven sentiment and emotion detection in the context of mental health. We explore classical and deep learning approaches, hybrid models, and multimodal frameworks applied to diverse datasets including clinical conversations, patient self-reports, and public online content. Real-world applications such as AI-powered chatbots, teletherapy platforms, and real-time monitoring tools are examined in detail. In addition, we discuss the ethical implications, including data privacy, algorithmic bias, and interpretability, which are critical for the safe deployment of AI systems in healthcare settings. The paper concludes with a set of recommendations for future research, emphasizing the need for multimodal integration, real-time analytics, and personalized mental health interventions. This work

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aims to inform researchers, clinicians, and developers about the current landscape and potential of AI in advancing mental health care.

Keywords: Artificial Intelligence, Mental Health, Sentiment Analysis, Emotion Detection, NLP, BERT, GPT, LIWC, VADER, Machine Learning, Deep Learning

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3 Context Management in Generative AI

Paper ID V11I3-1137 · Pages 16-22 · Software Engineering

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Context management is a fundamental challenge in generative AI, directly influencing the coherence, relevance, and quality of AI-generated outputs. This paper explores the concept of context in generative AI, focusing on the difficulties models face in maintaining long-term, dynamic, and global context across interactions. Key challenges include context loss in long-term dialogues, balancing between immediate and overarching context, handling context switching in multi-turn conversations, and addressing ambiguity or incomplete context. Additionally, we examine the impact of contextual drift, scalability issues, and resource constraints. By understanding these challenges, we highlight the importance of developing more sophisticated context management techniques to improve AI's ability to generate consistent, relevant, and user-centered outputs. Finally, we discuss the implications of context management for various applications, including conversational AI, content generation, and personalized recommendations.

Keywords: Context Management, Generative AI, Artificial Intelligence (AI), Contextual Drift, Long-Term Context, Global Context, Local Context, Context Switching, Ambiguous Context, Incomplete Context, Scalability, Resource Constraints, Attention Mechanisms, Memory Networks, Neural Turing Machines (NTM), Contextual Embeddings, BERT, RoBERTa, Dynamic Context Retrieval, Recency Bias, Forgetting Mechanisms, Reinforcement Learning (RL), Multi-Agent Learning, Fine-Tuning, Transfer Learning, Privacy, Data Security, Transparency, Explainability, Bias, Fairness, Accountability, Misuse, Human-AI Interaction, User Autonomy, Ethical Considerations

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4 Application of Optical Communication in FMCW Radar

Paper ID V11I3-1151 · Pages 23-29 · Computer Science & Electronics

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Frequency-modulated continuous waves (FMCW) radars are long-range, frequency-modulated electromagnetic sensors that can perceive their environment in three dimensions. Recent introductions of RADARs with frequencies ranging from 60 GHz to 300 GHz have expanded their possible applications due to their improved precision in angle, range, and velocity. FMCW RADARs have a better resolution and are more accurate than

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narrowband and ultra-wideband (UWB) RADARs. They offer several important benefits, such as long-range perception, resistance to rain and lightning, and more, and they are less costly than cameras and LiDARs. Even yet, their outputs are less dense and noisy than those of other RADAR technologies, and their ability to measure target velocities requires the employment of specifically created algorithms. Recently, radar sensors have become more and more common in a variety of industries, such as automotive, defense, and surveillance. This is because radar sensors can withstand a wide range of conditions, such as extreme heat, bright light, and bad weather. The simulation results were performed using Optisystem 22.0 and MATLAB (R2024b). The results demonstrate that 40 mW of power is effectively utilized for target identification, with the best technique for moving targets being direct detection.

Keywords: Radar, Sensors, Surveillance, Target Detection

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5 Instagramming Architecture: The Social Media Revolution in Architectural Photography

Paper ID V11I3-1161 · Pages 30-32 · Architecture

Sourav M S, Student, PES University, Bengaluru, Karnataka

This research examines the profound impact of Instagram on architectural photography in the 21st century. Once a professional and editorial endeavor, architectural photography has been transformed by social media into a participatory and highly aestheticized activity. Instagram's algorithm-driven visuals, hashtag culture, and global reach have changed how architecture is captured, consumed, and even designed. This paper explores the visual aesthetics promoted by Instagram, the algorithmic pressures on photographers and designers, and the ethical and cultural consequences of a platform-dominated gaze. Through extensive case studies—ranging from Ricardo Bofill’s Muralla Roja and Thomas Heatherwick’s Vessel to India’s Rani ki Vav and Studio Mumbai’s handcrafted works—the study explores both the creative opportunities and serious challenges introduced by this digital revolution. It argues that while Instagram has broadened the audience for architecture, it has also commodified space and design into fleeting visual content, often at the cost of cultural depth and spatial integrity.

Keywords: Architectural Photography, Instagram, Technology

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6 Finger-Print Based Vehicle Starter

Paper ID V11I3-1172 · Pages 33-36 · Electronics

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The Fingerprint-Based Vehicle Starter system enhances vehicle security by using biometric authentication to

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control engine access. It replaces traditional keys with a fingerprint sensor, allowing only authorized users to start the vehicle. When a registered fingerprint is detected, the system activates the ignition through a microcontroller. If the fingerprint is unrecognized, the engine remains locked. This method prevents unauthorized access and reduces the risk of theft. The system is reliable, user-friendly, and cost-effective, making it suitable for modern vehicles. It demonstrates the practical use of biometrics in improving automotive safety and access control.

Keywords: Biometric Authentication, Fingerprint Recognition, Vehicle Security, Engine Start System, Microcontroller, Access Control, Anti-Theft System, Fingerprint Sensor, Automotive Safety, Keyless Ignition.

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7 Design and Development of HEV

Paper ID V11I3-1171 · Pages 37-40 · Enginnering

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Hybrid Electric Vehicles (HEVs) represent a transformative advancement in automotive technology aimed at reducing fuel consumption and minimizing environmental impact. The study conducts a comprehensive analysis of various HEV architectures—including series, parallel, and seriesparallel configurations—to identify the most suitable system for optimal performance and effective energy management. Critical components such as electric motors, battery packs, regenerative braking systems, and power electronics are carefully selected and integrated to achieve an optimal balance between efficiency, performance, and cost. Additionally, special emphasis is placed on wheel alignment optimization to improve vehicle stability and reduce rolling resistance. The resulting prototype exhibits a significant improvement in both fuel economy and emission reduction compared to conventional vehicles, underscoring the potential of hybrid technologies in advancing sustainable transportation.

Keywords: Hybrid Electric Vehicle (HEV), Electric Hybrid System, Internal Combustion Engine (ICE), Electric Propulsion Battery-Powered Vehicle Fuel Efficiency, Emission Reduction, Regenerative Braking, Energy Recovery Systems, Urban Mobility Solutions, Vehicle Powertrain Design

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8 Next Step: Find the Next Step in your Career

Paper ID V11I3-1163 · Pages 41-47 · Computer Science & Engineering

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Choosing the right academic specialisation is a pivotal decision in a student's educational journey and has a profound impact on their future career. However, many students struggle with this choice due to a lack of clarity about their interests, strengths, and the job market relevance of different specialisations. The "Next Step" project aims to bridge this gap by offering a data-driven, survey-based guidance system that helps students identify the most suitable specialization based on their interests and aptitudes. The system utilizes a structured questionnaire designed to assess key personal and cognitive traits, such as analytical thinking, creativity, and technical enthusiasm. Based on the responses, the system suggests the most relevant specialisation, such as Artificial Intelligence, Data Science, or Cybersecurity, and subsequently provides a curated list of corresponding job roles. The solution is implemented as a web application, offering students a seamless and interactive experience while also allowing administrators to manage job role data dynamically. This approach not only improves self-awareness among students but also aligns their academic direction with industry demand, thus reducing the skills gap. The "Next Step" platform exemplifies how interest-based guidance can be transformed into an effective educational tool through the integration of survey methodologies, web technologies, and dynamic data mapping. It lays a scalable foundation for future career guidance systems that are personalized, adaptive, and aligned with real-world opportunities.

Keywords: Specialization Selection, Career Guidance, Survey-Based Recommendation System, Job Role Mapping, Student Career Planning, Data-Driven Counseling, Career Path Prediction, Educational Decision Support, Skill-Based Role Matching, Academic Specialization Recommendation

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9 Synthesis of Newer Benzotriazol Derivatives for Antibacterial and Antioxidant Potential

Paper ID V11I3-1182 · Pages 48-53 · Pharmacy

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In response to pandemics and microbial resistance, novel heterocyclic compound spotent biological activity are needed. A series of (E)-2-(2-((5-(1H-benzo[d][1,2,3]triazol-1-yl)-3- methyl-1-phenyl-1 H-pyrazol-4-methylene(hydrazinyl)-4-(aryl) thiazole derivatives were synthesized via a three- component reaction involving pyrazole-4-carbaldehyde, thio semicarbazide, and substituted phenacyl bromides for antibacterial and antifungal study. Recent health research focuses on multifunctional compounds that interact with multiple biological targets, streamlining multidrug therapies and enhancing patient adherence. This study aimed to develop novel multifunctional chemical entities incorporating a benzothiazole nucleus, a structure widely recognized for its diverse biological activities. Benzothiazole has gained attention due to its role as a scaffold in

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various multifunctional drugs, making it a promising candidate for innovative therapeutic applications that improve treatment efficacy and simplify pharmaceutical regimens. To combat the growing threat of multi-resistant bacteria, scientists synthesized four benzotriazole and three benzimidazole derivatives using two distinct methods, recognizing the vital role of heterocyclic compounds in medicinal chemistry. These newly developed compounds were then docked with two protein targets, DNA gyrase (PDB ID: 2XCT and 3ILW), to evaluate their binding potential. The effectiveness of these derivatives was compared with standard antibacterial drugs, sparfloxacin and ciprofloxacin. This study aims to identify promising candidates for overcoming bacterial resistance, providing valuable insights into new drug development strategies targeting resistant bacterial strains through advanced molecular docking techniques. Antimicrobial resistance (AMR) is a global health challenge, leading to higher mortality, morbidity, and treatment costs. The World Health Organization (WHO) reported in 2019 that only six out of 32 antibiotics in clinical trials featured innovative novel moieties, while the rest were based on existing compounds. This highlights the urgent need for new antibiotic development to combat resistance. Among promising candidates, benzothiazole derivatives stand out due to their broad spectrum of biological activities and significant medicinal applications. Their potential in drug discovery has gained attention for addressing resistance issues, reinforcing the necessity of developing novel compounds. Advancing research in benzothiazole derivatives may pave the way for effective antimicrobial agents to tackle evolving resistance problems and improve global healthcare outcomes.

