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2024

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PREFACE

On behalf of the research group ITDATA from National University Mayor de San Marcos, Peru, and Advanced and Innovative Research Laboratory (AAIR Lab) Dehradun, India, we are pleased to welcome all the participants of the Second International Conference on Wireless Technologies, Networks and Science-2024 "(ICWTNS-2024)" held on 11-12 May 2024. The ICWTNS-2024 provided a prominent international forum for researchers and practitioners to exchange information regarding novel aspects of technology, application, and service development within the multidisciplinary framework of Communication Engineering, Wireless Sensor Networks, Wireless Mesh Networks and Multimedia Networks, Science such as mathematics, computer, environment, and many more.

The keynote speakers, distinguished lecturers, invited talks, and paper presenters at the ICWTNS-2024 conference concentrated on the current running technologies in the areas of wireless, networks, and science, and their issues & challenges.

This year, the response to the conference's call for papers has been outstanding. Many individuals and organizations contributed to the success of this conference. Together with the Technical Program Committee, they worked diligently to select papers and speakers that met the criteria of high quality and relevance to our various fields of interest. We are grateful for all their hard work and efforts. It takes time and effort to review a paper carefully, and every member of the Technical Program Committee is to be commended for his or her contribution to the success of this conference.

The TPC chairs, co-chairs, and members had the unenviable task of coordinating the peer review process and putting together an outstanding technical program. They deserve a lot of thanks. The success of this conference would not have been possible without the dedication and efforts of the members of the Advisory Committee, Publicity Committee, Steering Committees, and other committees.

We would like to extend our gratitude to Hon'ble Chief-Guest Prof. Dr. Pedro Manuel Amaya Pingo, Vice Rector de Investigacion (Vice Rector of Research), National University Federico Villarreal (UNFV), Peru, Guest of Honor, Prof. Geetam Singh Tomar, Director, REC Sonbhadra, U.P., IEEE Chairman, M.P Section, India, and Technical Session Chairs for their all-out support and encouragement.

It was an honor and a pleasure for us to accept the responsibilities and challenges of serving as Conference General Chairs. We sincerely hope that everyone who attended the conference enjoyed themselves and learned something new. We thank faculty members and staff of National University Mayor de San Marcos, and AAIR Lab for their valuable contributions and support for the conference. Also, we appreciate and thank to all for the support received from various corners of researchers. See you again in 2025 at the next version of this conference.

For details on upcoming conferences, journals, webinars, and grant-writing services, kindly visit our website (www.icwtns.aairlab.com or www.aairlab.com).

Thanks.

With Regards,
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Paper ID - ICWTNS-2024_115

PAPER TITLE- MULTI-BAND RECTANGULAR TWO ELEMENT AND SLOTTED ANTENNAS FOR MIMO

[1] M. Khulbe, [2] P. Bhargava, [3] A. Mehra
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Abstract- Wireless multiband antennas are useful in various applications such as in rooftop of vehicles and in remote areas where multiple tasks are to be performed in a single device. This paper presents a single feed rectangular two element array antenna and slotted microstrip array antenna. The design is developed from a single rectangular patch and two element rectangular patch with single feed. Single element radiates at 3.8GHz, two elements at 3.88GHz, 6.66 GHz, 7.59 GHz and 10.11GHz. Slots are being created in the patches, at the edges and in middle of the patch. Slotted antenna radiation frequencies are 6.25GHz, 7.70GHz and 9.6GHz, 11.07GHz and 11.32GHz. This improves the working frequencies directivity, radiation efficiency and gain of the antenna. Quarter wavelength transformer (QWT) feeding uses for improving impedance matching to reduce reflections and hence improving antenna parameters. The detailed analysis and simulations of the antenna characteristics and various other parameters are performed using Ansys HFSS Software. Comparative analysis shows that the designed two element antenna with inset feed has smaller dimensions 24.225×29.061mm in slot antenna structure with peak gain of 9.4dB and maximum radiation efficiency 88.64%.

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Paper ID - ICWTNS-2024_119

PAPER TITLE- SYMMETRIC AND ASYMMETRIC ANALYSIS OF GRAPHENE BASED ANTENNA

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Abstract- In this research a Graphene based antenna is tested for symmetric and asymmetric structures using Aluminium oxide substrate. Recent research on Graphene shows a huge amount of potential in microwave applications due to its tunability properties. It's resistance value changes with the application of voltage bias. This is of great interest while deigning millimeter and microwave wave components and structures. The symmetrical and asymmetrical analysis of the antenna gives various characteristics of the antenna along with its radiation and absorption peaks in Terahertz range. The said antenna can be analyzed using plasmonic which has many applications as Biomaterial, Sensor and in Quantum Mechanics.

ISBN No.- 978-93-340-1708-3

Paper ID - ICWTNS-2024_121

PAPER TITLE- INTEGRATED SIMULATION MODEL OF THE SPATIAL DISTRIBUTION OF DYNAMIC SYSTEMS USING INTELLIGENT CELLULAR AUTOMATON

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Abstract- This research emphasizes the versatility of cellular automata in studying the spatial and temporal aspects of disease spread. By simulating various intervention strategies, such as vaccination campaigns and social distancing measures, the model provides a platform for assessing their efficacy and optimizing resource allocation. The findings contribute to the development of informed public health policies aimed at curbing the impact of infectious diseases. Mathematical modeling using cellular automata emerges as a valuable approach in unraveling the complexities of infectious disease dynamics. The versatility of this framework allows for a nuanced exploration of diverse scenarios, fostering a deeper understanding of the interplay between individual-level interactions and broader population dynamics. The insights gained from such models hold the potential to guide evidence-based decision-making in the ongoing battle against infectious diseases.

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Paper ID - ICWTNS-2024_125

PAPER TITLE- THE USE OF THE VORONOI DIAGRAM AS A DESIGN TOOL FOR GENERATING URBAN PATTERNS IN ARCHITECTURE

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Abstract- The design of the urban pattern consists of roads, sidewalks, squares, and plazas, as stated by Sarmiento Novoa [1], and it is crucial for the development of cities, influencing their functionality, aesthetics, and quality of life. This article explores the 8 typologies of urban patterns proposed by Gonzalez, M.C., and Sanchez, M.A. [2], such as dense and irregular, grid-based reticular, concentric radial, and those intended for residential areas. Adaptive and organic approaches are also addressed, including haptic or organic patterns and linear patterns. The use of innovative tools, such as the Voronoi Diagram [3] and Grasshopper software [4], is highlighted for generating efficient and customized urban designs. These tools optimize the spatial distribution of urban elements, improving circulation and accessibility. The study utilizes computer-aided design (CAD) methodologies and algorithmic modeling, analyzing project locations with geospatial data, maps, and blueprints. In summary, the use of the Voronoi Diagram and Grasshopper is proposed as design tools for generating efficient urban patterns adapted to each context, considering the community's needs and environmental conditions. The article emphasizes the importance of personalized urban pattern design, highlighting the ability of these tools to enhance urban circulation, accessibility, and residents' quality of life.

Paper ID - ICWTNS-2024_127

PAPER TITLE- WOODEN MODULAR SYSTEM FOR HOUSING IN THE CITY OF IQUITOS, DEPARTMENT OF LORETO

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Abstract- The purpose of this study is to offer a design proposal for a modular wooden housing system in the city of Iquitos, located in the department of Loreto, Peru. The research is based on the identification of several problems, including the lack of technical, scientific, theoretical and regulatory knowledge about the use of wood in construction, as well as unregulated deforestation and the poor local understanding of the benefits of thermal comfort in the homes. To address these challenges, sustainable design strategies are used, supported by tools such as climate mapping, topographic surveys, 3D modeling and Ener-Habitad, a numerical simulation tool that evaluates the thermal performance of construction systems. The findings demonstrate the feasibility and potential economic benefits of modular wood systems in housing construction in Iquitos. In addition to offering optimal thermal comfort, these systems represent a sustainable alternative that can generate significant long-term economic savings. By reducing dependence on expensive construction materials and promoting the use of local renewable resources, such as wood, these systems help reduce home construction and maintenance costs. Likewise, by encouraging more environmentally friendly construction practices, additional benefits can be obtained, such as tax incentives or access to sustainable development funds, which can boost the local economy and promote job creation in the construction industry. However, additional challenges related to implementation and local acceptance are identified, underscoring the need for integrated and collaborative approaches for its effective application in the region.

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Paper ID - ICWTNS-2024_135

PAPER TITLE- AN ULTRA-WIDEBAND ANTENNA WITH SINGLE BAND AND DUAL BAND ELIMINATION CHARACTERISTICS

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Abstract- New efficient and accurate analytic models of ultra-wideband (UWB) microstrip antennas are introduced to design small printed parabolic shape monopoles with single and dual band notch antennas shaped with rectangular cavities and corrugated edges for wireless applications. Two UWB antennas are made with a parabolic shape radiator by using FR4 substrate (3.5 -14.25GHz) and making half circular patch with four semicircle slots cut at the edges of radiator (3.5-13GHz). Single notch is designed by making a plus shape cavity (5-7.5GHz), with a C shape at the end of arms of the plus sign cavity (6.5-7.3GHz), double parabolic cut at edges of cavity (6.1-7.1GHz), double parabolic cut at edges of cavity with parabolic cavities at both ends of monopole radiator (6.1-7.5GHz), by etching a thin line cavity (5.1-6.2GHz) and inverted C shape cavity (3.1-4GHz). These single-notch antennas are used to cut C Bands and Satellite downlinks X bands. Dual notch bands are also achieved by including a thin rectangular cavity and inverted C-shaped cavity (3.4-4GHz and 4.8–5.9GHz). Band notch characteristics are also designed to eliminate the interference with existing bands of Wi-Max and WLAN. A dual-band notch antenna is fabricated and tested for S parameters, VSWR. The designs are applicable in short-range, high-data speed wireless within the frequency band from (3.1 to 13GHz and 3.5 to 14.25GHz). These microstrip antennas along with single and dual band-notch in UWB systems are also compact with multifunctional features reducing the number of antennas in wireless devices. Also useful in wireless networks having a wide radiation pattern and in biomedical diagnosis. These antennas are lightweight, and robust and also give low cost of production.

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Paper ID - ICWTNS-2024_137

PAPER TITLE-OSM-ON SPOT MECHANIC

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Abstract- Car breakdowns are a common source of annoyance and concern for drivers in today's fast-paced culture, particularly in urban regions where personal automobiles are essential for daily transportation. These problems are made worse by the absence of real-time vehicle health monitoring systems, which frequently leads to unplanned malfunctions that trap drivers and make their problems worse. Here comes OSM (On Spot Mechanic), a ground-breaking initiative designed to alleviate these problems by providing quick and effective fixes to car owners in need.

OSM functions via a painstakingly crafted workflow that aims to streamline the procedure of linking stranded car owners with local repair. Because urban residents depend so largely on their personal vehicles, breakdowns can be especially upsetting because they have a significant negative influence on daily activities, safety, and financial losses. When it comes to affordability, diagnostic capabilities, and accessibility, existing solutions frequently fall short, which leaves car owners feeling uneasy and irritated.

The main goal of OSM is to provide a novel, approachable system that successfully tackles these complex issues. When problems happen, customers can quickly resolve their automobile problems by using OSM to conveniently notify neighboring garages or emergency services. Additionally, the technology promotes improved communication between users and garage facilities, guaranteeing a smooth experience for all parties.

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Paper ID - ICWTNS-2024_143

PAPER TITLE- CLASSIFICATION MODEL OF SKIN CANCER USING CONVOLUTIONAL NEURAL NETWORK

Hugo Vega-Huerta[1], Manuel Rivera-Obregón[2], Gisella Luisa Elena Maquen-Niño,[3]
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Abstract- Skin cancer poses a noteworthy global health issue, ranking as Peru's fourth most common cancer. Its severity underscores the importance of early detection, a pivotal factor in enhancing survival rates and optimizing treatment outcomes. In tackling this issue, an innovative method is underway, leveraging artificial intelligence to examine medical images related to the skin. The model's primary objective is to identify the presence of cancer and categorize the specific type detected. This study employs a machine learning methodology, centering on the utilization of CNNs along with data augmentation and transformation techniques. The dataset comprises 2357 dermatoscopic images, strategically chosen to bolster performance metrics and fortify the model's overall resilience. The outcome of this innovative approach is a noteworthy accuracy rate of 94%, accompanied by a test loss of 16%. By leveraging advanced technologies such as CNNs and incorporating extensive datasets, this research not only contributes to the field of medical imaging but also marks a substantial stride in the realm of skin cancer diagnostics.