Keywords: Benzothiazole Derivatives, Antimicrobial Resistance (AMR), Heterocyclic Compounds, Molecular Docking, Multifunctional Drug Development

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10 Glaucoma Detection through Deep Learning on Fundus Images

Paper ID V11I3-1173 · Pages 61-63 · Machine Learning

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Glaucoma is a leading cause of irreversible blindness worldwide, often progressing without noticeable symptoms until significant vision loss occurs. Early detection is critical to prevent permanent damage, but conventional screening methods are time-consuming and require expert interpretation. In recent years, deep learning has emerged as a powerful tool in medical image analysis, offering promising solutions for automated and accurate glaucoma detection. This paper explores the application of deep learning techniques, particularly convolutional neural networks (CNNs), to detect glaucoma from retinal fundus images. A curated dataset of labeled fundus images is used to train and evaluate the model, achieving high accuracy in distinguishing glaucomatous eyes from normal ones. The study highlights the potential of deep learning to enhance the efficiency and accessibility of glaucoma screening, paving the way for real-time clinical decision support systems. Future directions include improving model generalizability across diverse populations and integrating multimodal data to further boost diagnostic performance.

Keywords: Glaucoma Detection, Deep Learning Fundus, Images Retinal Imaging, Convolutional Neural Networks (CNN),

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Automated Diagnosis Medical Image Analysis, Ophthalmology AI

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11 Gender Disparities in Employment

Paper ID V11I3-1154 · Pages 64-72 · Social Studies

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Priyonkon Chatterjee, Clever Harvey, Kolkata

Gender inequality in employment describes barriers to accessing opportunities in, and the treatment offered in the workplace. These disparities can result in pay gaps, lower representation of women in leadership roles, and a stagnating economy. Gender inequality in employment restricts a country's full economic potential and sustains or elevates social inequalities. This study assesses gender disparity in employment in India on a zone-wise basis, by reviewing the NSDP, and gender-based labour force participation and unemployment from 2011 to 2024. The research utilizes publicly available data from government-sourced employment datasets such as the PLFS and MOSPI. The findings indicate various disparities in work engagement rates by regions and gender. Regression models assess the influence of male and female participation on the economic output by state. The study supplements fixed effects with year, allowing the study to examine whether states including females in the labour pool favourably correlated with inclusive economic performance. Overall, the study found that female labour participation was positively correlated with economic output under fixed effects with year. Urban areas typically have a higher full employment unemployment (UE) rate for females, against a backdrop of increased educational access to women, and the North-East demonstrates enhanced gender participation even with lower NSDP. In aggregate, the study identifies that structural changes, social changes, and natural, smart, and inclusive gender-based policy changes are essential to encourage equitable growth and to benefitably use a society's economic potential.

Keywords: Gender Disparities, Employment Inequality, Gender Wage Gap, Labor Force Participation, Workplace Discrimination, Occupational Segregation, Equal Pay, Gender Bias, Glass Ceiling, Pay Equity, Women In Workforce, Economic Empowerment, Career Advancement

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12 Development and Optimization of Pumpkin Pomace Enhanced Savory Crackers

Paper ID V11I3-1192 · Pages 73-78 · Food Technology

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The development of functional food products using agro-industrial by-products such as pumpkin pomace is a sustainable and nutritious approach. This study focuses on the formulation of fiber-rich savory crackers enhanced with wet pumpkin pomace, blended with wheat flour and carom seeds. Pumpkin pomace, rich in

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dietary fiber and β-carotene, was incorporated to improve the nutritional profile without compromising sensory quality. The optimized formulation was evaluated for its physical, textural, and nutritional properties, including moisture, fat, ash, pH, protein, and fiber. Results indicated a significant enhancement in dietary fiber and protein, with acceptable sensory scores. This study supports the use of fruit and vegetable residues in mainstream food formulations to promote health, reduce food waste, and improve sustainability.

Keywords: Pumpkin Pomace, Savory Crackers, Dietary Fiber, Sustainable Snacks, Functional Foods.

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13 Geometrical Approach to Kepler's Laws of Planetary Motion

Paper ID V11I3-1186 · Pages 79-91 · Keplers Law

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We know that the earth is a planet revolving round the sun is an elliptical orbit, the sun being at the focus. The time taken by the earth to complete one revolution is called an year which is equal to 365.25 days relative to the earth the sun describes an ellipse round the earth. The elementary pen and string method to draw ellipse has been devised to examine planetary orbits on the basis of the Kepler's Laws. Besides qualitative feature of the orbits. Quantitative depends of the orbital shape on the quantities appearing in the Kepler's Laws can also be analyzed with simple geometrical procedures. The method thus provides a relevant intermediate step to students prior to the study of the rigorous theory of central force problems. The students were asked questions relating to Kepler's three laws of motion, as well as what keeps planets in orbit around the sun. Less common ideas include a mix of circular and highly elliptical orbital shapes. Many students have conceptions consistent with the Kepler's second and third laws of motion and the case with which the models are adopted by students may suggests some ways to teach these concepts the types of ideas about orbital shapes and orbital behavior may originate in common depictions of orbits often seen in print and on the internet.

Keywords: Kepler, Planet, Orbit, Focus, Ellipse

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14 Modern Web 3.0 Blockchain Applications: Healthcare for Enhancing Privacy, Smart Contracts, and Cryptocurrency

Paper ID V11I3-1213 · Pages 92-99 · Computer Science

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Federated Learning (FL) has emerged as a promising approach for training machine learning models while preserving privacy, particularly in Internet of Things (IoT)-based environments such as healthcare. However, FL alone is insufficient for addressing all privacy challenges. This paper explores the integration of blockchain technology with FL to enhance privacy in Smart Healthcare Systems. Key contributions include a blockchain-enabled model for storage, aggregation, and gradient sharing; implementation of sidechains to improve transaction speed and reduce computational overhead; and the use of smart contracts for secure access

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control. The study proposes a scalable, privacy-preserving framework that aligns with healthcare regulations and supports collaborative AI applications, ultimately improving patient care and medical research.

Keywords: Federated Learning, Blockchain, Privacy, Smart Healthcare, Privacy-Enhancing Technologies, IoT

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15 Deep Search: An Intelligent File Searching through Content Analysis

Paper ID V11I3-1240 · Pages 100-102 · Engineering And Technology

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Real-time full-text search holds essential value in current digital libraries because it helps users find documents with content rather than names [1]. Users can perform content-based searches that reveal files through the extraction of textual contents within documents and optimize the retrieval process for research databases as well as legal document search and enterprise knowledge management solutions [2]. A full-text search technique-powered document retrieval system, which seeks to create a content-based file searching mechanism, is analyzed within this report. These search systems implement ranking as their main step to evaluate document relevance through the combination of term frequency and document length analysis with inverse document frequency factors [3]. The foundation for improving search accuracy and efficiency depends heavily on knowledge about directory creation as well as score calculation methods. The research also explores performance comparison between Whoosh and Elasticsearch regarding their scaling capabilities and their abilities to index data and respond to search queries and rank results [4]. Whoosh functions best for compact document sets, yet Elasticsearch delivers real-time search functionality for extensive data collections. The final report will present the most effective solution for creating a content-based search system with high performance levels for various application domains.

Keywords: Whoosh, Query, Indexing

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16 Public Perception of Justice and Its Influence on The Legal System

Paper ID V11I3-1238 · Pages 103-109 · Public Policy

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This paper explores the influence of public perception on the legal system, particularly in democratic nations where public opinion is crucial for legal policy reforms. It evaluates how factors such as issue salience, media portrayal, and sentiment can affect public perceptions of justice, thus influencing legal change. Through examples like the George Floyd, ‘Black Lives Matter’ movement case, this research reveals that while public opinion can create significant legal reforms, such changes can be fleeting as public focus or salience shifts. Furthermore, the paper delves into the role politics and interest groups play in either strengthening or hindering the influence of public opinion on legal systems. Although a relationship between public opinion and

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legal change clearly exists, the significance of this influence is still uncertain, emphasising the need for further research.earch.

Keywords: Public Perception, Justice, Influence, Legal System, Law , Ethics

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17 Anti-Face Spoofing Detection using Texture and Eye Blink Parameters

Paper ID V11I3-1203 · Pages 110-115 · Image Processing

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Growing reliance on facial recognition for secure authentication in various applications, ensuring that facial inputs are genuine and not spoofed using photos, videos, or masks has become critical. This work introduces a real-time anti-face spoofing detection system that harnesses computer vision and deep learning to verify the liveness of facial inputs. The system integrates Media Pipe Face Mesh for accurate facial landmark detection, a Convolutional Neural Network (CNN) for classifying real vs fake faces, and eye blink detection using Eye Aspect Ratio (EAR) to further enhance liveness verification. Additionally, a texture analysis module and motion blur detection help assess image quality and prevent spoofing attempts through printed photos or video replays. A dynamic overlay displays relevant metrics such as EAR, texture score, model confidence, and blur score, aiding both real-time feedback and system transparency. The interface includes a timestamp module and real-time performance chart for enhanced monitoring. This robust solution contributes to secure biometric authentication by combining multiple detection layers for high accuracy in face liveness classification.

Keywords: Spoofing, Facial Landmarks, Texture, Motion Blur, Eye-Blink

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18 EV BMS with Charge Monitoring and Fire Protection

Paper ID V11I3-1251 · Pages 116-121 · Electric Vehicles

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In the silent heartbeat of our electrified era, lithium-ion batteries hum with potential and peril, their compact chemistry balancing progress on the knife’s edge of combustion. As thermal runaway lurks—unseen, unbidden, catastrophic—the Battery Management System (BMS) emerges not as a passive overseer but as an intelligent, multi-layered oracle of prevention, prediction, and protection. Within this chaotic choreography of heat, gas, pressure, and current, sensors become storytellers, whispering the earliest murmurs of disaster; algorithms, trained on the echoes of past failures, thread together anomalies into foresight; and suppression technologies, ever-vigilant, stand ready to suffocate the spark before it breathes. This paper explores the hybrid symphony of

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emergent AI, sensor fusion, and real-time control systems, where layered architectures form not just circuits, but cybernetic guardians. No longer are BMS mere managers; they are sentinels, anatomies of foresight crafted in silicon and code, promising not just energy, but safe, self-aware power in a world increasingly defined by its electric pulse.

Keywords: Battery Management System (BMS), Fire Detection, Fire Suppression, Lithium-Ion Battery Safety, Thermal Runaway Prevention, Battery Monitoring

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19 Real-Time Bicep Curl Tracking and Pose Detection Using OpenCV and Media-Pipe

Paper ID V11I3-1257 · Pages 122-129 · Aritficial Intelligence

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Human pose estimation is crucial for enabling real-time monitoring of physical exercise via the analysis of movement and orientation of the body. However, existing pose estimation techniques are prone to major flaws such as mislocalization of joints, occlusion issues, and mis-recognition of repetition of exercises. Such flaws undermine the efficacy and reliability of fitness tracking systems. In an attempt to address these flaws, the present study proposes a real-time bicep curl tracking system based on OpenCV and MediaPipe. The proposed system is designed to accurately estimate human pose, calculate joint angles, and provide automatic user feedback. One of the system's basic features is that it uses a state-based repetition counter, which improves accuracy in repetition detection by eliminating false positives caused by minor landmark placement variation. The system only detects repetitions when form is proper and range of motion is full. In addition to providing real-time feedback on posture changes and detecting improper exercise form, the system effectively eliminates the risk of injury during the execution of strength training exercises. It provides real-time feedback on posture changes and incorrect exercise form. Through empirical analysis, the system proposed has a remarkable accuracy of 96% in quantifying repetitions, which outperforms the performance of the traditional pose tracking models. The high accuracy verifies the system's robustness as well as its usability in real-world fitness applications. Findings indicate that the integration of AI-driven pose estimation and feedback mechanisms can potentially make personalized fitness training much more effective. Together with real-time correction and individualized data, these technologies can improve efficiency in training while motivating safer training habits. This work contributes to the growing field of AI-driven health and fitness technology and opens the door to more advanced and responsive physical activity monitoring devices

Keywords: Human Pose Estimation, AI Based Fitness, Bicep Curl Tracker

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20 Smart Wheel Bot: An IoT-Driven Obstacle Avoidance System for Wheelchairs

Paper ID V11I3-1246 · Pages 130-134 · Design And Automation

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Like many other sectors, the medical field in India is not widely known for its automation. Even in contemporary society, people with physical disabilities often rely on a caregiver for movement assistance. However, caregivers may be busy attending to other responsibilities and obligations, which can leave patients feeling stuck and dependent. To solve this problem, we designed an autonomous wheelchair which further enhances safety and facilitates greater independence in mobility. The Smart Mobility Bot is an economical autonomous wheelchair with decently priced features. It is controlled by DC motors and employs ultrasonic sensors for detecting obstacles.

Keywords: Omnidirectional Mobility, Obstacle Avoidance, Autonomous Navigation

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21 Invisible Economies: The Gendered Burden and Cultural Dimensions of Unpaid Labour

Paper ID V11I3-1254 · Pages 135-138 · Economics

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This paper critically examines the pervasive issue of unpaid labour through a gendered lens, focusing on its systemic normalization and deeply entrenched roots in patriarchal traditions. Primarily undertaken by women, unpaid labour includes caregiving, household maintenance, and community service—tasks essential to the functioning of society yet systematically excluded from economic valuations and policy recognition. Drawing on feminist economic theory, particularly the work of Marilyn Waring, the paper explores how unpaid work perpetuates gender inequality by limiting women's access to education, employment, and leadership roles. Cultural contexts, especially in South Asia, further entrench these roles, framing domestic work as a woman's natural duty. The discussion incorporates cross-cultural comparisons, highlighting how traditions, economic transformations, and evolving gender norms affect perceptions of labour equity. Additionally, the mental health ramifications of this invisible burden are analysed, revealing a gendered gap rooted in structural inequities and societal expectations. By exposing the fiction of the "head of household," the paper advocates for an equitable redistribution of unpaid work, challenging outdated norms and emphasizing the shared responsibility of dismantling patriarchal labour divisions. Recognising and valuing unpaid labour is crucial not only for women's empowerment but for redefining partnerships and societal well-being at large.

Keywords: Unpaid Labour, Gender Inequality, Feminist Economics, Patriarchy, Care Work, Cultural Norms, South Asia, Mental Health, Gender Roles, Household Division of Labour, Marilyn Waring, Invisible Work, Labour Valuation

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22 Thyroid Gland Abnormality Detection Using Pre-Trained Neural Networks

Paper ID V11I3-1256 · Pages 139-153 · Deep Learning

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Medical image analysis plays a crucial role in the early detection and diagnosis of thyroid nodules, which are indicative of various thyroid illnesses. Thyroid nodules are classified using machine learning methods like Random Forest and Support Vector Machine in the current framework. In this work, we propose a unique use of transfer learning algorithms to thyroid nodule categorization. Neural network models that have already been trained on large datasets are modified for specific tasks that require less data through the use of transfer learning. Our approach involves using a state-of-the-art convolutional neural network (CNN) that has been pre-trained on a range of medical pictures to extract significant information from thyroid ultrasound scans. To optimize its performance for accurate classification, the model is trained on a particular dataset of thyroid nodule images. We examine the effectiveness of many transfer learning architectures, such as VGG16 and Xception CNN, and assess their overall accuracy, sensitivity, and specificity. The proposed methodology aims to provide physicians with a reliable thyroid problem diagnosis tool by increasing the categorization efficiency of thyroid nodules. The results pave the way for more precise thyroid image analysis, diagnosis by demonstrating how transfer learning can be utilized to maximize model performance even in the presence of sparsely labelled medical data.

Keywords: Deep Learning, Thyroid Detection, Image Analysis, VGG16 Model, Xception Model.

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23 An In-Depth Analysis of Dollar Liquidity in the Global Economy

Paper ID V11I3-1279 · Pages 154-158 · Economics

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As the US dollar is the basis of international finance and trade, dollar liquidity is vital to the health of the economy. Developing countries such as India feel the brunt of less dollar access through higher import costs, volatile currencies, and reduced corporate competitiveness. Cross-border banks, upon which the availability of dollar financing depends, are also at risk and may produce credit shortages. United States policy making can rock global markets, as was done with the 2008 Financial Crisis and the 2013 Taper Tantrum. The paper puts emphasis on stable dollar liquidity by emphasising the complexity of the global economy and how dislocation of dollar flow impacts banks, companies, and individuals everywhere.

Keywords: Dollar Liquidity, Foreign Banks, Stock Market, Global Economy, International Trade, Effects on Indian Rupee

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24 AI-Driven Medical Fundraising Verification System to Detect and Prevent Fraudulent Treatment Requests

Paper ID V11I3-1280 · Pages 159-162 · Artificial Intelligence

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Medical fund fraud, where individuals fake treatment documents to solicit donations, is a growing concern in crowdfunding. Traditional verification methods are often manual, slow, and prone to error. This project introduces an AI-based system using YOLOv8 to detect text in medical bills and Paddle OCR to extract key information. Extracted data—like hospital names and treatment costs—is verified using fuzzy matching against a trusted hospital database. This automated approach enhances accuracy, blocks fraudulent requests, and helps restore donor trust.

Keywords: Medical Fund, Medical Fund Fraud, AI-driven Approach, YOLOv8, Paddle OCR, Text Recognition, Fuzzy Matching Algorithm, Automated Verification.

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25 Divided by Wealth: A Deep Dive into Women’s Access to Credit

Paper ID V11I3-1282 · Pages 163-171 · Economics

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Women’s access to credit has historically been restricted by systemic discrimination and by outdated financial structures, limiting female economic independence and business opportunities. While landmark pieces of legislation such as the 1974 Equal Credit Opportunity Act (ECOA) in the United States have attempted to address these issues, research continues to indicate that gender biases in credit persist. While previous academic studies have examined econometrics, Fletschner (2008), and legal reforms, Garikipati (2008), this paper argues that deeply ingrained societal biases continue to shape credit lending systems, disproportionately disadvantaging women. By analyzing case studies from the United States, India, and South Korea, this research evaluates how gender-based disparities in credit access manifest across different economic and cultural contexts. The study incorporates data from financial institutions, government reports, and scholarly articles to highlight ongoing barriers. Ultimately, this paper argues that while progress has been made, financial institutions remain skewed in favor of men, necessitating policy changes that prioritize inclusivity and fairness. Without reform, women will continue to face unnecessary hurdles in obtaining credit, reinforcing long-standing economic inequalities.