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Paper ID - ICWTNS-2024_145

PAPER TITLE- CRISP-DM-BASED MOBILE APPLICATION FOR PREDICTING HIGH-CRIME AREAS IN METROPOLITAN LIMA

Hugo Vega-Huerta,[1] Javier Vilca Velasquez,[2] Nicolas Anicama Espinoza,[3] Luis Guerra-Grados,[4] Jorge Pantoja-Collantes,[5] Oscar Benito-Pacheco,[6] Juan Carlos Lázaro-Guillermo [7]
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Abstract- Metropolitan Lima faces significant problems related to citizen security, with high rates of crime and violence in several districts. The traditional response of security forces is often reactive, i.e., they act when the incident has already occurred, which leads to an increased sense of insecurity and hinders crime prevention. Therefore, the objective is to identify areas of high crime incidence based on Crisp-DM by implementing a mobile app that collects reports from citizens. As a methodology, the system uses historical crime incident data to train models capable of predicting the occurrence of crimes in real time. The CRISP-DM (Cross-Industry Standard Process for Data Mining) methodology is followed to carry out the data mining process, which includes the stages of business understanding, data understanding, data preparation, modeling, evaluation, and deployment. Machine learning algorithms, such as Random Forest and Gradient Boosting, were used to make these predictions. In addition, visualization techniques, such as heat maps, were applied to represent criminal acts and facilitate their understanding by users. As a result, an accuracy of 71% was obtained for the Random Forest algorithm and 67% for Gradient Boosting in predicting the occurrence of crimes. These results demonstrate the feasibility of using machine learning models to improve citizen security in Metropolitan Lima.

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Paper ID - ICWTNS-2024_147

PAPER TITLE-WEB SYSTEM WITH GAMIFICATION TO ENHANCE READING COMPREHENSION IN A SECONDARY-LEVEL EDUCATIONAL INSTITUTION

Hugo Vega-Huerta[1], Manuel Chunga Vargas[2], Percy De-La-Cruz-VdV[3], Juan Carlos Lázaro-Guillermo[4], Oscar Benito-Pacheco[5], Jorge Pantoja-Collantes[6], Ruben Gil-Calvo[7]
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Abstract- In 2021, a reduction in the reading average in secondary level students was observed compared to previous years, according to the Ministry of Education of Peru (MINEDU). To improve the efficiency of reading learning in secondary educational institutions, the implementation of a web system with gamification is proposed. To achieve this, we considered working with two groups. The experimental group used gamification strategies and the collaborative annotation tool, while the control group did not have these gamification tools. The results showed that the experimental group made significantly more annotations in almost all types of reading annotations and response annotations and had a significantly higher degree of immersive experience and social interaction than the control group, this percentage improvement was 46.46%. This demonstrated that the use of the annotation tool helps improve students' reading comprehension.

ISBN No.- 978-93-340-1708-3

Paper ID - ICWTNS-2024_149

PAPER TITLE-THE PASSIVE POWER LIMIT ESTIMATION FOR BATTERY MANAGEMENT SYSTEMS AND SWITCHED-RESISTOR EQUILIBRIUM OF LI-ION BATTERIES

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Abstract- Ensuring the optimal performance and expected longevity of a battery pack is crucial for the effective functioning of electric vehicle (EV) applications, with the maintenance of charge balance being imperative in battery packs interconnected in both series and parallel configurations., primarily due to disparities in manufacturing and the distinctive performance characteristics exhibited by individual cells within a conventional battery pack. In this research paper, we propose an approach cantered on switched-resistor passive balancing to attain cell equilibrium within a battery management system (BMS). The technique entails the use of resistors within an electrical circuit to equalize the voltage at the terminals of battery cells, effectively eliminating any surplus voltage. The outcome of this cell balancing process substantiates the circuit's capability to sustain a uniform voltage across all cells. The cell balancing procedure encompasses the individual adjustment of each cell's charge level. Passive balancing achieves this by dissipating excess charge as heat Addressing cells with an excessive charge, a passive cell balancer presents a cost-effective and straightforward remedy; nevertheless, its efficacy is compromised by restricted energy efficiency attributable to thermal losses stemming from the resistors. Consequently, it necessitates a protracted balancing procedure. Nevertheless, While serving as a reliable and efficient method, especially for energy-efficient electronic devices and mobile applications such as electric vehicles (EVs), this passive cell balancer also offers a way to assess power constraints during both charging and discharging phases through the utilization of the bisection method.

ISBN No.- 978-93-340-1708-3

Paper ID - ICWTNS-2024_151

PAPER TITLE-SYSTEM FOR LSTM-BASED AIR QUALITY ESTIMATION

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***Abstract*-**On a worldwide scale, pollution in the atmosphere is a severe concern. It has the potential to jeopardize people's health and the environment. The Internet of Things, also known as IoT, allows for the monitoring of air quality. It may transfer data quickly and with little latency. Certain air contaminants can be deadly in high amounts. The projection of historical data from toxins conveyed by IoT is one stage toward mitigating undesirable scenarios in the future, such as unhealthy ecosystems or places becoming uninhabitable owing to hazardous air pollution. This paper suggests utilizing LSTM to develop a neural network model for forecasting air pollution concentrations. The model forecasts five air pollution measures: PM10, for example sulphur dioxide (SO2) carbon dioxide (CO), the element O3, and nitrogen dioxide (NO2).

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Paper ID - ICWTNS-2024_153

PAPER TITLE-ELECTROCHEMICAL ENERGY GENERATION BY REUSING DOMESTIC GRAY WATER

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Abstract- This study explores the potential of converting domestic graywater into electrochemical energy as a sustainable energy solution amidst growing environmental concerns. Employing a custom-designed galvanic cell prototype, the research aims to transform the chemical energy in graywater into electrical energy through redox reactions, quantifying the electrical potential generated. Results demonstrate the prototype's success in generating an average no-load voltage of 5.1907 volts, effectively powering low-power devices like LEDs, and validating the viability of greywater as an alternative energy source. However, the study acknowledges limitations such as the prototype's small scale and the potential impact of varied graywater compositions on energy efficiency, suggesting cautious application at larger scales. Future research directions include enhancing prototype efficiency and scalability, understanding the effects of different graywater compositions, and conducting long-term performance assessments. The study contributes to sustainable energy research by offering a novel approach to wastewater energy recovery, promoting environmental sustainability and efficient energy utilization.

Paper ID - ICWTNS-2024_155

PAPER TITLE-MODEL TO IMPROVE THE QUALITY OF SERVICES AND THE SKILLS OF YOUNG UNIVERSITY STUDENTS

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Abstract- How can the Computer Laboratory Office (CLO) deliver excellent service while simultaneously enhancing the skills of university students who provide services across various computer laboratories and offices within the Faculty of Systems Engineering and Informatics at San Marcos University? Thus, the objective of this study was to develop a model based on a framework comprising the technical standards of ISO 9001:2015, Knowledge Management, Information Technologies, Empowerment, and the Servqual model to assess user perceptions and conduct statistical tests on various work topics. The results obtained from statistical tests confirmed the enhancement of students' skills involved in providing services within the Faculty of Systems Engineering and Informatics, consequently impacting the quality of services offered by the CLO to users. This framework proved successful, as evidenced by the Faculty's Computer Laboratory Office obtaining ISO 9001:2015 accreditation for three of its specific processes. The novelty of this research lies in the development of an effective framework based on the ISO 9001:2015 Technical standard, ICT, Empowerment, and the Servqual model, resulting in improved service quality and the enhancement of university students' competencies. It is noteworthy that this research has been conducted over an 8-year period.

ISBN No.- 978-93-340-1708-3

Paper ID -ICWTNS-2024_157

PAPER TITLE-MULTI-MODAL EMOTION RECOGNITION: FUSING AUDIO FEATURES WITH RECURRENT AND CONVOLUTIONAL NEURAL NETWORKS

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Abstract- This paper investigates the domain of emotion categorization using Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs) to analyze audio data. The growing use of audio-driven applications in fields such as virtual assistants, healthcare, and entertainment emphasizes the importance of comprehending and accurately categorizing human emotions expressed through sound. In this paper, we offer a unique method for automatically extracting significant features from audio signals for robust emotion categorization by exploiting the capabilities of CNNs and RNNs. The approach includes preprocessing audio information to extract significant features, followed by the design and implementation of an emotion classification-specific Convolutional Neural Network, and Recurrent Neural Networks architecture. A large dataset containing various emotional states is used to train and assess the proposed model. The network's convolutional layers are good at collecting spatial hierarchies within the audio spectrogram, allowing for the recognition of detailed patterns related to various emotions.

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Paper ID - ICWTNS-2024_159

PAPER TITLE-PREDICTION MODEL BASED ON NEURAL NETWORKS TO OPTIMIZE THERMAL EFFICIENCY AND EMISSION CONTROL IN FIRETUBE BOILERS

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Abstract- This study addresses the critical challenge of enhancing thermal efficiency in industrial firetube boilers within the fishing industry, a sector burdened by significant fuel consumption and associated costs. amidst rising fuel prices, achieving even marginal improvements in boiler efficiency can result in substantial economic savings and environmental benefits. utilizing the Peruvian technical standard for efficiency determination, alongside recommendations from boiler manufacturers and operational conditions, this research employs artificial neural networks to model and predict efficiency outcomes based on various operational parameters, including fuel type and combustion conditions. specifically, the research explores the impact of excess air and fuel regulation on thermal efficiency and pollutant emissions, employing applied research methods and a comprehensive analysis of boiler operation at 80% and 100% load conditions. results demonstrate the capability of neural network models to accurately predict thermal efficiency, with optimized configurations achieving significant reductions in CO2 and CO emissions. the findings underscore the potential for neural network applications in optimizing boiler operations, offering a pathway to economic and environmental improvements in industrial processes. the study concludes with optimal operational parameters that balance efficiency gains with emission reductions, highlighting the practical implications for the fishing industry and beyond.

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Paper ID - ICWTNS-2024_161

PAPER TITLE-EXPERIMENTAL INVESTIGATION OF A MODIFIED ADDITIVE FOR THE PRODUCTION OF DEEP REINFORCED CONCRETE FOUNDATIONS

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Abstract- This study delves into the intricate realm of enhancing the strength properties of concrete in the context of driven pile foundations. With the ever-growing de-mand for high structural integrity in construction, driven piles have become a prominent choice, often enduring significant dynamic forces during installation. To address this need, a modified additive was developed, featuring microsilica and post-alcohol bard, both industrial byproducts. The research sought to optimize the composition for maximum strength, hydrophobicity, and frost resistance, particularly considering the impact-driven installation of these piles. The findings revealed compelling patterns: an increase in micro silica content led to a gradual reduction in strength, while an increase in post-alcohol bard content corresponded to an increase in strength. The optimal content for both components was found to be 10%, resulting in significant improvements in bending and compression strength. The research demonstrates a promising avenue for sustainable construction practices by utilizing industrial waste materials, aligning with the pursuit of innovative, eco-friendly materials. This study paves the way for further exploration with variable component concentrations, offering valuable insights into the future of enhanced concrete for driven pile foundations.

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Paper ID - ICWTNS-2024_165

PAPER TITLE-REVIEW PAPER ON LOCATION TRACKING USING COMMERCIAL ADVERTISEMENT

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Abstract- Online advertisements also termed as digital marketing has helped the companies reach their potential customers globally. Social Media platforms like Facebook, Twitter, etc and Search engines supported the users in finding the services or products of their choice online. Mobile marketing has also played a major role in online marketing. However, the major issue with these online marketing is the user's privacy. There may be some spiteful advertisements, whose links when clicked may extract the sensitive information of the users and exploit the users. In this paper, the authors have reviewed the different potential threats for the users in present scenario and its implications. Also, authors have surveyed the latest state of art technologies to curb the online advertisement related threats. Based on the review, authors have also suggested the potential methods, that will be able to mitigate the on growing online advertisement threats.

Online advertising involves tracking users through various means, including the use of tracking cookies. On iOS and Android devices, advertisers use advertising identifiers (ad IDs) to track users within apps. However, these practices can raise privacy concerns. Both operating systems offer the option to reset or disable ad IDs through Limit Ad Tracking (LAT).

Ads are displayed in online views, often within apps that assist with caching and storage. Despite the benefits of online advertising, there are valid privacy concerns due to its intrusive nature. This article provides an overview of the enabling technologies for online advertising infrastructure, and the privacy risks involved, along with potential solutions.

Paper ID - ICWTNS-2024_167

PAPER TITLE-IDENTIFICATION AND CLASSIFICATION OF POWER QUALITY DISTURBANCES VIA SYNCHRO-REASSIGNING TRANSFORM

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Abstract- The study introduces the synchro-reassigning transform (SRT), a high-resolution time-frequency method, as a pioneering approach to analyze non-stationary signals, specifically power quality (PQ) disturbance events. The research effectively classifies and detects various types of PQ disturbances by comparing SRT with other time-frequency methods, such as the short-time Fourier transform (STFT), wavelet transform (WT), synchro-squeezing transform (SST), and synchro-extracting transform (SET). The comparison includes scenarios like voltage sags, swells, interruptions, harmonics, and inter-harmonics. Numerical analysis validates that SRT outperforms the other methods, especially when dealing with harmonics and inter-harmonics within the power signal. The utilization of SRT represents a significant advancement in PQ analysis, offering higher precision and reliability in detecting and characterizing PQ disturbance events within power systems.

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Paper ID - ICWTNS-2024_169

PAPER TITLE-DEVELOPING A NOVEL ARCHITECTURE FOR CONVOLUTIONAL NEURAL NETWORK FIREWALL ANOMALY DETECTION IN NETWORK TRAFFIC

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Abstract- The increasing complexity of cyberattacks in the quickly changing field of cybersecurity necessitates constant innovation in protection systems. Even while they worked well in the past, traditional methods now struggle to keep up with the ever-changing nature of cyberattacks. This research presents a novel architecture that integrates three DL models and seven ML models in a strategic way to detect firewall anomalies using convolutional neural networks (CNNs). Rather than relying on rule-based methods, the suggested design combines CNN_LSTM, Feedforward Neural Network, Neural Network, K Neighbors Classifier, Gaussian NB, Linear SVC, and Random Forest Classifier. The technology overcomes the drawbacks of conventional firewalls by giving the firewall intelligence and flexibility through machine learning, enabling it to recognize and react to changing cyber threats on its own. The inclusion of deep learning models enhances the architecture's capacity for capturing complex patterns, emphasizing the CNN-LSTM hybrid model's spatial-temporal awareness. This interdisciplinary initiative aims not only to fortify cybersecurity systems but also to contribute to the broader discourse on integrating machine learning and deep learning in real-world applications, redefining the efficacy of firewall systems against the evolving cyber threat landscape.

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Paper ID - ICWTNS-2024_173

PAPER TITLE-DATA SECURITY IN AN IOT-BASED WIRELESS SENSOR NETWORK: A REVIEW OF CONVENTIONAL AND MACHINE LEARNING-BASED USER AUTHENTICATION SCHEMES

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Abstract- Nowadays, an industry has fundamentally altered as a result of real-time automation systems that use IoT-based sensor networks to collect physiological data and transmit it across wireless sensor networks. While there are numerous advantages to technology, such as real-time data capture, speed, almost lossless transmission, and continuous, real-time analysis on demand, there are also significant security risks associated with it, which include leakage of privacy data in the event of a privacy infringement or the potential for wireless connections to expose private information to interception assaults. For this, strong security measures such as 2-factor or 3-factor user authentication have been proposed previously to safeguard privacy, accessibility, and data integrity when collecting, transferring, storing, etc. However, as a security solution, it was not proven up to the mark, and for this reason, machine learning has been introduced as an effective measure. In this article, the author has reviewed all such conventional and machine learning techniques proposed previously for user authentication and reported since 2014. The review of all such articles demonstrating effective user authentication in some particular application-based problem will be of great interest to data security professionals and researchers in choosing appropriate technology as per the need for state-of-the-art problems.

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Paper ID - ICWTNS-2024_195

PAPER TITLE-PERFORMANCE EVALUATION OF FOAMED CONCRETE BY THE PROPOSED METHOD OF TWO-STAGE FOAM INJECTION USING A MODIFIED ADDITIVE

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ABSTRACT- The study focuses on foam concrete produced by the classical method and the two-stage foam introduction method. The problem addressed is the uneven distribution of the foam concrete's pore structure vertically. Measurements revealed a significant scatter in the density and strength of samples produced by the classical method compared to the two-stage foam introduction method. This scatter is attributed to the influence of the foam concrete production process on the quality of the material's pore structure. The two-stage foam introduction method demonstrated less scatter in density and strength, indicating a more uniform distribution of the pore structure. These findings can be used to optimize the foam concrete production process, improve its properties, and expand its application areas in construction. The results highlight the influence of the modified additive on the strength indicators of foam concrete. The study's findings have practical implications for enhancing the quality and application of foam concrete in the construction industry.

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Paper ID - ICWTNS-2024_199

PAPER TITLE-REVIEW ON MULTI-LINGUAL SENTIMENT ANALYSIS IN HEALTHCARE

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Abstract- - Multilingual sentiment analysis in healthcare is rapidly expanding, utilizing machine learning methods to identify emotions and sentiments in material written in several languages. This multidisciplinary field integrates computational linguistics, natural language processing, and health informatics to help healthcare providers better comprehend patient attitudes. Sentiment analysis is particularly useful in the healthcare industry since it facilitates comprehension of patient feedback, responses to interventions, and general contentment. Moreover, in an increasingly interconnected society, it can assist in recognizing the emotional states and concerns of patients from diverse linguistic origins. Healthcare providers can improve care and service by gaining insights into patient experiences through the analysis of patient reviews, social media posts, and other kinds of feedback in several languages. Sentiment analysis, for example, can be used to track patients' mental health over time and identify symptoms of depression or anxiety based on their interactions. These applications are becoming increasingly important for adjusting patient support and care, fostering better patient-provider communication, and eventually improving health outcomes. There are difficulties when implementing sentiment analysis in a multilingual setting, such as the requirement for extensive datasets in several languages and models that are sensitive to cultural quirks and context. By offering a foundation for creating more precise and sophisticated sentiment analysis systems that can function in a variety of linguistic and cultural contexts, advances in AI models, such as BERT and GPT variations, are assisting in addressing these issues. Recall that although sentiment analysis holds great potential, its use in healthcare needs to be done carefully to protect patient privacy and take ethical considerations into account. Sentiment analysis in healthcare can also assist in identifying unfulfilled medical and emotional demands of long-term patients, supporting patient-centered care models. In general, the incorporation of multilingual sentiment analysis into healthcare presents a multitude of opportunities and represents a promising facet of artificial intelligence's potential to enhance patient care outcomes and experiences.

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Paper ID - ICWTNS-2024_201

PAPER TITLE- TOWARDS TRANSPARENT DEMOCRACY: EXPLORING A BLOCKCHAIN-ENABLED E-VOTING SYSTEM

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Abstract- Recently, using blockchain in the daily life world is at peak and we are shifting our digital preferences over blockchain technology. The main reason for increase in use of blockchain technology are because of its methodology of working with internet, which makes very much reliable and secure to use. In this research paper, we tried to dive into the aspects of using blockchain technology into online voting system and how it can help in increasing the transparency, integrity and confidentiality of the voting system. In this research, we addressed the reasons and advantages of using blockchain in online voting system above traditional online voting system. We discussed about the flaws that are in current online voting systems and how it can be eliminated by introduction of blockchain technology into the system. We used a decentralized system of blockchain which uses Ethereum network in our research. We introduced a decentralized online voting system which uses smart contract on Ethereum Blockchain network. The Ethereum network ensures the correct execution of voting protocols.

Paper ID - ICWTNS-2024_211

PAPER TITLE- OPTIMIZING HEALTHCARE DELIVERY: A COMPREHENSIVE ANALYSIS OF HOSPITAL MANAGEMENT SYSTEMS

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Abstract- A hospital management system includes improving productivity, improving management and improving patient be concerned. The aim of this learning is used to design a digital system that improves hospital efficiency and system security standards. We have been skilled to create a section that provides various functions such as doctor appointments, scheduling times for lab tests, medical facility and medical conditions program access. This organization is an executive processing unit. This means administrators can supervise users, medical system, manage health programs, and lead to physician referrals and lab test sites. This system allows managers to generate as many reports as they need. This is a module that deals with hospital expenses and medical expenses. There is also a module that allows you to control drug lists in hospital pharmacies. Problem Description Because hospitals are involved in the living and day by day lives of the public, laboring maintenance of records can be lengthy and prone to errors. The main idea of this project is too electronic or make online processes of daily work. Each step guided the researchers through the research and development process and helped manage the entire work of each process. In the end, the developers get that the project could accelerate the rate and productiveness of hospital staff. It can also create reports to help customer supply a survey of hospital agreement on a that particular day. We offer the ability to retrieve information about patients who are asking in the admissions section. This system can reduce hospital workload and improve administrative and business operations. Overall, the study improved hospital transfers. It was recommended that the previous system design be improved.

Paper ID - ICWTNS-2024_213

PAPER TITLE- REVIEW ON OPEN-SOURCE IOT AND EDGE-COMPATIBLE DEVICES FOR HEALTH MONITORING APPLICATIONS

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Abstract- As the Internet of Things (IoT) grows in popularity, devices in healthcare, novel solutions for remote patient monitoring and health management have become possible. This increasing interconnectedness, however, raises substantial cybersecurity threats. The goal of this research is to discuss the detection and prevention of cyber-attacks in an IoT-based health monitoring application. To safeguard the IoT ecosystem, the suggested method takes a multi-layered approach. Device authentication and access control procedures are used to guarantee that only authorized devices can connect to the network. This stops bad actors from gaining access to the system through illegal entry points. To identify aberrant activities and possible cyber-attacks, anomaly detection methods are used. Machine learning algorithms evaluate IoT device data to build baseline patterns of typical activity. Deviations from these patterns generate alarms, allowing for immediate analysis and intervention. To protect the transfer of sensitive health data between devices and the backend infrastructure, secure communication methods are used. Data interception and unwanted access are reduced via encryption methods and secure connections.

Paper ID - ICWTNS-2024_217

PAPER TITLE-CLASSIFICATION OF PHYSICAL VIOLENCE ACTIONS USING CONVOLUTIONAL NEURAL NETWORKS WITH TRANSFER LEARNING

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***Abstract*-**Violence in the world is a problem of great impact that affects any developing country, it represents a soft system that to date cannot be controlled by having different manifestations with high rates of crime and delinquency. Artificial Intelligence (AI) uses different innovative resources covering health issues, traffic management, climate change, among others, in the framework of the Sustainable Development Goals (SDGs) being an application option image processing through Convolutional Neural Networks (CNN). This research evaluates the efficacy of classifying violent actions such as strangulation, grappling, kicking or punching, based on pre-trained CNNs. First, a dataset of simulated videos of violent actions was elaborated, comprising 2000 images distributed in 60% for training, 30% for validation and 10% for testing. Second, the CNN models VGG16, MobileNet, ResNet50 and InceptionV3 were trained by applying Transfer Learning, subjected to 150 epochs and using the same hyperparameters. At the end, the performance results were compared, where it was determined that the best performance is for MobileNet, obtaining an accuracy rate of 72.53%, and an accuracy of 66%. This research will serve as a reference for future real-time applications.