Keywords: Gender Bias, Credit Access, Financial Inclusion, Systemic Discrimination, Policy Reform

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26 Cyber Warfare: Conflicts and Role of Security in the Digital Age

Paper ID V11I3-1288 · Pages 172-176 · Cybersecurity

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This research paper looks at a brand new evolving form of warfare, " cyber warfare".The main focus is primarily on the internal and external notions of security and emphasises how cybersecurity affects both. Various examples have been taken up to demonstrate how cyber terrorism has created havoc all over the world. An in-depth analysis of the development of international laws was conducted.

Keywords: Cyber Warfare, Cyber Terrorism, External Notion of Security, Internal Notion of Security, Emerging Disruptive Technologies, Cyberspace.

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27 Re-Imagining Emergency Response System with Geo Fencing

Paper ID V11I3-1290 · Pages 177-188 · Ai Application

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Despite the existence of emergency hotlines, many distress calls go unanswered, leaving individuals in urgent need without timely assistance. This study proposes a system designed to enhance the speed and reliability of Emergency Response Services(ERS). By integrating advanced technologies such as signal triangulation, Geo-fencing, Geo-location, predictive AI, and Geo data analytics, the system aims to provide more accurate and faster responses. The approach works within India's current governance framework and collaborates with community networks to improve safety, particularly for vulnerable groups like women and children. The proposed system's objectives include reducing the response time for emergency services, ensuring that help reaches those in need quickly, and strengthening overall crisis management. By leveraging predictive AI and Geo data, it optimizes response times. This study presents an innovative solution for improving emergency services, making them more inclusive, effective, and contributing to the overall safety of communities.

Keywords: Artificial Intelligence, Geo-Location, Geo Data, Geo-Fencing, Women And Children Safety, Community Service, Emergency Response System

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28 Vision Assist System Using Deep Learning For Product And Text Recognition For Blind People

Paper ID V11I3-1304 · Pages 189-202 · Deep Learning

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For blind persons it is very essential to recognize a product of their daily use so we implied a method to identify product in their everyday routine by use of camera. To separate an object from un-necessary background, movement-based technique is used to spot object of concern from the camera by instructing person about recognized objects. The goal of the present project is to model an object detector to detect objects for visually impaired people and other commercial purposes by recognizing the objects at a particular distance. Available old techniques for object detection needed large training data it takes more time and it's quite complicated and

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it’s a difficult task. Object detection is used in many scenarios. Conventional methods of these object detection depend on huge number of datasets and it also takes large amount of time to train these data. Training of small or unseen objects is a more challenging task. Human brains and visual systems are more accurate and faster in detecting objects in real time and has conscious thoughts in detecting obstacles. Due to the availability of large amount of data and with more advanced technologies and better working algorithms, classification and detection of multiple objects in the same frame has become easy with high accuracy. The main objective of the project is to design and implement a real time object recognition using real time camera with navigation system. And also using implement text detection and recognition system to extract the text from captured image using Optical character recognition algorithm. We can implement the system in real time environment using Python as front end.

Keywords: Visually Impaired, Blind Assistance, Deep Learning, Object Detection, Text to Speech

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29 OpenXploit: An Automated Approach to Vulnerability Assessment and Penetration Testing

Paper ID V11I3-1303 · Pages 203-214 · Cyber Security

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Vulnerability assessment (VA) and penetration testing (Pen-Test) are required for security auditing and compliance. Converting VA scan results to be usable in Pen-Test tools is difficult because it must be done at various stages using software tools. This paper describes a system that automatically converts Open Vulnerability Assessment Scanner results into exploitable scripts for Metasploit, an open-source pen-testing program. It targets the top ten vulnerabilities identified by the Open Web Application Security Project and tests them with Metasploit. The system consists of three major components: Scan Result Extraction, which extracts VA scan results related to OWASP 10 vulnerabilities; Target List Repository, which stores vulnerability lists for Metasploit; and Automated Shell Scripts Exploitation, which generates scripts to render the exploit module for execution in Metasploit. The prototype was tested with a variety of scenarios, converting scan results to shell code and rendering them in Metasploit. The experimental results confirmed that the system was functionally correct across all test cases.

Keywords: Vulnerability assessment, Penetration test, OWASP, OpenVAS, Metasploit, Web based application, CVE

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30 A Study on Advanced Charging Modules for Electric Vehicles: DC Fast and Wireless Technologies

Paper ID V11I3-1297 · Pages 215-222 · Ev Charging Module

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As electric vehicles (EVs) become increasingly prevalent, the need for advanced, efficient, and flexible EV charging infrastructure is critical. This research explores various charging modules for modern EV charging stations, focusing on DC Fast Charging (DCFC), wireless charging, and renewable energy integration. The study presents a comparative analysis of these technologies and proposes a hybrid charging station design that integrates on-grid and green power sources with both wired and wireless charging capabilities. DCFC enables rapid charging through high-voltage DC output, suitable for urban and highway deployment, while wireless charging offers contactless energy transfer for low-speed and idle-state scenarios. The system also incorporates smart control logic for energy management and dynamic source prioritization, ensuring sustainability, user convenience, and grid efficiency. This paper aims to contribute to the design and deployment of versatile and future-proof EV charging infrastructure aligned with global decarbonization goals.

Keywords: EV, Dc Fast Charging , Wireless Charging , Transmitter , Receiver

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31 AcuTutor :An AI-Driven Personalized Learning Platform for Accelerated Cognitive Development

Paper ID V11I3-1314 · Pages 223-231 · Ai Powered Education

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As education decreasingly emphasizes personalization, the demand for adaptive learning systems that cater to each pupil's unique requirements has grown. AcuTutor is an AI-powered training platform designed to provide customized support across various subjects and skill levels.

Keywords: Individualized Learning, AI-Powered Training, Acututor, Natural Language Processing (NLP), Adaptive Education, Real-Time Feedback, Gamification In Learning, Educational Technology, Intelligent Automation, Equitable Access To Education.

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32 The Evolution and Innovations of Wes Montgomery

Paper ID V11I3-1300 · Pages 232-236 · Music Theory

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This research paper looks at the impact Wes Montgomery had on jazz music as well as its eventual commercialism. It also interrogates his technique(s), the theory behind his music, one of his most recognizable and most notable albums, as well as the variety of genres that he played in and that influenced his career.

Keywords: Wes Montgomery, Jazz, Creed Taylor, Technique, Music, Music Theory, A Day In The Life.

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33 Design of Water and Oxygen Extraction From Atmospheric Air and Microalgae

Paper ID V11I3-1312 · Pages 237-245 · Environmental Engg

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The purpose of this study is to develop a low-energy for water generation and Spirulina microalgae cultivation. The integrated model was designed to perform three main functions: use condensation and dehumidification to draw out water from ambient air, utilizing the water that was extracted, and cultivate Spiriola spp. The system integrates sensors and IOT system to monitor air quality, manage purification processes, and optimize water and oxygen production. The research methodology study involves installing an end-open tube collector, sensors, and operating the system to collect and collect the data from air-to-water conversion efficiency under varying conditions. The study involves designing a solar-powered system with a desiccant wheel, developing theoretical models to predict performance, and validating these models through experimental testing and data analysis. The IOT data confirmed stable environmental factors such as 78% humidity, pH around 7.5, and oxygen concentration near 20.90%, validating the system's sustainability and effectiveness. The results of the study are that the integrated model is a high-efficiency, low-power, and renewable method suitable for urban and semi-urban environments.

Keywords: Water Extraction, Oxygen Generation, Atmospheric Air, Cultivation of Ardunio Microalgae, Liquid Tree.

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34 Analysis and Design of Minor Bridge Using STAAD Pro Software

Paper ID V11I3-1315 · Pages 246-249 · Civil Engineering

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Unnati jichkar, Student, Sinhgad Institute of Technology and Science Narhe, Pune.
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This research presents the comprehensive structural analysis and design of a minor reinforced concrete bridge with a span of 11.4 meters, focusing on the deck slab and abutment. The study utilizes STAAD Pro software to simulate real-life conditions, integrating Indian Road Congress (IRC) codes like IRC:5-2015, IRC:6-2017, and IRC:112-2020 for accurate modeling. Manual design calculations were performed for comparison and validation of results. Design parameters such as bending moment, shear force, crack width, and serviceability limits were checked to ensure compliance. The project emphasizes the application of engineering software for optimizing structure design, ensuring safety, durability, and economic feasibility.

Keywords: Bridge Design, STAAD Pro, Deck Slab, IRC Guidelines, Structural Engineering, Bridge Abutment

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35 Grey Water Management

Paper ID V11I3-1310 · Pages 250-254 · Civil Engineering

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This paper proposes a sustainable greywater management system designed to reduce freshwater consumption and mitigate wastewater generation through the reuse of water from domestic sources such as sinks, showers, and laundry. The study presents a low-cost and efficient greywater treatment method combining physical filtration and biological processes to produce water suitable for non-potable uses, including landscape irrigation and toilet flushing. The system was evaluated for performance based on key water quality parameters, and the treated greywater was found to meet applicable environmental and health standards. Through field implementation and analysis, the project demonstrates the potential for substantial water savings, reduced strain on conventional water supply systems, and improved environmental outcomes. The proposed framework is scalable and adaptable for residential and institutional applications, offering a practical solution for water conservation in both urban and rural settings. This work contributes to the development of integrated water resource management strategies in the context of increasing global water stress.