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Paper ID - ICWTNS-2024_219

PAPER TITLE-CONVOLUTIONAL NEURAL NETWORK MODEL FOR SKIN CANCER DIAGNOSIS IN A DERMATOLOGICAL CENTER

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Abstract- In confronting the global health challenge posed by skin cancer, early and accurate diagnosis is paramount. This research introduces an advanced Convolutional Neural Network (CNN) model optimized for skin cancer diagnosis using dermatological images. The innovation lies in applying state-of-the-art pruning techniques, specifically magnitude-based weight pruning and quantization, to refine the model's efficacy and computational efficiency. The model exhibited exceptional performance on a rigorous dataset, achieving an AUC (Area Under the Curve) value of 0.99. The acquired score indicates an exceptionally high degree of competence in distinguishing benign skin conditions from malignant ones. Critical performance indicators—with values of 0.9820 for precision, 0.9815 for recall, and 0.9812 for F1-score—offer supplementary substantiation concerning the dependability and accuracy of the model. Notably, the refined model maintained an impressive accuracy rate of 0.9815 post-pruning, validating the effectiveness of the pruning process. The employment of these pruning methods has substantially streamlined the model without compromising diagnostic accuracy, demonstrating the integration of machine learning can significantly enhance medical imaging. The findings of this study not only mark a leap forward in skin cancer diagnostics but also enrich the discourse on intelligent systems in healthcare, advocating for broader adoption and continued development.

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Paper ID - ICWTNS-2024_221

PAPER TITLE- OPTIMIZED DEEP LEARNING MODEL TO PREDICT BUSINESS BANKRUPTCY

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Abstract- This article studies the ideal and optimized way to predict a company's bankruptcy according to the internal and external environment. Likewise, prognostic factors were identified through machine learning models that are ideal for this type of case. In this context, the choice of the ideal model is the basis for making improvements and updates that allow the optimization of a specific model. For this reason, the optimization of the model is considered a specialized process that allows the precise identification of the factors that lead to the bankruptcy of companies and the identification of the necessary correlations between relevant variables. In this sense, past works on similar contexts were considered for the present study, the analysis method where the methodology is required, and three stages: Data exploration, selection of models, and implementation. Likewise, to determine the results, training was considered to obtain results from the model with optimized characteristics, company bankruptcy factors and correlations, and finally the discussion of results and conclusions was specified.

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Paper ID - ICWTNS-2024_223

PAPER TITLE- CREATIVE AS A COOPERATIVE FACTOR FOR INCREASING THE GROSS DOMESTIC PRODUCT IN IBERO-AMERICA

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Abstract- The Innovation Index (I) within Ibero-America is scrutinized through the lens of the Invention Coefficient (IC) and Creative Factors (CF_Y), offering insights into the creative prowess across 31 Ibero-American countries. This analysis extends to the variables of Cooperation Factors (CF_X), segmented into the domains of Economy, Bibliography, and HR in Research and Development and Innovation R&D&I, utilizing data from the Inter-American Network of Science and Technology Indicators (RICYT) spanning from 2009 to 2018. The investigation reveals diverse patterns of creative capacity in this geographic region, underscored by indicators such as the number of Scopus publications per 100.000 inhabitants, the density of researchers in the Economically Active Population EAP, Gross Domestic Product (GDP), and the ratio of HR. A pivotal finding of this study is the robust correlation between the I and the CF_X (R2=0,99; F(9,127) = 1.347,02; p < .001), elucidating the tangible levels of creative capability. Furthermore, a pronounced correlation between the I and the IC (R2=0,96; F(1,258) = 5.450,30; p < .001) confirms the intertwined relationship between these dimensions within Ibero-America. The outcomes of this research are illuminating: a single dollar invested in Science and Technology (S&T) per capita can potentially augment the GDP per capita by $35,62 (R2=0,83; F(1,212) = 1.010,09; p < .001); each Scopus publication per 100.000 inhabitants could elevate GDP by $146,37 (R2=0.72; F(1,308) = 777.87; p < .001); and each full-time researcher per 1.000 of EAP is associated with a GDP increase of $3.504,05 (R2=0,76; F(1,152) = 476,22; p < .001). The implications of this research underscore the necessity of bolstering investment in science and technology to enhance the region's creative capacity and socioeconomic health. Specifically, funding in HR in R&D&I and scientific publishing emerges as crucial. Hence, adopting a multidisciplinary approach is imperative to elevate the creative levels across Ibero-America, aiming for comprehensive growth and development.

ISBN No.- 978-93-340-1708-3

Paper ID - ICWTNS-2024_225

PAPER TITLE- ASSESSING OFFSHORE OIL SPILLS USING REMOTE SENSING AND GEOSPATIAL ARTIFICIAL INTELLIGENCE (GEOAI): A SYSTEMATIC REVIEW OF THE LITERATURE

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Abstract- Currently, Artificial Intelligence cuts across all disciplines of human knowledge, which favors the development of new approaches for the care and preservation of the environment. For this reason, oil spills at sea, caused by the transportation and marketing of hydrocarbons, have been considered an unstoppable source of pollution in the last century. Thus, the present systematic literature review analyzes the most recent publications in Artificial Intelligence considering the Machine Learning and Deep Learning models together with the spatial component (Geospatial Artificial Intelligence, GeoAI) and that, associated with Remote Sensing, allows us to find a way to predict and/or detect oil spills based on the best accuracy rates achieved by computational models.

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Paper ID - ICWTNS-2024_227

PAPER TITLE-MONITORING THE ENVIRONMENT AND RECYCLING APPROACHES FOR MANAGING OIL AND DRILLING WASTE

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Abstract- The annotation explores the key aspects of monitoring soil pollution during the treatment of oil and drilling waste in the Kyzylorda region. The authors conducted experimental studies on drilling and oil waste processing to assess their environmental impact. The study utilized various materials, including drilling cuttings, liquid drilling wastes (such as drilling wastewater and waste drilling fluid), oil-contaminated soil, and oil sludge. Diverse methods and technologies were employed for the processing of oil and drilling waste. The experimental setup included a drilling cuttings processing plant, three maps for curing and averaging drill cuttings, two trenches for settling and drying liquid drilling wastes, and a composting site for oil-contaminated soil. The processing site facilitated the treatment of drilling cuttings, oil sludge, and oil-contaminated soil, with the aim of producing a material suitable for road construction. The environmental monitoring revealed the efficacy of the undertaken measures in mitigating the adverse environmental impact.

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Paper ID - ICWTNS-2024_229

PAPER TITLE-EVALUATING GENERATIVE AI ON MULTILINGUAL SENTIMENT ANALYSIS

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Abstract- The study shows that natural language processing (NLP), large language models (LLM), and generative AI are becoming the most important. LL.M. It is considered essential for many NLP tasks, including question-answering, classification, interpretation, and writing. New LLMs must be able to analyze and create documents in different languages as they know how to train training materials in different languages such as ChatGPT, BLOOMZ, and others. Considering how frequently LLMs are used, it is critical to assess their effectiveness in multilingual environments. We note that in a zero-shot context, the present generative models are not very good at producing text in Indian languages. On the other hand, generative models routinely outperform human quality-based evaluation when it comes to English language generation and Indic languages. We contend that these LLMs are not meant to be used in a zero-shot manner in downstream applications due to poor generating performance.

Paper ID -ICWTNS-2024_231

PAPER TITLE-INFLUENCE ASSESSMENT OF PHOSPHOGYPSUM ON CONCRETE STRENGTH WHEN USED AS PART OF A TWO-COMPONENT MODIFIED ADDITIVE

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Abstract- This article presents laboratory research on the impact of a complex modified additive (CMA) on the strength characteristics of concrete. The aim of the research is to solve the problem of increasing the strength characteristics of concrete by introducing CMA. The study is dedicated to examining the influence of various components of industrial waste on the strength characteristics of concrete. In particular, the influence of micro silica, phosphogypsum, soapstock, and post-alcohol stillage on the strength of concrete under compression and bending is considered. The results of the research show that the maximum increase in strength is observed when the content of phosphogypsum is 15% of the mass of cement and micro silica. With an increase in the content of phosphogypsum more than 15%, there is a decrease in the strength indicators of the samples. Thus, the use of a complex modified additive allows for targeted modification of the concrete structure, leading to a significant improvement in the physical and mechanical properties of the modified concrete.

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Paper ID -ICWTNS-2024_237

PAPER TITLE-A COMPACT TRIANGULAR AND SEMI-CIRCULAR PATCH ANTENNA WITH NOTCHING CHARACTERISTICS.

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Abstract- A novel compact triangular and semi-circular patch antenna, integrated with a modified defected ground structure to exhibit band-notch characteristics, is proposed and evaluated in this paper. The antenna demonstrates an impressive impedance bandwidth ranging from 3.86 GHz to 21.06 GHz, with a Voltage Standing Wave Ratio (VSWR) of below 2. The research also delves into the implications of the modified ground structure, which notably contributes to the enhanced bandwidth observed. By effectively mitigating higher frequencies of electromagnetic interference, particularly pertinent in 5G WLAN and X band applications spanning 6.3 GHz (5.51-6.57 GHz) and 9.2 GHz (8.49-9.52 GHz), the proposed antenna proves instrumental. With an optimal radiation efficiency of 96% and a consistent gain of 4.0 dB, this antenna design presents a promising solution for modern communication systems requiring robust performance across a wide frequency spectrum.

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PAPER TITLE-DESIGN OF A MACHINE LEARNING MODEL FOR ENGINEERING PROJECTS THROUGH THE NEW CSKT METHODOLOGY: CASE OF THE PENSION SYSTEM IN PERU

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Abstract- This paper focuses on the implementation and evaluation of a Machine Learning model created using the CSKT methodology with the purpose of improving the pension allocation process in engineering projects. The problem addressed concentrates on the current challenges faced by these projects when adopting Machine Learning models. The CSKT methodology follows an organized order, starting with understanding the business, data selection and preparation, up to the presentation of the model to the client. After analyzing the metrics during the initial training phase of the decision tree model, it is highlighted that the F1-Score presents a specific value of 0.699825, indicating a balance between precision and recall. The individual precision of the model is 0.650974, highlighting the ability to predict positives accurately. In relation to recall, a value of 0.756603 is observed, demonstrating the proportion of positive instances correctly identified by the model. The ROC curve shows a value of 0.739770, providing a comprehensive measure of the discriminatory ability of the model at various cut-off points. The results show the definition of the model parameters and variables, the creation of a decision tree scheme and the execution of initial simulations to evaluate the effectiveness of the model. In the conclusion, the effectiveness of the CSKT approach in pension allocation is highlighted and the importance of continuous collaboration with the client in engineering projects is emphasized. The results obtained will be presented in numerical terms, highlighting the major relevance of each metric, thus evidencing the contribution of the model to the improvement of the pension allocation process in engineering projects.

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PAPER TITLE-EYE DISEASES IN PATIENTS THROUGH RETINAL BLOOD VESSEL SEGMENTATION USING OD-UNET

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Abstract- Hypertensive Retinopathy (HR) is an ocular complication of long -standing systemic hypertension, an elevated blood pressure. There may not be any symptoms or complaints from patients of high blood pressure in the early stages, but it affects different body organs gradually, including the eyes. Computer-Aided Diagnosis (CAD) helps us in early detection of HR with enhanced diagnostic accuracy, which saves time and requires less resource. Numerous research related to the automatic recognition of HR have recently been published. Automated diagnosis of Hypertensive Retinopathy and retinal disorders, it is essential to localize optic disc accurately and segment the blood vessel in that portion of optic disc. UNet with Bounding Box is a novel approach for accurate localization and segmentation. OD-UNet leverages bounding box information to guide the segmentation process by a U-Net-based architecture that focuses the decoder exclusively on the optic disc's region. OD-UNet achieves exceptional segmentation accuracy, with an impressive 98.7% success rate in challenging scenarios. These results underscore the potential of OD-UNet to significantly enhance the precision of optic disc analysis in retinal health assessment, thereby advancing the capabilities of automated disease diagnosis and monitoring in ophthalmology.

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PAPER TITLE-DETECTION OF BREAST TUMOUR FROM HISTOPATHOLOGICAL IMAGES USING RECURRENT NEURAL NETWORK

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Abstract- Among the areas of study in the present-day environment which continues to grow quickly is biomedical image processing. Its demand is rising as a result of the expansion of numerous applications. There are numerous aspects and applications for research into these medical technologies. They can locate the tumor's location in real-time with the assistance of those features that were taken from questionable areas of the pictures, which may speed up the process of treatment. The methods for detecting breast tumors from histological images are the main focus of this paper. To make well-informed decisions about further treatment, a histopathological picture is preferred over a tomographic image because the former only provides a preoperative diagnosis while the latter provides a prognostic evaluation of post-disease treatment (surgery). Furthermore, deep learning algorithms have surpassed pathological image analysis in artificial intelligence for patient prediction, metastasis detection, tumor area segmentation, and identification. In contrast to a variety of known ways that employ individual instance-level annotations, the prior approach just required bag-level annotations. This paper uses the Break His datasets to obtain tumor images using a Mobile Net Deep Learning Algorithm. The task of identifying large-sized WSI images is resolved in this suggested study using a redesigned architecture. The suggested method outperforms previous works, according to the results.