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Keywords: Water Reuse, Wastewater Treatment, Sustainable Water Management, Filtration, Non-Potable Water Use, Water Conservation, Low-Cost Treatment.

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36 Case Study on Coconut Shell (Activated Carbon) and Neem Leaf by Using Filtration Method

Paper ID V11I3-1321 · Pages 255-261 · Environmental Engg

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This study develops a low-cost water filtration system using coconut shells and neem leaves to improve water quality in rural areas. The filtration process follows the model, confirming the neem leaf's efficiency as an economical and effective solution for wastewater treatment. The results indicate that coconut shell-based filtration significantly improves water quality, making it suitable for non-potable applications like irrigation, flushing, and groundwater recharge. At the same time, Neem leaf showed the best pollutant removal results. The findings highlight the effectiveness of natural materials in providing affordable, eco-friendly water treatment solutions, especially for rural areas, and highlight the potential of coconut shell as an environmentally friendly alternative to chemical coagulants as a practical solution for clean water. Finally, an experimental setup is established to test the filter's efficiency by measuring water quality parameters and flow rate before and after treatment as per the required test. Results indicate that the filtration process not only significantly upgraded water quality and extremely reduced contaminants, but also consistently guaranteed adherence to rigorously established water quality standards.

Keywords: Coconut Shell (Activated Carbon), Neem Leaf, Filtration, Media Filter, Water Test

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37 Utilization of by Product & Using Advanced Machine for Solid and Liquid Waste Management- Hotels

Paper ID V11I3-1318 · Pages 262-267 · Civil Engineering

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The concern on large quantity of the waste being produced both in the form of food and liquid waste, the

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concept of waste management becomes one of the keys focuses of sustainable development principles which is based on policies, and practices that are resource conserving, follow standards that can be met in the long term, and respect values of equity in human access to resources. It is estimated that people in rural India are generating 0.3 to 0.4 million metric tons of organic/recyclable food waste per day, and that 88% of the total disease burden is due to a lack of clean water, sanitation, and improper food waste management. In the absence of proper disposal of food and liquid waste, they are leading to vector-borne diseases such as diarrhoea, Malaria, Polio, Dengue, Cholera, Typhoid, and other waterborne infections such as schistosomiasis. Close to 88% of the total disease load is due to lack of clean water and sanitation, and the improper food and liquid waste management-which intensify their occurrence. Hotel garbage management is poor. Poor collection and transportation of municipal food waste are caused by a lack of acceptable infrastructure, underestimated trash creation rates, inadequate management and technical capabilities, and inefficient collection and route design. This research aims to classify the types of trash generated in hotels and restaurants, as well as their sources, harmful impacts on the environment and human health, and existing waste treatment strategies.

Keywords: Food Waste, Hotel Waste, Waste to health, Rural Area, Industrial Waste

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38 Mechanical Performance of Concrete with EOF Steel Slag as Partial Replacement for Coarse Aggregates

Paper ID V11I3-1276 · Pages 268-275 · Civil Engineering

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All Steel manufacturing industry generates by-products today, and one such by-product is Energy Optimized Furnace slag, i.e, EOF, steel slag. But EOF steel slag is less used in cement manufacturing. This study examines the feasibility of using EOF steel slag to replace natural aggregates in concrete, with the intention of minimizing waste disposal and conserving natural resources. Standardized tests were conducted to evaluate the physical, chemical, and mechanical characteristics of EOF steel slag. The results thus obtained were compared with those of natural aggregates. Concrete mix proportions were formulated in this research to obtain M30 grade concrete. The natural coarse aggregate in the designed mix was replaced with EOF steel slag aggregate at different percentages, from 0% to 100% in steps of 10%. Experimental studies were carried out to analyze the properties of fresh and hardened concrete, such as workability, compressive strength, splitting tensile strength, and flexural strength, for various replacement percentages of EOF steel slag aggregate. The best replacement ratio was found considering the outcomes of fresh and hardened concrete characteristics. Moreover, the correlation between flexural strength, splitting tensile strength, and compressive strength was investigated. The mechanical characteristics of EOF steel slag aggregates are similar to those of natural coarse aggregates. Nevertheless, the greater water absorption and surface roughness of EOF slag affect the workability of concrete. The mechanical characteristics of concrete made using a full replacement of natural aggregate with EOF steel slag are quite similar to those of normal concrete. From this study, one learns that concrete made

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from 100% replacement of EOF Steel slag as coarse aggregate has better strength characteristics. By utilizing EOF steel slag as a substitute for natural coarse aggregate in concrete, the issue of unsafe, environment-degrading practice of dumping steel slag can be avoided. In addition, an industrial byproduct like steel slag is utilized in an eco-friendly way. Use of EOF steel slag in concrete is an eco-friendly, useful, and cost-saving step. Use of EOF steel slag in concrete is an eco-friendly, useful, and cost-saving step.

Keywords: Energy Optimised Furnace (EOF) steel slag, Conventional Concrete, Compressive Strength, Flexural Strength, Split Tensile Strength, and Workability.

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39 Treatment of Kitechen Waste Water by Phytoremediation Method Using Canna Indica Plant

Paper ID V11I3-1309 · Pages 276-280 · Civil Engineering

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The treatment of wastewater is a critical environmental issue, and Phytoremediation is a promising method for addressing this challenge. This project looks at how plants might help clean dirty water. It talks about how this idea works and where it can be used. The study looks at how well plants can clean different kinds of used water, like water from homes, farms, and factories. It also looks at what things can make this process better or worse like the kind of plants used, what's in the water, and how much nutrition is there for the plants. The paper also talks about the good sides and the not-so-good sides of using plants this way. In the end, it says using plants to clean water could be a smart, low-cost, and nature-friendly way, and that more work should be done to make it even better in the future. Overall, this method could help both the environment and the economy.

Keywords: Canna Indica Plant ,Kitchen Waste Water, Ph,Tds, Bod, Cod, Turbidity, Phytoremediation.

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40 Battery Infrastructure: An Analysis

Paper ID V11I3-1326 · Pages 281-285 · Electronics

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This research paper will provide an analysis of the new and developing area of battery infrastructure. Itanalyzes the policies put into place by the Government of India to enhance the implementation and rollout ofbattery charging stations, the economic viability of such technology in the Indian market, both rural and urban.It does a deep dive into the sustainability of these stations, talking about points such as electricity supply,construction, and other such topics.

Keywords: Battery Infrastructure, Electric Vehicles (EV), Charging Stations, Energy Storage, Sustainability, Indian Government Policy, Renewable Energy, Economic Viability, EV Adoption, Smart Charging.

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41 Glamour Industry and Global Pandemic

Paper ID V11I3-1317 · Pages 286-291 · Sociology

Shivanya Soni, Independent Researcher

The COVID-19 pandemic has brought difficult situations for citizens of nations across the world. While this pandemic affects different dimensions of life and society, this paper examines the impact of the COVID-19 pandemic on the entertainment industry of India. The entertainment industry was almost hit when the lockdown was imposed all over the country. Film and TV producers were under pressure to mitigate the impact of delayed release schedules, closure of theatres, and production stoppages. This industry is one of the famous industries of India, which has had to face many losses as well. Rapid changes in consumer behaviour and consumption, cancellation of events and sports, and cuts in advertisement expenditure have impacted a lot of companies. The result of the pandemic on these industries has ranged from lowered attendance at film festivals and music concerts, disruptions in film distribution, to delayed or cancelled movie releases and curtailed on-location film shoots. We could also see how different actors were coming up and helping the government with funds and posting leads on the internet to help the people in need. Also, there were many of them who were seen as breaking the pandemic laws implemented by the government. However, a lack of policies at the national level and fewer regulatory measures from the government have further complicated this issue.

Keywords: Pandemic, Losses, Delayed Releases, Production

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42 The Effect of Product Display on Consumer Attention and Purchase Intention in Europe: A Comparative Analysis of Western and Eastern Europe

Paper ID V11I3-1299 · Pages 292-296 · International Economics

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Product displays play a pivotal role in shaping consumer behavior in retail environments, influencing attention and purchase intentions. This study examines the differential effects of product display strategies on consumer attention and purchase intention in Western and Eastern Europe, exploring variations driven by cultural, economic, and technological factors. Using a mixed- methods approach, including eye-tracking experiments, surveys, and statistical analysis, we compare consumer responses to ordered versus disordered displays, in-

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store versus online settings, and the influence of visual merchandising elements. Results indicate significant regional differences, with Western European consumers showing greater sensitivity to ordered displays and Eastern European consumers responding more strongly to vivid, innovative displays. Implications for retailers and marketers are discussed, along with suggestions for future research.

Keywords: Product Display, Consumer Attention, Purchase Intention, Western Europe, Eastern Europe, Eye-Tracking, Visual Merchandising, Cultural Differences, Retail Strategy, Consumer Behavior

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43 Combining Machine Learning and Cryptography for Privacy-Focused Malicious URL Detection

Paper ID V11I3-1311 · Pages 297-300 · Engineering And Technology

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Online safety is frequently and seriously at risk from malicious URLs and websites. Naturally, search engines are the cornerstone of information management. However, our users are now seriously at risk due to the widespread presence of bogus websites on search engines. The majority of methods used today to identify rogue websites focus on a specific attack. Online safety is frequently and seriously at risk from malicious URLs and websites. Naturally, search engines are the cornerstone of information management. However, our users are seriously at risk due to the rise of bogus websites on search engines. The majority of methods used today to identify rogue websites focus on a specific attack. However, a lot of websites remain unaffected by the widely accessible blacklist-based browser add-ons. Any data leaving the client side must be properly disguised, as the server cannot infer any meaningful information from the masked data. Here, the recommended initial Privacy-Preserving Safe Browsing (PPSB) service is given. Robust security assurances are given, which the existing SB services do not offer. The suggested method uses blacklist storage to identify malicious URL access. SVM classification was used to classify the user-provided input URL. SVM is a class of machine learning algorithms that reliably determines the safety or riskiness of a URL. Specifically, it retains the ability to identify malicious URLs while protecting the user's privacy, browsing history, and proprietary data of the blacklist provider (the list of dangerous URLs). This paper presented a technique that encrypts critical data to safeguard user privacy from outside analysts and service providers. Furthermore, completely supports the functions of chosen aggregates for analysing user behaviour online and guaranteeing differential privacy. The AES encryption method is used to protect user behaviour data online.

Keywords: Malicious URLs, Privacy-Preserving, Safe Browsing, SVM Classification, AES Encryption

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44 Corporate Security and Safety System

Paper ID V11I3-1347 · Pages 301-312 · Deep Learning

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In today's commercial world, corporate security and safety are essential elements. Ensuring the safety of personnel, property, and infrastructure becomes critical as businesses expand and function in more complicated and frequently dangerous contexts. Conventional security solutions, such having employees on the scene and manually monitoring video systems, have limits in terms of their scope and efficacy, particularly when it comes to spotting dangers that change quickly, like fire or firearms. Intelligent surveillance systems that make use of cutting-edge technology like computer vision and machine learning are becoming more and more necessary to overcome these constraints. Significant gains in object detection and real-time monitoring capabilities have been made possible by the latest developments in deep learning. One such innovation is the YOLO (You Only Look Once) algorithm, which is renowned for its high-accuracy real-time object detection capabilities. Because of its single-shot detection technique, YOLO can quickly and effectively identify objects in photos or video streams, which makes it a great option for applications that demand quick decision-making and high processing efficiency. The creation of an automated corporate safety system that uses the YOLO algorithm to detect fire and weapons is the idea put forth in this paper. Organizations can enhance security and fire safety measures by automating the identification of weapons, knives, and fire-related threats in corporate environments by incorporating YOLO.

Keywords: Deep Learning, Artificial Intelligence, Fire Detection, Alert, Safety System, Monitoring, Thief

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45 FinTech Transformation and its Disruptive Impact on Traditional Financial Systems

Paper ID V11I3-1356 · Pages 313-318 · Finance

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The financial sector is undergoing a profound transformation driven by advancements in financial technology (FinTech). This study undertakes a comprehensive literature review to analyze the extent to which emerging technologies—such as artificial intelligence (AI), machine learning (ML), and big data analytics—are reshaping traditional banking and financial services. By examining key areas of disruption, including peer-to-peer lending, digital banking services, and mobile payment platforms, the research provides insights into the implications of FinTech innovations on legacy banking practices. Furthermore, the paper explores the strategic responses of traditional financial institutions, such as partnerships with FinTech firms and investments in digital transformation, alongside the critical regulatory challenges arising from these developments. The findings reveal a dual impact: FinTech has democratized access to financial services and enhanced operational efficiency, yet it has also introduced regulatory and cybersecurity complexities. The review concludes by emphasizing the importance of regulatory alignment, technological adaptation, and collaborative efforts for

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sustainable growth in the evolving financial ecosystem.

Keywords: FinTech, Banking, Artificial Intelligence, Innovation, Regulation

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46 What are the Practical Implications of Self-Defence Laws in India?

Paper ID V11I3-1331 · Pages 319-322 · Law

Inayat Puri, Student, Independent Researcher

This paper explores the practical implications of self-defence laws in India, with a particular focus on their application to women's safety. It begins by outlining the legal definition and categories of self-defence—physical, verbal, psychological, and cyber—and examines key provisions of the Indian Penal Code (Sections 96–106) that govern the right to private defence. Through a comparative analysis of landmark legal cases, the paper highlights the nuanced boundaries between justified and excessive force, especially in gendered contexts. It then shifts to a real-world application by examining the current landscape of personal safety devices for women in India, identifying gaps in accessibility and effectiveness. Based on this analysis, the paper proposes a multifunctional, low-cost wearable safety bracelet designed for Indian women across socio-economic backgrounds. Ultimately, the study underscores the limitations of legal protection in the absence of awareness and immediate aid, and argues for innovative, preventive approaches to complement existing legal rights.

Keywords: Self-Defence Laws, Indian Penal Code, Women's Safety, Legal Boundaries, Private Defence, Gender And Law, Section 96 IPC, Wearable Safety Devices, Case Law Analysis, Personal Security Technology, Violence Against Women, Legal Empowerment, Public Safety, Disproportionate Force, Preventive Safety Tools

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47 Indian Daily Diet: Authenticity and Local Diversity

Paper ID V11I3-1359 · Pages 323-327 · Social Science

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This literature review evaluates the authenticity and local authenticity of the Indian daily diet as it assesses the nature of Indian cuisine based on regional variations, culture, and cooking techniques. Defined as one of the most extensive and diverse cuisines in the world, India's food culture has been connected to geography, politics, history, religion, and socioeconomic conditions. This literature review brings together recent research on regional cuisine changes across India, comparisons and distinctions to cuisine around the world, and traditional cuisine retention to a conclusion that India's food culture is a reflection of life within the nation of India, where unity exists in diversity, but local variations reign true since people can embrace their regional identities while simultaneously sheltered under the Indian identity. Recent studies conclude that Indian food is more than food to eat since it serves a purpose for sociocultural identity, community integration, and traditional storage of information passed down from generation to generation.

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Keywords: Indian Cuisine, Regional Diversity, Culinary Culture, Traditional Cooking Methods, Food Authenticity, Cultural Identity

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48 The Evolution of Feminism in Art

Paper ID V11I3-1368 · Pages 328-336 · Social Science

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This paper focuses on the evolution of feminism in art, from the exaggeration of female features and the objectification and sexualization of women, to the recognition of female artists and an increase in the representation of holistic female figures. The role and portrayal of women in art are ever-evolving. Initially, women were depicted as hypersexualized versions of themselves; objects of desire, particularly for the male gaze. Despite this being the norm in the art industry at the time, some female artists like Artemisia Gentileschi, Mary Cassatt, and Berthe Morisot were key figures in portraying women as human beings with ambitions, beyond merely being objects of desire. This paper discusses the importance of the emergence of female artists like Georgia O'Keeffe, Lavinia Fontana, and the Guerrilla Girls in changing the depiction of women in art. It also explores intersectionality within the artistic landscape and how art has been used as a medium of activism to overcome these inequalities. Finally, the paper highlights the evolving portrayal of the male gaze and female rage in art over the years–by both male and female artists.

Keywords: Renaissance, Male Gaze, Objectification, Intersectionality, Feminist

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49 Effect of Breathing Exercise on the Outcome of Labour Among Primigravida Mothers

Paper ID V11I3-1364 · Pages 337-339 · Nursing

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Purpose: To determine the effect of breathing exercise in outcome of labour among primigravida mothers. Objectives: 1. To determine the effect of breathing exercise on outcome of labour among primigravida mothers. 2. To compare the outcome of labour between control and experimental group of primigravida mothers. 3. To determine the relationship between breathing exercise and outcome of labour in experimental group. 4. To determine association between breathing exercise and outcome of labour in experimental group. Result : The primi gravida mothers who practiced the breathing exercise on labour experienced mild level of pain. There was a positive relationship between breathing exercise and outcome of labour. There was significant association (P

Keywords: Breathing Exercise, Primi Mothers, Outcome of Labour, Labour

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50 Optimization of Battery Thermal Management System using Fin Spacing and Fin Count Parameters in Electric Vehicles

Paper ID V11I3-1390 · Pages 340-342 · Battery Thermal Management System In Evs

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Efficient battery thermal management is pivotal for ensuring the safety, performance, and extended lifespan of electric vehicle (EV) batteries. This study presents a comprehensive Computational Fluid Dynamics (CFD)-based analysis on the influence of fin geometry, spacing, and quantity on heat dissipation efficiency. Thermal simulations were conducted using ANSYS Fluent, allowing evaluation of radiator models under varied fin geometries and boundary conditions to observe temperature uniformity and heat removal performance. Emphasis was placed on comparing different fin shapes (square, circular, curved), spacings (5 mm to 12.5 mm), and fin counts. Results indicate that 7.5 mm spacing provides optimal thermal efficiency regardless of geometry, and increasing fin number beyond a threshold yields diminishing returns. Copper showed superior thermal performance over aluminum, though cost and weight favoured aluminum. The findings provide practical insights into radiator fin optimization for advanced BTMS design.

Keywords: Battery Thermal Management System (BTMS), Electric Vehicle (EV), Computational Fluid Dynamics (CFD), Fin Spacing, Fin Geometry, Heat Dissipation

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51 REGIONAL INSIGHTS AND PROPOSED ALGORITHM FOR EARLY DIAGNOSIS AND MANAGEMENT OF HEPATIC ENCEPHALOPATHY

Paper ID V11I3-1363 · Pages 343-352 · Healthcare

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Hepatic encephalopathy (HE) is a significant neuropsychiatric syndrome linked to liver dysfunction, presenting as either minimal hepatic encephalopathy (MHE) or overt hepatic encephalopathy (OHE). This review is based on focused group discussions of various experts across India, followed by guidance statements based on analysis of published literature, and designing a set of comprehensive algorithms to encourage early detection, intervention, diagnosis, and management of HE, as well as improve patient outcomes. The experts recommended using tests like the Psychometric Hepatic Encephalopathy Score (PHES) and Critical Flicker Frequency (CFF) reliable tool for diagnosing MHE, highlighting the need for specialized neuropsychological testing. In addition, the experts discussed the role of lactulose and rifaximin in reducing HE recurrence, and the potential benefits of probiotics, prebiotics, and symbiotics. Furthermore, the experts emphasized the importance of nutritional management, particularly intake of protein and branched-chain amino acids (BCAA) in the overall HE management. Liver transplantation may be considered in refractory cases. Regular follow-ups are crucial to monitor and adjust treatment strategies. By incorporating expert opinions and evidence-based practices into the designing of algorithms, the review aims to facilitate accurate and timely diagnosis, prompt

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intervention, and tailored treatment strategies, thereby reducing the variability in patient care, thus enhancing the quality of life for patients with HE.