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PAPER TITLE-PREDICTIVE MODEL BASED ON MACHINE LEARNING FOR THE REDUCTION OF STUDENT DESERTION IN PRIVATE UNIVERSITIES IN PERU: THE CASE OF UNIVERSIDAD PRIVADA SAN JUAN BAUTISTA

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Abstract- This study seeks to address the problem associated with dropout in the field of private university institutions in Peru, with the intention of creating a predictive model using Machine Learning techniques. At the beginning of the article, the absence of a clear and universally accepted definition of Artificial Intelligence (AI) and its relationship with Machine Learning is pointed out. The main assertion states that Machine Learning is within the domain of AI and focuses on providing computer systems with the ability to learn and improve automatically from specific data sets. In relation to the issue of student dropout, a detailed explanation of the reasons that cause it is offered, ranging from economic and health difficulties to social challenges and infrastructure problems. The forms of dropout are categorized, including complete, partial, early and late dropouts, highlighting the need to address this phenomenon at the university level due to its significant impact on the academic and professional progress of students. The strategy employed in the research comprises a descriptive and explanatory method, using a set of 30 cases related to the decrease of student dropout in a particular private university institution in Peru. The variables, dimensions and indicators that make up the design of the predictive model based on Machine Learning are described in detail, addressing aspects such as the quality of the model, the dropout rate, the performance and the effectiveness of the process. The findings show that personal factors have a substantial impact on the predictive capacity of the model. Elements such as marital status, application method, application sequence, academic program, day/evening attendance modality, previous grade history, nationality, among others, are recognized as determining factors. The numerical results obtained show significant relationships between several variables, highlighting, for example, the inverse correlation between enrollment update and indebtedness status. The effectiveness of the CatBoostClassifier, a predictive model, is clearly manifested by achieving a significant accuracy of 78.62% in the early detection of instances of student dropout in private higher education institutions in Peru. This performance highlights the model's reliable ability to effectively classify and predict cases of student dropout. In summary, this analysis contributes to a more comprehensive understanding of the elements linked to the phenomenon of student dropout, highlighting the importance of taking personal aspects into account when developing preventive and support strategies. The predictive model is presented as a valuable tool to effectively address this particular problem in the Peruvian university environment.

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Paper ID - ICWTNS-2024_249

PAPER TITLE-A MACHINE LEARNING APPROACH FOR DETECTION AND CLASSIFICATION OF VEHICLES USING VIBRATIONAL ANALYSIS

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Abstract- A wide array of systems is now available readily nowadays due to the emergence of Wireless Sensor Networks (WSN) and Micro Electro Mechanical Systems (MEMS) Technology. Many of these systems are being implemented and integrated in fields such as medical, agriculture and traffic monitoring. This paper explores the idea of vibrational analysis to detect and classify vehicles. Classification can be done by using the vibrations produced by these vehicles. They can be predefined classes such as “Miscellaneous”, “Heavy Motor Vehicles”, “4- Wheeler” and ”2-Wheelers”. The data acquisition process as well as the data pre-processing process is shown. It also explores the various software and hardware components used to make such a system and delves into the use of machine learning techniques that takes input from the sensor readings to correctly classify the vehicles based on the produced vibrations.

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Paper ID - ICWTNS-2024_251

PAPER TITLE-MULTI-CLASSIFICATION FOR MOTOR IMAGERY EEG SIGNALS USING FBCSP AND CONVOLUTIONAL NEURAL NETWORK

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Abstract- The low signal-to-noise ratio (SNR) of motor imagery (MI) electroencephalogram (EEG) signals presents difficulties for feature extraction and feature selection with good classification accuracy. Even with the notable advancements made, multimodal motor imagery decoding remains unsatisfactory. The spatiotemporal-frequency characteristics of various MI were extracted using a filter bank common spatial pattern (FBCSP) technique. The motor imagery EEG recognition model's effectiveness is significantly impacted by the EEG's operating frequency band. Unfortunately, the majority of algorithms did not effectively leverage the discrimination from numerous sub-bands because they used a large frequency band. Therefore, a potential approach in multisubject EEG recognition is to use convolutional neural networks (CNNs) to extract discriminative features from EEG signals of diverse frequency components. To validate this suggested approach, experiments were carried out on the publicly available EEG dataset from the BCI Competition III dataset IIIa. The performance attained (accuracy and kappa) was on par with the top approach among the comparisons. The findings demonstrated that the FBCSP-based CNN approach reduced computational complexity and had an average classification accuracy of more than 85.48% and average kappa value 0.81; as a result, this algorithm is appropriate for MI-BCI and may find use in other domains, such as rehabilitation.

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PAPER TITLE-DATA-DRIVEN PREDICTION OF NITROGEN STRESS AND CROP YIELD IN A MAIZE -WHEAT CROPPING SYSTEM

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Abstract- The study has attempted to determine leaf-N content in a cropping system consisting of Wheat and Maize using plant sensors like Green Seeker and SPAD meter (chlorophyll meter) and use machine learning models so that crop yields based on inputs can be predicted of data on nitrogen doses, NDVI values, SPAD values, and leaf N content. The data recorded from field experiments on wheat and maize crop variable fertilized by N (wheat: 0, 30, 60, 90, 120, 150, 180 and 240 kg N/ha; maize: 40, 80, 120, 160, 200, 240 and 300 kg N/ha) were used. A pair plot analysis showed a positive association between leaf N and NDVI, between leaf N and SPAD values, and between NDVI and SPAD values; all these parameters had a positive correlation with N- application rates. For yield prediction, the model calibrated for wheat could validate yield prediction for maize as well. Random Forest and Support Vector Machines showed reproducible performance (consistent) on both datasets (maize and wheat), with accuracies of 85.71% and 100%, respectively, on the original dataset.

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Paper ID - ICWTNS-2024_255

PAPER TITLE-A COMPARATIVE ANALYSIS OF F-RAN AND C-RAN ARCHITECTURES FOR NEXT-GENERATION WIRELESS NETWORKS

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Abstract- Within the realms of software-defined networks (SDN), this study offers an in-depth analysis of F-RAN and C-RAN designs. It evaluates the essential characteristics, performance metrics, and deployment considerations of both architectures to enhance understanding of their capabilities. Additionally, the study explores the potential advantages and challenges of integrating F-RAN and C-RAN with SDN, offering insights for network architects and operators. By thoroughly comparing these architectures and analyzing their key features, performance metrics, and deployment considerations, the objective is to enhance comprehension of F-RANs and C-RANs within the framework of SDN. Additionally, it delves into examining the prospective advantages and obstacles linked with the combination of these architectural models with SDN, therefore providing network architects and operators with relevant insight. It serves to enrich the knowledge repository of SDN through meticulous analysis and furnishes pivotal insights for the deployment and refinement of network infrastructure.

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PAPER TITLE-WEB3 SUBSCRIPTIONS: A CATALYST FOR A MORE INCLUSIVE AND USER-CENTRIC FINANCIAL SYSTEM

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Abstract- This paper explores the burgeoning landscape of Web3 subscriptions, highlighting their potential to revolutionize recurring payments within the decentralized space. It contrasts traditional, centralized subscription models with Web3 alternatives, emphasizing the latter's advantages such as user control, fee reduction, and financial inclusion for the unbanked. The paper then delves into a pioneering project that leverages smart contracts and L2 scaling solutions to offer a user-centric and automated subscription management system. By analyzing this project's features, the paper underscores the transformative potential of Web3 subscriptions to reshape the future of recurring payments within the digital economy.

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Paper ID - ICWTNS-2024_261

PAPER TITLE-DATA PIPELINE INTEGRATING APACHE KAFKA AND RABBIT MQ

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Abstract- Amidst the dynamic realm of big data, the convergence of Apache Kafka and RabbitMQ into a cohesive symphony of data orchestration represents a seminal undertaking. This ambitious research project endeavors to harmonize these potent technologies, employing sophisticated methodologies such as data batching and compression to maximize their collaborative potential. The resulting amalgamation, a vanguard in big data, pledges to redefine the frontiers of data management and messaging systems. This integration affords unparalleled flexibility in selecting the most apt tool for a given task without compromising on performance or reliability. Furthermore, a unified management and monitoring interface empowers administrators and developers with comprehensive insights, simplifying the intricate orchestration of these two distinct but complementary platforms. Ultimately, this research seeks not merely to unify Apache Kafka with RabbitMQ but to usher forth a paradigm where their union transcends the individual, revolutionizing the landscape of big data processing and transmission.

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PAPER TITLE-CLOUD RESOURCE MANAGEMENT SYSTEM

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Abstract- The article analyzes the tasks performed by resource management systems of cloud services. These systems face a challenge in providing resources to new users. In the framework of the "Cloud Solutions" laboratory at ITMO University, a decision was made to develop a proprietary resource and request management system called "Shipyard". The article describes the components of the system and presents a UML component diagram. It also includes a BPMN diagram of the automated process and a description of the interaction between system users and its resources. The article outlines the key tools for system development, infrastructure preparation, and implementation of interactions, enabling users to request and access cloud resources.

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PAPER TITLE-LOW-LIGHT IMAGE ENHANCEMENT USING VGG16 PRE-TRAINED MODEL BY TRANSFER LEARNING METHOD

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Abstract- Low-light images are images captured with insufficient light. These images often suffer from reduced visibility, increased noise and a lack of detail. Enhancing low-light images is a common task in photography and image processing. Good-quality images are the key requirements for recent computer vision tasks. In many computer vision tasks for example Traffic Monitoring, Object detection, Object Classification etc. there is a possibility to work with low-light images. In those cases, we can apply low-light image enhancement as the preprocessing steps to it. Low light image enhancement is the method of boosting the qualities of the image, since they are captured under low lighting conditions much of the necessary information may be lost. This paper introduces Fine-tuned VGG16 for low-light image enhancement and it utilizes the Retinex concept. The first few layers of the model get frozen, and the remaining layers will take part in the training process. By this method, the PSNR of the enhanced image is improved to 31.18 dB.

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PAPER TITLE-TO FIND RADAR CROSS SECTION USING AI AND ML

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Abstract- This paper aims to discuss the monostatic and bistatic radar cross-section of an object with the help of simulation tools and to relate the findings with the radar cross-section definition using MATLAB. We have used the PEC cylinder as an object for the simulation of the Radar Cross Section computed in CST Studio Suite software. The incident wave selected is normal and plane with TE polarization. The setup here discusses the different findings of the Radar Cross Section at different parameters like azimuth, elevation, and frequency and compares it with the model based on the theoretical formula. After simulation, results are compared with the theoretical formula using the modelling in MATLAB software.

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PAPER TITLE-VEDIC MULTIPLIERS BASEDHLR ENCODING

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Abstract- We will be working on approximate Radix-8 booth multipliers in this project. Booth multipliers are typically used to minimize partial product rows and the amount of time needed for the multiplication process, which involves addition and subtraction depending on the prior and current LSBs as well as simple shift operations. With the modified booth algorithms, we go one step further and reduce the number of multiplications needed to generate the partial product bits. Based on the encoding, we then obtain the partial products and shift them to the appropriate locations to complete the accumulation. When it comes to situations when speed optimization is necessary, but accuracy is not the primary consideration, approximate multiplication is incredibly helpful. we will then use the Vedic Multiplier to further increase the speed and accuracy.