Keywords: Cirrhosis, minimal hepatic encephalopathy, overt hepatic encephalopathy, PHES, lactulose

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52 From Tradition to Modernity: The Changing Landscape of Dance

Paper ID V11I3-1383 · Pages 353-358 · Social Science

Prisha Mundhra, Student, Shikshantar School, Gurugram

This research paper explores how dance has changed over time and what those changes say about our cultures, identities, and ways of expressing ourselves. It looks at how traditional dance has always been a meaningful way to pass down stories, values, and history through generations. These dances are more than just movement—they connect people to their roots and reflect what communities believe in and celebrate. At the same time, the paper shows how dance has grown and evolved, especially with the rise of the internet and social media. Platforms like TikTok and YouTube have made it easy for dancers from all over the world to learn from each other, share their styles, and mix different traditions. This has led to exciting new forms of dance that blend the old and the new in creative ways. By looking at both traditional and modern dance, the paper highlights how movement can be a powerful way to express identity, adapt to change, and bring people together. It shows that even though styles and trends may change, dance will always be an important part of human life, helping us tell our stories, connect with others, and celebrate both where we come from and where we're headed.

Keywords: Dance evolution, Cultural expression, Traditional dance, Modern dance, Social media and dance, Identity through movement, Cross-cultural dance fusion

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53 Impacts Economiques D'Exploitations Non-Certifiees D'Ail/Oignon Sur Des Agriculteurs De La Region Sofia

Paper ID V11I3-1388 · Pages 359-373 · Agro-business And Food

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For several decades, farmers in the Sofia region of Madagascar have cultivated garlic (Allium sativum) and onion (Allium cepa) using traditional, uncertified organic methods. This study investigates the economic impact of such non-certified agricultural practices on rural household livelihoods. The research was conducted in four communes: Ambatosia and Ambodiampana (Bealanana District), as well as Bekoratsaka and Mampikony II (Mampikony District), all known for their high concentration of non-certified organic farmers. Data was collected

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through semi-structured interviews with 100 producers and analyzed using correlation and linear regression methods. Findings reveal a positive relationship between the cultivation of uncertified organic garlic/onion and increases in annual household agricultural income. Thanks to low input costs, ancestral techniques, and stable local demand, these farmers often exceed the national poverty line. Approximately 42 to 44% of the surveyed households live above this threshold, despite lacking official organic certification. However, disparities remain based on market access, technical skills, and yield consistency. While uncertified organic farming offers a promising path for rural income improvement and poverty alleviation, it remains fragile in the absence of structured value chains, supportive public policies, and stable market integration. This research highlights the socio-economic viability of alternative agricultural systems, while underlining their limits in terms of long-term resilience and financial security.

Keywords: Garlic, Onion, Non-Certified Organic Farming, Economic Impact, Agricultural Income, Sofia Region

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54 Quantum-Inspired Deep Learning for High-Dimensional Data Processing in Finance

Paper ID V11I3-1184 · Pages 374-380 · Quantum Inspired Computing

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This paper explores the application of quantum-inspired deep learning techniques for processing high-dimensional financial data, specifically focusing on predicting stock price movement using Apple Inc. (AAPL) stock data. We investigate the effectiveness of a quantum-inspired model in comparison to a standard Long Short-Term Memory (LSTM) network. The study incorporates various technical indicators as features and evaluates model performance using standard classification metrics and visualizations. The challenges of high-dimensional data in finance are discussed, and the potential benefits of quantum-inspired approaches in this domain are explored.

Keywords: Quantum-Inspired Deep Learning, High-Dimensional Data, Financial Forecasting, Stock Market Prediction, LSTM, Technical Indicators

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55 LA CORRUPTION ET LA MEDIOCRITE DANS L'ADMINISTRATION : DEUX FACTEURS CLES DE LA DECADENCE SOCIO-ECONOMIQUE D'UN ÉTAT

Paper ID V11I3-1380 · Pages 381-388 · Science Politique

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La présente étude scientifique s'intéresse à l'impact conjugué de deux fléaux structurels au sein de

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l’administration publique : la corruption et la médiocrité. Ces phénomènes, souvent analysés séparément, forment en réalité un système de réciprocité qui nourrit la déchéance progressive de l’État. À travers une approche pluridisciplinaire intégrant les sciences politiques, la sociologie et l’économie du développement, cet article met en lumière les mécanismes par lesquels ces deux facteurs se renforcent mutuellement, engendrant une gouvernance inefficace, un affaiblissement des institutions et un ralentissement notable de la croissance socio-économique. Le cas de Madagascar constitue le centre d’attention de cette étude, illustrant comment une culture administrative tolérant l’incompétence et la corruption a conduit à une perte de confiance généralisée envers les structures étatiques. En recourant à une méthodologie combinant revue documentaire, analyse statistique des données disponibles (indices de gouvernance, classements internationaux, etc.) et entretiens semi-directifs avec des experts locaux, l’étude met en exergue l’urgence d’une réforme structurelle. Les résultats révèlent que la mauvaise qualité du capital humain dans l’administration malgache découle souvent de pratiques de nomination non méritocratiques, alimentées par le clientélisme politique. L’article plaide pour une refondation de la gouvernance basée sur l’éthique, la compétence et la transparence. Il met également en évidence des comparaisons utiles avec d’autres pays africains ayant entrepris des réformes réussies en matière de gouvernance publique.

Keywords: corruption, médiocrité, administration publique, Madagascar, gouvernance

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56 Autonomous Threat Detection and Response in Cloud Environments Using AI And Machine Learning: Focus on Real-Time AI Driven Anomaly Detection and Self-Healing Cloud Security Architectures

Paper ID V11I3-1375 · Pages 389-404 · Cybersecurity

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Cloud threat detection and response technologies are at the forefront of maintaining cybersecurity amid growingly dynamic and complex infrastructures. The technologies are programmed to identify, assess, and respond to likely threats in real time to provide cloud service integrity and availability. Static rule-based mechanisms and manual control mechanisms find it challenging to keep pace with evolving attack patterns, and this has necessitated the use of automated, intelligent solutions. This paper explores the employment of autonomous threat detection and response systems using artificial intelligence (AI) and machine learning (ML). The binary classification model was used to identify harmless and threat-related network traffic from a Kaggle-based DDoS dataset. The data underwent rigorous preprocessing, exploratory data analysis, and feature engineering. Five machine learning (ML) models were trained and evaluated against performance measures like accuracy, precision, F1-score, and detection time. The Decision Tree model gave better performance, with high accuracy of 98.0% and real-time capability. Its integration into cloud infrastructures allows for self-healing, adaptive cybersecurity defenses.

Keywords: threat detection, Cloud, Cybersecurity, ML, AI, Autonomous

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57 A Comparative Review of Nanomaterials for Neuroprotection in Neurodegenerative Diseases

Paper ID V11I3-1369 · Pages 405-411 · Chemical Engineering

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Neurodegenerative illnesses like Alzheimer's, Parkinson's, and ALS cause progressive injury to the brain, causing loss of memory, movement, and cognitive functions over time. The problem with these diseases is that most drugs cannot pass through the brain's protective barrier—the blood-brain barrier (BBB). In this review, the new use of nanomaterials—extremely tiny particles measured in nanometers—is described to transport drugs across the BBB without harming brain cells. We analyzed eight of the most well-researched types of nanomaterials: fat-based, plastic-like, dendrimers, carbon-based, gold, cerium oxide, iron oxide nanoparticles, and quantum dots. Each was assessed on its ability to deliver drugs to the brain, safety, stability, and performance in laboratory tests. Fat-based and plastic-like nanoparticles outperformed all others based on biocompatibility and drug delivery ability. Gold nanoparticles were highly multifunctional and versatile for therapy and imaging. Cerium oxide proved to be a great antioxidant and could protect neurons from injury. However, some nanomaterials like carbon nanotubes and quantum dots were of concern due to toxicity. The review concludes that just as there is no single nanomaterial that is perfect, their benefits can be leveraged in hybrid systems to enable more powerful, targeted, and safer treatment. In fact, nanotechnology has tremendous potential for future advances in the fight against brain disease by enabling precise and protective drug delivery to the brain.