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Paper ID - ICWTNS-2024_275

PAPER TITLE-A COMPARATIVE ANALYSIS OF EARLY FUSION ARCHITECTURES FOR MULTIMODAL GAS DETECTION USING MACHINE LEARNING MODELS

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Abstract- Single-sensor gas detection models often lack robustness and accuracy, hindering safety and security. To enhance the accurate classification performance data from seven sensors along with thermal camera images has been used in this study, to train the model. The dataset focuses on four classes: Smoke, Perfume, No Gas and Mixture of Smoke and Perfume. Data from various sources capture different perspectives that enhance the classification of the trained model, hence, an early fusion technique was adopted to combine the extracted features, for an improved feature space. The sensor data undergoes preprocessing to normalize and remove noise. VGG16 model was used to extract image features. The fused data then acted as an input for the machine learning models for classification Among the tested models (SVM, Random Forest Classifier, and KNN), the Random Forest model achieved the best validation accuracy of 96.41%, outperforming SVM (94.22%) and KNN (94.53%). This approach demonstrates the effectiveness of multi-sensor data fusion for enhanced gas detection with high accuracy, potentially improving response times and reducing false alarms.

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PAPER TITLE-PRELIMINARY DISEASE DETECTION SYSTEM USING DEEP LEARNING AND MACHINE LEARNING

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***Abstract*-**Medical professionals have significant obstacles when dealing with potentially lethal diseases such brain tumors, pneumonia, and breast cancer because of their intricate diagnostic criteria. For therapy to be effective and patient survival rates to increase, early and precise detection is essential. However, complicated illness presentations and variable symptom patterns are problems that standard diagnostic techniques frequently struggle with, which can result in inaccurate diagnoses. The purpose of this study is to investigate the most recent developments in machine learning methods specifically designed for the identification and treatment of these three illnesses. The study thoroughly reviews and categorizes current methods in machine learning, encompassing supervised, unsupervised, and deep learning techniques, and applies them specifically to brain tumor identification, pneumonia detection, and breast cancer screening. It presents a comparative analysis of various state-of-the-art techniques using benchmark datasets, evaluating them based on accuracy, sensitivity, specificity, and false-positive rates. This comprehensive review not only underscores the effectiveness of machine learning in aiding disease diagnosis and treatment but also sheds light on existing challenges and potential avenues for future research in this domain.

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Paper ID - ICWTNS-2024_281

PAPER TITLE-IMAGE CLASSIFICATION USING MODIFIED CONVOLUTIONAL NEURAL NETWORK

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Abstract- Image classification is the field of research since decades. With evaluation of new technologies, the performance of image classification has been improved and this is evident by it's us in routine life. However, there are scopes to use the deep learning networks to further improve the complex image classification problems. In this paper, the Convolution neural network based (CNN) image classification is evaluated by changing the parameters of CNN like number of layers, number of neurons, block size of convolution operation etc. The parametric analysis in terms of accuracy number of iteration for convergence is illustrated in result section. The standard dataset of Intel image classification is used for evaluation of performance. The maximum accuracy has been achieved.

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PAPER TITLE-A DATA-DRIVEN EXPLORATION OF FAMILIAL RISK FACTORS AND AUTISM SPECTRUM DISORDER (ASD) TRAITS IN TODDLERS: A CORRELATIONAL ANALYSIS

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Abstract- Research in the field of machine learning (ML) methods, including K-Nearest Neighbors (KNN), Support Vector Machines (SVM), Logistic Regression (LR), and Artificial Neural Networks (ANN), helped in identifying and supporting people having the disease of Autism (ASD). The study utilizes a comprehensive dataset, which includes various features related to ASD such as behavior, communication, and social skills. Using this dataset, the study uses accuracy, precision, recall and F1 score parameters for analyzing the model efficiency. Findings reveal KNN 's highest accuracy, followed by SVM, with LR and ANN also showing promise. The study suggests ML, particularly KNN and SVM, holds potential for improving ASD identification and support, albeit with the need for further optimization and exploration of additional techniques.

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PAPER TITLE-AN ADVANCED MULTI-LINGUAL DEEP LEARNING APPROACH FOR SEMANTIC-BASED SENTIMENT ANALYSIS

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Abstract- We introduce a method in learning that works across multiple languages, for sentiment analysis. Our model, according to the Transformer model, is first educated on a dataset using masked language modeling and a semantic aware phrase prediction task to capture intricate semantic patterns. Subsequently, the model is tuned on annotated sentiment datasets from languages to enable effective transfer of knowledge while adapting to language-specific nuances. Through evaluations across languages such as English, German, Arabic, Chinese, Bengali, and Telugu we showcase significant improvements over existing methods, especially in scenarios involving limited linguistic resources and complex instances of sarcasm and ambiguity. Our unified and scalable framework excels in multi-lingual sentiment analysis by capturing features. We also outline directions for enhancing the model's performance through advanced pretraining objectives integrating external knowledge sources implementing multi-task learning strategies and addressing bias issues.

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PAPER TITLE-ANALYZING TOXIC TWEET SENTIMENT USING NLTK IN PYTHON: A COMPUTATIONAL APPROACH

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Abstract- In an era dominated by the ubiquity of social media platforms, the need to monitor and mitigate toxic content has become paramount. This study delves into the realm of toxic tweet sentiment analysis, aiming to unveil patterns, trends, and underlying factors contributing to the dissemination of harmful sentiments within online discourse. Leveraging state-of-the-art natural language processing (NLP) techniques, we analyze a diverse data set of tweets to discern the toxic sentiment prevalent in various contexts. This project focuses on developing a sentiment analysis system to identify and classify toxic tweets, addressing the growing concern of negativity in online communication. The ultimate goal of this project is to contribute to the creation of tools that can be integrated into social media platforms to automatically flag and moderate toxic content, promoting a more positive and inclusive online environment. The findings and insights from this research aim to advance the field of sentiment analysis and provide practical solutions for mitigating online toxicity. Insights gained from this research hold significant implications for designing proactive measures to curb online toxicity, including the development of advanced content moderation systems and the implementation of user-awareness campaigns. As social media platforms continue to shape public discourse, understanding and addressing toxic sentiment become essential for fostering a healthier online environment.

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Paper ID -ICWTNS-2024_297

PAPER TITLE-INTEGRATION OF NANOTECHNOLOGY AND DEEP LEARNING FOR REAL-TIME MONITORING OF ENVIRONMENTAL POLLUTANTS

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Abstract- Real-time monitoring of environmental pollutants is a serious problem that can be addressed in a novel way using the combination of deep learning and nanotechnology. Because environmental contamination seriously jeopardizes ecosystem stability and public health, it is critical to identify and treat toxins as soon as possible. The synergy between deep learning and nanotechnology is explored in this abstract as a possible remedy. At the nanoscale, ultra-sensitive and highly selective sensors that can quickly identify a variety of contaminants are made possible by nanotechnology. When combined with the right transduction mechanisms, the extraordinary capabilities of nanomaterials like carbon nanotubes, nanoparticles, and nanowires for pollutant adsorption can result in quick and precise detection. Intricate patterns and trends can be identified by deep neural networks, which makes it easier to comprehend complicated sensor data. Deep learning algorithms can identify anomalous pollutant levels, pinpoint pollution sources, and even forecast pollution occurrences by continuously analyzing sensor data. This enables prompt response in the face of pollution. The combination of deep learning and nanotechnology has many benefits, such as increased environmental monitoring variety, sensitivity, and specificity. It also makes it possible to create prediction models that can reduce environmental risks and optimize pollution control tactics. The combination of these technologies has the potential to completely change environmental monitoring, giving decision-makers access to timely information, streamlining the management of pollutants, and eventually promoting a more sustainable and healthier planet. With the growing environmental issues that our society faces, this creative solution has a lot of potential to make the world a safer and cleaner place.

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Paper ID -ICWTNS-2024_299

PAPER TITLE-NANOTECHNOLOGY-ENHANCED AI ALGORITHMS FOR EARLY CANCER DETECTION IN MICROFLUIDIC SYSTEMS

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Abstract- Early identification is essential for effective treatment of cancer, which poses a global health concern. The integration of nanotechnology and AI into microfluidic devices has recently been recognized as a game-changing method for cancer screening. The state, major findings, problems, and potential future developments of this cutting-edge area are all summarized in this abstract. Functionalized nanoparticles that can target certain cancer-related chemicals in the bloodstream are one example of a nanotechnology-enabled, extremely sensitive and selective cancer biomarker. Microfluidic systems provide accurate sample processing, which improves the ability to detect even the rarest cancer cells while decreasing testing time and costs. Analyzing the complex statistics produced by these integrated systems, backed by machine learning algorithms, is crucial for reliably detecting cancer-specific indicators, even at the earliest stages of the disease. Another possible use is in the field of personalized medicine, wherein treatment plans are individualized to each individual patient based on their specific cancer profile. However, there are still obstacles to overcome, such as gaining regulatory approval, safeguarding sensitive data, reducing costs, and validating the concept at scale in clinical trials. However, it is impossible to deny the potential of these technologies to completely transform cancer diagnoses. Nanotechnology-enhanced artificial intelligence (AI) algorithms in microfluidic systems may one day make advanced diagnostics more accessible to a wider population by allowing for non-invasive, patient-friendly early cancer diagnosis. The area is positioned to enhance patient outcomes, lower the global cancer burden, and change the paradigm in cancer diagnosis and treatment as a result of continued interdisciplinary collaboration and technological advancements. This novel method moves us closer to the important aim of early detection, which is essential for improving cancer care.

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Paper ID -ICWTNS-2024_301

PAPER TITLE-AN IMPROVED Q LEARNING MODEL FOR ENHANCING THE EFFICIENCY OF ASSESSING ENVIRONMENTAL IMPACTS OF URBAN DEVELOPMENT USING SPATIAL MULTI-CRITERIA ANALYSIS

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Abstract- There have been significant negative effects on the environment as a result of the rapid pace of urbanization and related infrastructure development. In order to achieve sustainable urban development, it is now more crucial than ever to evaluate these effects. With the aid of multiple decision-making tools and a spatial multi-criteria analysis approach, this study seeks to evaluate the environmental effects of urban development. ELECTRE (Elimination Et Choix Traduisant la Realité), Promethee (Preference Ranking Organization Method for Enrichment Evaluations), AHP (Analytic Hierarchy Process), and Fuzzy Logic processes are specifically combined in this study. The efficiency of these models is enhanced via use of Q Learning operations. These decision-making tools can be integrated to take into account a variety of criteria at once, including land use, water quality, air quality, and habitat fragmentation as well as their spatial distributions in the context of real-world scenarios. These indicators were mapped spatially explicitly using GIS and remote sensing data, and then they were weighted and assessed using the three decision-making tools. The study's findings demonstrate that urbanization negatively affects the environment, as evidenced by a number of indicators. However, using a variety of decision-making tools made it possible to assess the environmental effects in greater detail, giving information on the relative significance of various indicators and their spatial distributions. The results of the study have important ramifications for decision-making and urban planning procedures. Policymakers, urban planners, and developers can identify and prioritize actions to mitigate negative impacts by combining multiple decision-making tools, which creates a more robust framework for assessing environmental impacts. Additionally, the assessment's accuracy is improved by the use of spatially explicit data, which offers a more in-depth understanding of the regional effects of various urban development scenarios.

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Paper ID -ICWTNS-2024_303

PAPER TITLE-DESIGN OF AN EFFICIENT BIO-INSPIRED SPATIAL MULTI-CRITERIA ANALYSIS FRAMEWORK FOR EVALUATING THE IMPACTS OF TRANSPORTATION PROJECTS ON THE ENVIRONMENTAL CONDITIONS

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Abstract- Environment-related effects of transportation infrastructure projects should be assessed before they are put into action. Traditional methods often take a long time and don't use a multi-criteria approach when evaluating how transportation projects will affect the environment. We suggest an effective Spatial Multi-Criteria Analysis (SMCA) framework for assessing the environmental effects of transportation projects in order to overcome these limitations. Three multi-criteria decision-making methods—the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), the Analytic Hierarchy Process (AHP), and TOPSIS with fuzzy weights—are included in the proposed framework. A more thorough assessment of transportation projects is made possible by the framework's ability to accommodate both quantitative and qualitative criteria, which is supported by an Ant Lion Optimizer (ALO), which incorporates bioinspired operations. Using a case study of a fictitious transportation project in a suburban area, we assess the proposed framework. Our findings show that the framework is capable of accurately evaluating the environmental effects of transportation projects and of ranking various project scenarios according to those impacts. The framework is also demonstrated to be more effective and efficient than conventional approaches, offering project planners and stakeholders better decision-making support. The proposed framework has potential applications in a range of scenarios for transportation planning, including planning for the use of roads and railroads, urban transportation, and airport expansion. Furthermore, the framework is easily adaptable to new requirements and limitations based on the particular requirements of various transportation projects. The proposed SMCA framework, in summary, offers a practical and effective method for assessing the environmental effects of transportation projects. It enables decision-makers to make informed decisions based on the environmental impact of each alternative by providing a thorough assessment of project scenarios. The suggested framework may be used in a variety of real-time deployment scenarios, assisting stakeholders and transportation planners in making decisions.