Keywords: Nanomaterials, Neurodegenerative Diseases, Blood-Brain Barrier (BBB), Drug Delivery, Neuroprotection, Theranostics

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58 “Design of Peptide Inhibitors Targeting MYC Oncogenic Protein Complexes”

Paper ID V11I3-1379 · Pages 412-419 · Oncology

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Cancer remains one of the leading causes of death worldwide, with the MYC oncogene being a key driver of tumor progression through its role in promoting uncontrolled cell growth. This study aims to design and evaluate peptide inhibitors targeting the interaction between MYC and DNA, which is essential for MYC’s oncogenic function. Utilizing advanced computational methods, including RF diffusion, AlphaFold, and PyMOL, 30 potential peptide candidates were identified. These peptides were assessed based on their IPAE values, which ranged from 6.151 to 9.981, reflecting their effectiveness in disrupting MYC-DNA interactions. The use of AlphaFold enabled accurate prediction of the 3D structures of the MYC-MAX-DNA complex, while PyMOL provided visualization and structural analysis to confirm binding sites and key hotspots where the peptides interact. This detailed analysis confirmed that the peptides effectively target critical regions within the complex. Our findings underscore the potential of these peptides as novel inhibitors of MYC-driven cancer

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progression. The promising results suggest that these peptides could serve as the basis for new targeted cancer therapies. Moving forward, experimental validation of the peptide candidates will be conducted to confirm their binding affinity and biological activity. Additionally, structural refinement and optimization of the peptide designs will be pursued to enhance their therapeutic potential. Preclinical studies will be essential to evaluate the efficacy and safety of these peptide inhibitors in vivo. This research provides a foundation for developing innovative treatments aimed at targeting MYC-driven cancers.

Keywords: MYC Oncogene, Peptide Inhibitors, MYC- DNA Interaction, RF Diffusion

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59 Analysing Recursive Artificial Intelligence: A Multidomain Case-Based Study of Risks, Concerns, and Oversight Mechanisms

Paper ID V11I3-1400 · Pages 420-440 · Artificial Intelligence

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Recursive Artificial Intelligence (AI), where systems can design, optimize, or evolve other AI systems, represents a significant turning point in the development of autonomous technologies. As recursive mechanisms become increasingly integrated into machine learning workflows, the potential for rapid innovation also comes with substantial technical and ethical risks. This paper critically examines the development and use of recursive AI systems through real-world examples and theoretical insights. It highlights key challenges, including model collapse, error amplification, alignment drift, recursive deception, and the loss of human interpretability and oversight. By examining explainability tools such as LIME and SHAP, case studies like AlphaGo, and potential paths into cognitive and multi-agent recursion, the work highlights the urgent need for responsible research and regulation. The paper aims to reveal overlooked dangers and spark discussion about the fragility, unpredictability, and governance challenges in recursively self-improving AI systems.

Keywords: Recursive Artificial Intelligence, Recursive Self-Improvement (RSI), Model Collapse, Alignment Drift, Recursive Deception, Interpretability (LIME, SHAP), Autonomous AI Agents, Human-in-the-Loop Systems, AI Safety and Governance, Emergent Behavior

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60 Time Series Forecasting through Hybrid ARIMA-ANN Modelling for Rice in Odisha

Paper ID V11I3-1404 · Pages 441-448 · Forecasting

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Rice, being the staple food grain of Odisha, holds a crucial place in the state’s economy and food security. Rice holds around 69% of the total cultivable area in Odisha, making it crucial to have an accurate forecast of its status for stakeholders in agriculture. Modelling and forecasting of time series dataset of yield and production of rice from 1970-71 to 2019-20 is carried out in this study, using Auto Regressive integrated Moving Average

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(ARIMA), Artificial Neural Network (ANN) and Hybrid ARIMA-ANN methodologies. ARIMA is a linear modelling approach where whereas ANN is more of a non-linear modelling technique. The hybrid ARIMA-ANN methodology integrates the strengths of both models to effectively capture both linear and non-linear patterns within the dataset under study. It was found that ARIMA(1,1,1) with constant and under the developed ANN models, the Neural Network Autoregression(NNAR) of order NNAR(3,2) came out to be the best fitted model for both of the variables under study. ARIMA(1,1,1)-NNAR(1,1) is found to be suitable for both yield and production of rice in Odisha. All three models are compared using accuracy measures like RMSE and MAPE, and the hybrid methodology is found to be superior to others.

Keywords: ARIMA, ANN, ARIMA-ANN, Rice, Forecasting

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61 A Study to Assess the Knowledge and Attitude Regarding Palliative Care among Oncology Nurses at Selected Hospitals in the City.

Paper ID V11I3-1402 · Pages 449-456 · Nursing

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Palliative care improves the quality of life of patients and that of their families who are facing challenges associated with life-threatening illness, whether physical, psychological, social, or spiritual. The quality of life of caregivers improves as well. Each year, an estimated 56.8 million people, including 25.7 million in the last year of life, need palliative care.Worldwide, only about 14% of people who need palliative care currently receive it.Unnecessarily restrictive regulations for morphine and other essential controlled palliative medicines deny access to adequate palliative care. Adequate national policies, programmes, resources, and training on palliative care among health professionals are urgently needed to improve access .“A study to assess the knowledge and attitude regarding palliative care among oncology nurses at selected hospitals in the city”.Non-probability Convenient sampling technique was used and the sample size was 60 nurses, the majority of the samples, 9(15%) had having inadequate level of knowledge, where as 23(38%) had moderate knowledge and 28(46.6%) had having adequate knowledge level on PC. Attitude shows majority of the samples, 23(38%) Positive attitude, and 37(62%) have a Negative attitude. Association between Knowledge regarding PC With Selected Demographic Variables. In order to compute the association between the level of knowledge score and demographic variables, chi-square was applied, and the value was observed at 5% significance level. Variables are found statistically significant association with the knowledge score about PC selected demographic variables. association between levels of attitude score on PC with selected demographic variables. In order to compute the association between the level of attitude score and demographic variables, chi-square was applied, and the value was observed at a 0.05 significance level. The chi-square value of the demographic variables, such as education was $\chi = 13.296$ with a 3 degree of freedom and year of experience $\chi = 7.118$ with a 3 degree of freedom showed significant association with level of attitude at 0.05 level, and there were no other demographic variables found association with level of attitude on PC

Keywords: Knowledge, Attitude PC, Oncology, Nurses,

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62 Why Conservation is Necessary and Why it is not as Effective as it Should Be

Paper ID V11I3-1401 · Pages 457-464 · Environmental Science

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The study outlines the basic justifications for the necessity of conservation and the reasons it frequently falls short of its objectives. It highlights how a person's social background and upbringing significantly impact their feelings toward animals. For example, although people in the fashion or entertainment sectors may perceive animals as resources or props, hunters may see them as prey. These divergent viewpoints weaken the urgency of preserving animal life and obstruct coordinated conservation efforts. The suffering of animals kept in captivity, whether in zoos, laboratories, circuses, or on movie sets, is a significant issue that has been raised. It was said that being in captivity reduced innate instincts, increased physical and mental abnormalities, and created moral dilemmas. The fashion industry continues to use fur, leather, and exotic animal skins, despite the availability of contemporary substitutes such as synthetic materials. According to the publication, this is now a luxury decision that leads to needless cruelty rather than a necessity. The abstract discusses the widespread use of animal experimentation and dissection in research and education, highlighting the associated ethical concerns and the availability of alternatives. It also highlights the mistreatment of animals in the entertainment industry, particularly on film shoots and in theme parks, where animals are often treated as disposable. The abstract discusses the widespread use of animal experimentation and dissection in research and education, highlighting the associated ethical concerns and the availability of alternatives. It also highlights the mistreatment of animals in the entertainment industry, particularly on film shoots and in theme parks, where animals are often treated as disposable.

Keywords: Animal Welfare, Conservation Ethics, Captivity and Cruelty, Sustainable Alternatives, Human-Animal Relationship

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63 Musical Analysis Conforming to the Normal Distribution

Paper ID V11I3-1394 · Pages 465-471 · Mathematics

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In music, note durations and inter-onset intervals (IOIs) are crucial parameters that influence the rhythm and flow of a composition. Understanding their distribution helps in uncovering underlying patterns in numerous musical performances. This paper explores the hypothesis that these parameters conform to a normal distribution, which utilises a bell-shaped curve and is commonly used in statistics to model data that clusters around a mean value with symmetrical dispersion.

Keywords: Math, Mathematics, Note durations, inter-onset intervals, IOIs, Music, Normal Distribution, Statistics

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64 Electronic Sensory Glove

Paper ID V11I3-1212 · Pages 472-477 · Electronics Engineering

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The human hand is vital for daily and social functions, and its loss can significantly impact quality of life, often necessitating psychological intervention due to isolation, anxiety, or depression. While prosthetic hands restore essential mobility, challenges remain in achieving natural appearance and sensory feedback. This study presents the development of an electronic sensory glove (e-glove) system that seamlessly integrates multimodal sensors—capable of detecting pressure, temperature, and moisture—into a commercial stretchable nitrile glove. Leveraging a hybrid screen- and transfer-printing fabrication method, the e-glove conforms to various prosthetic hand shapes and sizes, offering realistic tactile qualities and real-time data transmission via a wristwatch interface. Both experimental and computational analyses validate the glove's mechanical and functional efficacy, demonstrating its potential to enhance prosthetic hand interactions in diverse daily and social contexts.

Keywords: Electronic Sensory Glove, Gesture Controlled, Prosthetic Limb, Sensors

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65 Trademark Infringement in the Digital Age: Domain Names, Metatags, and Social Media

Paper ID V11I3-1392 · Pages 478-480 · Intellectual Property

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The digital revolution has fundamentally altered the use, protection, and infringement of trademarks. While there are numerous new opportunities for branding and visibility, there are also new challenges in enforcement, particularly regarding domain names, metatags, and other social media platforms. This paper examines how traditional trademark laws adapt to the digital sphere, explores the legal consequences of infringing trademarks in the online environment, and analyzes key case law and statutes, suggesting ways to enhance the regulations. The paper offers both international and Indian perspectives, making it a valuable resource for practicing lawyers and digital entrepreneurs.

Keywords: Trademark Infringement, Domain Names, Metatags, Social Media, Cybersquatting, Passing Off, IP Law, Digital Marketplace, SEO Manipulation, Brand Dilution, Cyber Law, Online Reputation

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