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Paper ID -ICWTNS-2024_305

PAPER TITLE-EVALUATING THE IMPACTS OF CLIMATE CHANGE ON THE ENVIRONMENT USING BIO-INSPIRED SPATIAL MULTI-CRITERIA ANALYSIS

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Abstract- Climate change is one of the most pressing global challenges of our time, and its impacts on the environment are becoming increasingly evident. In order to effectively address this issue, it is essential to understand how climate change affects different regions and ecosystems, and to develop strategies for adapting to these changes. This study aims to evaluate the impacts of climate change on the environment using Spatial Multi-Criteria Analysis (SMCA), with a specific focus on coastal areas. The study utilizes three different methods for SMCA: Analytic Hierarchy Process (AHP), GWO based ELECTRE, and Adaptive Neuro-Fuzzy Inference System (ANFIS). AHP is a widely used decision-making method that helps to prioritize criteria and alternatives based on their relative importance levels. GWO based ELECTRE is a multi-criteria decision-making method that uses concepts from biology to model decision-making processes. ANFIS is a type of artificial neural network that is used for modeling complex systems. The study conducts an elaborate case study of coastal areas to evaluate the impacts of climate change on the environment. The results of the study indicate that climate change has significant impacts on the coastal environment, including changes in sea level, ocean temperature, and precipitation patterns. The study also identifies specific areas that are particularly vulnerable to these impacts, such as low-lying coastal regions. The use of SMCA in this study provides several advantages over existing models for evaluating the impacts of climate change on the environment. SMCA allows for the integration of multiple criteria and data sources, providing a more comprehensive and holistic view of the problem. It also allows for the incorporation of spatial data, which is essential for understanding how climate change affects specific regions and ecosystems. The use cases for this study are numerous and varied. The results can be used to inform policy decisions related to climate change adaptation and mitigation, as well as to guide resource allocation and land-use planning in vulnerable coastal regions. The methods utilized in this study can also be applied to other environmental and socio-economic issues, providing a powerful tool for decision-making in complex and dynamic systems. In terms of real-time deployment scenarios, the methods utilized in this study can be integrated into existing decision-support systems and can be updated with new data and information as it becomes available. This allows for continuous monitoring and evaluation of the impacts of climate change on the environment and provides decision-makers with the tools they need to respond quickly and effectively to changing conditions.

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Paper ID -ICWTNS-2024_307

PAPER TITLE-AN EFFICIENT DUAL LEARNING SPATIAL MULTIPLE CRITERIA ANALYSIS APPROACH TO IDENTIFY SUITABLE SITES FOR RENEWABLE ENERGY DEVELOPMENT WITH ENVIRONMENTAL IMPACT ASSESSMENTS

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Abstract- Finding suitable sites for the development of renewable energy while reducing the environmental impact is urgently needed due to the rising demand for renewable energy sources. The ELECTRE (Elimination Et Choix Traduisant la REalité), Bioinspired Promethee (Preference Ranking Organization Method for Enrichment Evaluations), and TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution) methods have been combined to create an effective spatial multi-criteria analysis approach to address this task, which is further optimized via use of an efficient dual Genetic Ant Lion Optimization (GALO) process. A case study of finding suitable sites for wind farm development in a coastal area has been used to test the proposed approach. The findings demonstrate that the suggested method is successful in locating sites for renewable energy development while taking into account a variety of factors, including wind speed, distance from populated areas, and environmental sensitivity levels. The method's superiority in terms of precision, efficacy, and adaptability has also been evaluated in comparison to existing models. Environmental impact analyses, land-use planning, and the development of renewable energy sources are just a few of the many use cases for the suggested approach. It can also be used in real-time scenarios, allowing decision-makers to quickly assess potential locations for the development of renewable energy sources and lessen the negative effects of such projects on the environment. According to the assessed results, the suggested spatial multi-criteria analysis approach using ELECTRE, Bioinspired Promethee, and TOPSIS is a reliable and efficient way to find suitable locations for the development of renewable energy while taking environmental impact studies into account. It is a useful tool for decision-makers in many different fields due to its high adaptability, accuracy, and efficiency levels.

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Paper ID -ICWTNS-2024_317

PAPER TITLE-POTENTIAL OF EMERGING SENSOR TECHNOLOGIES LIKE LIDAR FOR ENHANCED SPATIAL COMPUTING: UNLOCKING THE FUTURE OF TECHNOLOGY

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Abstract- In recent years, the synergistic integration of Light Detection and Ranging (LiDAR) technology with the burgeoning field of spatial computing has ignited a transformative spark across diverse industries. This groundbreaking fusion has revolutionized how we perceive and interact with the digital world, unlocking unprecedented possibilities in augmented reality (AR), virtual reality (VR), autonomous driving, and environmental mapping. These advancements transcend mere technological enhancements; they represent a paradigm shift, reshaping entire ecosystems and fostering a new era of innovation. This research paper delves deeper into the immense potential of LiDAR as an emerging sensor technology, specifically exploring its profound impact on the landscape of spatial computing. We will meticulously examine its diverse applications, dissect the inherent benefits it offers, and analyze its far-reaching consequences on the digital sphere. Additionally, we will utilize Apple Vision Pro as a compelling case study, meticulously dissecting how this innovative AR/MR headset leverages the power of LiDAR technology to achieve superior spatial awareness and deliver unparalleled user experiences. Through this multifaceted examination, we aim to illuminate the transformative potential of LiDAR and its role in shaping the center of spatial computing.

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PAPER TITLE-REVIEW PAPER ON ATTENDANCE MANAGEMENT SYSTEM USING FACIAL RECOGNITION

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Abstract- In recent years, the synergistic integration of Light Detection and Ranging (LiDAR) technology with the burgeoning field of spatial computing has ignited a transformative spark across diverse industries. This groundbreaking fusion has revolutionized how we perceive and interact with the digital world, unlocking unprecedented possibilities in augmented reality (AR), virtual reality (VR), autonomous driving, and environmental mapping. These advancements transcend mere technological enhancements; they represent a paradigm shift, reshaping entire ecosystems and fostering a new era of innovation. This research paper delves deeper into the immense potential of LiDAR as an emerging sensor technology, specifically exploring its profound impact on the landscape of spatial computing. We will meticulously examine its diverse applications, dissect the inherent benefits it offers, and analyze its far-reaching consequences on the digital sphere. Additionally, we will utilize Apple Vision Pro as a compelling case study, meticulously dissecting how this innovative AR/MR headset leverages the power of LiDAR technology to achieve superior spatial awareness and deliver unparalleled user experiences. Through this multifaceted examination, we aim to illuminate the transformative potential of LiDAR and its role in shaping the center of spatial computing.

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Paper ID -ICWTNS-2024_325

PAPER TITLE-CT SCAN ANALYSIS USING WAVELETS AND DEEP LEARNING

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Abstract- In recent years, the synergistic integration of Light Detection and Ranging (LiDAR) technology with the burgeoning field of spatial computing has ignited a transformative spark across diverse industries. This groundbreaking fusion has revolutionized how we perceive and interact with the digital world, unlocking unprecedented possibilities in augmented reality (AR), virtual reality (VR), autonomous driving, and environmental mapping. These advancements transcend mere technological enhancements; they represent a paradigm shift, reshaping entire ecosystems and fostering a new era of innovation. This research paper delves deeper into the immense potential of LiDAR as an emerging sensor technology, specifically exploring its profound impact on the landscape of spatial computing. We will meticulously examine its diverse applications, dissect the inherent benefits it offers, and analyze its far-reaching consequences on the digital sphere. Additionally, we will utilize Apple Vision Pro as a compelling case study, meticulously dissecting how this innovative AR/MR headset leverages the power of LiDAR technology to achieve superior spatial awareness and deliver unparalleled user experiences. Through this multifaceted examination, we aim to illuminate the transformative potential of LiDAR and its role in shaping the center of spatial computing.

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PAPER TITLE-A COMPACT TRIANGULAR AND SEMI-CIRCULAR PATCH ANTENNA WITH NOTCHING CHARACTERISTICS.

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Abstract- A novel compact triangular and semi-circular patch antenna, integrated with a modified defected ground structure to exhibit band-notch characteristics, is proposed and evaluated in this paper. The antenna demonstrates an impressive impedance bandwidth ranging from 3.86 GHz to 21.06 GHz, with a Voltage Standing Wave Ratio (VSWR) of below 2. The research also delves into the implications of the modified ground structure, which notably contributes to the enhanced bandwidth observed. By effectively mitigating higher frequencies of electromagnetic interference, particularly pertinent in 5G WLAN and X band applications spanning 6.3 GHz (5.51-6.57 GHz) and 9.2 GHz (8.49-9.52 GHz), the proposed antenna proves instrumental. With an optimal radiation efficiency of 96% and a consistent gain of 4.0 dB, this antenna design presents a promising solution for modern communication systems requiring robust performance across a wide frequency spectrum.

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Paper ID - ICWTNS-2024_100

PAPER TITLE- TWO DETECTORS BASED FASTEST SPECTRUM SENSING TECHNIQUE

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Abstract- According to IEEE 802.22, detectors should detect primary user's (PU) spectrum bands as fast as possible. In this paper, one of the fastest sensing techniques has been proposed, named as two-detectors-based fastest spectrum sensing (SS) technique. In the proposed sensing technique, two detectors work simultaneously, and the further final decision will be made by the decision device (DD) that depends on the output of the detectors. In the proposed approach, we used ED_SAT specifically ED which stands for energy detector having a ED_TAT i.e. ED having dual ATs and one adaptive threshold. Detectors have adaptive thresholds, i.e. threshold value change according to sensed signals. Simulation outcome exhibit that proposed sensing methodology intensify the performance detection and surpasses the energy detector approach for adaptable SS-2015 (EDT-ASS-2015) by 10.4 % at having signal-to-noise ratios (SNR) of-10 dB at false alarm 0.1. It also demonstrates the proposed approach has a smaller detection time period than the EDT-ASS-2015SS scheme in order of 0.5 ms at - 20 dB SNR. We have further analyzed the security of cognitive radio signal by applying the various cryptographic algorithms. These cryptographic algorithms (Secure Hash Algorithms, Advanced Encryption Standards algorithm, and Password-based key derivation function 2.0v encryption algorithm) have been implemented in the primary users (PUs) signal to make it secure. After that, we examined the behaviors of incoming PU signals having cryptographic algorithms by detecting these secured signals with the use of the proposed two-detectors-based fastest spectrum sensing model in terms of packet loss, and time-on-air (time delay). The results show that the Password-based key derivation function 2.0v encryption algorithm performs better than SHA and AES algorithms for PU signals in the Cognitive Radio Network. Therefore, it can be concluded that the Password-based key derivation function 2.0v encryption algorithm is much dependable and secure for the proposed two-detectors-based fastest spectrum sensing model.

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PAPER TITLE- A SYSTEMATIC REVIEW USING BLOCK CHAIN TECHNOLOGY FOR IOT-BASED HEALTH CARE SECURITY

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Abstract- Today, Internet of Things (IoT) data sharing is a big challenge for increasing the progress, efficiency, and effectiveness of any organization in the health sector through IoT-based applications. Generally, health records follow centralized abilities in the IoT. Health sector Data Security and failures of centralized servers are issues in the IoT. Peer-to-peer networks use digital ledgers in the blockchain for duplicate transactions and distributed applications. Blockchain is recording all health information on a decentralized system that is impossible to change or hack. Blockchain technology supports IoT privacy, cryptocurrencies, healthcare, smart contracts, supply chain management, identity verification, insurance, etc. IoT-based health records contain a lot of problems like privacy, security, performance, ethics, data ownership, patient access and control, etc. These issues are enhanced by blockchain technology. Ethereum and Hyperledger are supported frameworks in blockchain.

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Paper ID - ICWTNS-2024_111

Paper Title- Sustainable Development Goal for Industrialization and Innovation (SDG-9): Education sector deploying Fuzzy Logic Approach for Pattern matching

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Abstract- Sustainable Development Goals (SDGs) are given first priority among the initiatives of the government throughout the world. The United Nations (UN) has set targets for global development measuring the progress towards sustainability. SDGs are primarily a worldwide data base concerned with tracking the data responsible for sustainable growth via official statistical indicators leading to advancement in economics, sustainable environment, legislation, industry, innovation, research and academics. The famous goals of the SDG 9 are to build a resilient infrastructure, promote inclusive and sustainable industrialization and encourage innovation. UN has figured out eight targets with twelve indicators to achieve SDG 9. This work focuses on sustainable development to provide high quality, reliable, sustainable and flexible infrastructure to support economic development and human welfare affordability and equity in access to all. The multi-dimensional initiative offered by our government for accomplishing the milestones of SDG-9 is addressed here. In addition, for comprehending the relationship among the observed indicators of SDG 9, fuzzy logic is used. A significant outcome based on the degree of mapping with the related parameters using Fuzzy Associative Mapping (FAM) in the measurement of objectives of SDG 9 is achieved using fuzzy logic. The predicted results on CO2 levels in proportion to industries under operation will provide assistance to the central bodies to take preventive measures during the modification of the existing policies connected to SDG 9 goals, which also will consequently support the decision correlated with other SDGs using interactive visualization.

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Paper ID - ICWTNS-2024_109

Paper Title- AI ASSISTED WIRELESS TECHOLOGY FOR ENVIRONMENTAL PARAMETERS MONITORING OF PLANTS IN GREEN HOUSE FARMING

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Abstract- In order to grow the plants in a controlled environment and address the impact on agriculture scientifically, the reason is to prevent escaping of greenhouse gases. Plants grown inside a polyhouse or green house can accommodate the variations in weather conditions as they offer a controlled environment for the plant's growth. The controlled environment is designed with novel Artificial Intelligent (AI) techniques for monitoring the temperature, sunlight intensity (low or high intensity), carbon dioxide (CO2) levels, moisture content, soil nutrients and insect control. Temperature, light energy, moisture content, CO2 levels can be regulated using AI techniques to increase the productivity of the crops. As there isn't a sophisticated technology available right now, researchers have come up with a technique to determine the numerous connected parameters related to plant growth in greenhouse. Plants grow healthily because of the chlorophyll concentration. Green pixels are spotted from the images in the polyhouse; the chlorophyll content can be estimated. Edge detection technology is used during the pre-processing of these images to remove noise. Intensity Gradient (IG) and other feature descriptors are retrieved from the preprocessed pictures. The IG readings are combined with data obtained from a soil moisture sensor. In order to achieve the global minimum, the features are the inputs of Artificial Neural Networks (ANN) that use Feed Forward (FF) structure hybridized with Black Window Optimization Algorithm (BWO-MA). Arduino is used for the real-time implementation. These predictions made using data analytics will provide farmers some assistance in adapting so they can boost agricultural yields inside greenhouses. Hence, it may be assumed that the estimations are capable of foretelling the immediate and long-term effects provided by the controlled atmosphere inside a greenhouse. With the use of this technology, farmers would be instructed to quickly adjust to shifting climatic conditions. For the farmers in our nation, adapting to circumstances becomes a difficult effort. As a result, it can be concluded that polyhouse farming will have a substantial negative influence on the Indian economy's revenue until farmers are able to quickly diagnose, alter, and provide control over temperature, light, CO2 levels, moisture content, soil nutrients, and insect control. Since, this speedy adjustment may or may not be plausible for the Indian scenario (as the access to information and capital is very much limited) which creates a need to design this type of AI based control system. The proposed technique has a dual challenge. The first difficulty is to apply effective image processing algorithms to analyze inside a polyhouse and to extract information that is both valuable and relevant. A data analytics method like BWO-MA, whose prediction accuracy will be developed and also tested, must be used to manage this extracted data because it will be of a very vast number. The second challenge is to divide the images into three categories—High Agricultural Yield (HAY) farmlands, Medium Agricultural Yield (MAY), and Less Agricultural Yield (LAY) farmlands—and to correlate the yield of farmlands with respect to the control offered to the temperature, light, CO2 levels, moisture content, soil nutrients, and insect control inside the green houses for a specific environment under study.

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PAPER TITLE- BIOCLIMATIC DESIGN STRATEGIES IN SOCIAL HOUSING FOR COLD WEATHER-TACNA - PERU

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Abstract- The extreme weather in the town of Tarata in Tacna, brings as a consequence many problems among the residents. Therefore, the objective of this research is to evaluate the climatic characteristics of the town, as a methodology bioclimatic design strategies were applied in housing modules, supported by digital tools (AutoCad, Sketch Up, Revit and Insight). As results in natural lighting, illuminated spaces were obtained from 5:45 a.m. to 6 p.m. Especially thanks to the greenhouse for its transparency capacity against sunlight, the greenhouse gives an optimal thermal transfer which will be distributed in the environments) the separation of the floor of the house with the natural soil, of 80 cm. the location and adequate dimensions of the openings, a greenhouse patio that would capture the temperature and distribute it through a system of perforations towards the different internal environments and separation between the slab and the natural soil in order to avoid contact of the house with the frost that could cause the desired internal temperature to be lost. In conclusion, the strategies apply to the SDGs; 6, 7, 9, 11

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Paper ID - ICWTNS-2024_113

PAPER TITLE- DEEP LEARNING NEURAL NETWORKS FOR IMAGE BASED SELENIUM ESTIMATION IN ORYZA SATIVA

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Abstract- Grading the quality is carried out by estimating the nutritive substances in Oryza sativa using Image Processing (IP) and Artificial Intelligence (AI). The varieties of Oryza sativa include Brown-Rice (BrR), White-Rice (WhR) and Selenium Rich Rice (SRR). Nutritive estimation using IP and AI techniques detect the features from the images of Oryza sativa for nutritive contents identification. Currently, human vision based analysis is carried out and it is a tedious process. This article encompasses a methodology for quality determination by measuring the nutritive substances. The major nutritive substances include Manganese (Mn), Vitamin B3 (Vit B3), Vitamin B1(Vit B1), Selenium (Se) and Magnesium (Mg). Contrast Limited Adaptive Histogram Equalization (CLAHE) and Capsule Networks (CapsNets) are used to identify and detect the Se levels in three varieties of Oryza sativa, namely the BrR, WhR and SRR. Monitoring the Se levels among the proposed three varieties of Oryza sativa can create awareness among the population which will enable the digestion effectively with increased intake of the dietary Se.

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Paper ID - ICWTNS-2024_133

PAPER TITLE- IOT-INFUSED PRECISION AGRICULTURE: EVALUATING THE EFFICACY OF SOIL MONITORING SYSTEMS IN REAL-TIME ENVIRONMENTS

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Abstract- Nutrients within the soil are indispensable for crop growth, making the measurement of soil pH levels and other soil parameters crucial in precision agriculture. Sensor networks play a pivotal role in efficiently monitoring crops by assessing soil properties to enhance agricultural productivity. There is a pressing need to develop cost-effective, energy-efficient smart solutions for remotely monitoring the physical and chemical attributes of soil to bolster cultivation rates. Our proposal entails the creation of an intelligent, low-cost system for remote soil parameter monitoring, achieved by combining sensor units with a software interface that utilizes IoT as a communication platform, transmitting data to the cloud. One of the key advantages of employing IoT technology is its global reach and superior data accuracy during information collection. Additionally, soil nutrients, specifically nitrogen(N), phosphorus(P), and potassium(K), (commonly referred to as NPK), exert a significant influence on agricultural growth. In this paper, we put forward a comprehensive solution and estimate for soil nutrient content while establishing correlations with soil pH levels within the central India region.

Our contribution can be divided into two stages. Firstly, we monitor physical soil parameters such as moisture, humidity, and temperature using IoT-based technology, facilitated by Wi-Fi modems. Subsequently, we delve into soil nutrient analysis by measuring pH values in soil samples collected from two distinct regions, Gwalior and Bhopal. The proposed hardware has undergone rigorous testing to evaluate its efficacy in real-time agricultural environments. Furthermore, we validate the measured soil pH samples in the laboratory, comparing them to data obtained from sensor probes to ensure accuracy and reliability.

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Paper ID - ICWTNS-2024_139

PAPER TITLE- ENHANCING GRAPHICAL PROCESSING PERFORMANCE BY INTEGRATING ACO OPTIMIZATION TO EDGE DETECTION ALGORITHM.

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Abstract- Image processing edge detection and ant colony optimization are the focus of current study. In image processing, edge detection is used to highlight the picture's border. Ant colony optimization, on the other hand, is responsible for identifying the optimal solution to a given issue. It is suggested that ACO be integrated with an edge detection method in this project. This study took into account previous work in image processing, edge recognition, and ant colony optimization, among others. In the problem statement, the preceding research's findings have been expanded upon. The need for ant colony optimization has highlighted the need for edge detection in image processing. Different ACO situations, like Traveling Salesman, Binary Knapsack, & Quadratic Assignment Problem, have been simulated using technical methods such as ACO's. Furthermore, a system for detecting edges in pre-processed pictures as well as in-process images is also in place.

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Paper ID - ICWTNS-2024_131

PAPER TITLE- SPAM MAIL DETECTION USING MACHINE LEARNING AND DEEP LEARNING ALGORITHM

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Abstract- Email spam remains a significant threat to the modern Internet, posing risks such as data breaches, cyber-attacks, and loss of personal information. In response, anti-spam filters have been developed to mitigate this issue. These filters face the challenge of accurately classifying emails in personalized mailboxes as either spam or legitimate (ham). Researchers have explored various stylistic features in text messages to aid in this classification. The identification of spam emails frequently depends on the use of well-known words, idioms, phrases, and acronyms. The primary goal of this study is to compare different classification techniques using datasets from prior research. These techniques will be evaluated based on their accuracy, recall, and precision. The comparison encompasses both traditional machine learning methods and newer approaches. Thus, it is essential to propose effective mechanisms for detecting or identifying spam emails, as this can significantly improve system efficiency in terms of time and memory usage.

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Paper ID - ICWTNS-2024_141

PAPER TITLE- CLASSIFICATION OF ALZHEIMER'S DISEASE BASED ON DEEP LEARNING USING MEDICAL IMAGES

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Abstract- Neurodegenerative disorders, notably Alzheimer's, pose an escalating global health challenge. Marked by the demise of brain neurons, these conditions induce a progressive decline in nerve cells. Alzheimer's, a prevalent degenerative ailment, manifests in cognitive and behavioral impairments. Worldwide, over 55 million people grapple with dementia, with Alzheimer's prominently impacting the aging demographic. The primary hurdle in early Alzheimer's detection is the widespread lack of awareness. Furthermore, obstacles like geographical distance, a dearth of specialized caregivers, and challenges in accessing experts and advanced diagnostic tools compound the struggles of those affected. The main goal is to design and implement an artificial intelligence system using Deep Learning to detect Alzheimer's disease through medical images and classify them into various stages, such as non-demented, mild dementia, moderate dementia, and severe dementia. The dataset contains 6400 magnetic resonance images in .jpg format, with standardized dimensions of 176 x 208 pixels. This study focuses on the implementation of image processing techniques, data augmentation, and data transformation. Its main objective is to use Convolutional Neural Networks (CNN) to enhance performance metrics and model robustness, achieving an accuracy of 97.11%, a sensitivity of 97.11%, and a precision of 97.15%.

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Paper ID - ICWTNS-2024_149

PAPER TITLE-THE PASSIVE POWER LIMIT ESTIMATION FOR BATTERY MANAGEMENT SYSTEMS AND SWITCHED-RESISTOR EQUILIBRIUM OF LI-ION BATTERIES

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Abstract- Ensuring the optimal performance and expected longevity of a battery pack is crucial for the effective functioning of electric vehicle (EV) applications, with the maintenance of charge balance being imperative in battery packs interconnected in both series and parallel configurations., primarily due to disparities in manufacturing and the distinctive performance characteristics exhibited by individual cells within a conventional battery pack. In this research paper, we propose an approach centred on switched-resistor passive balancing to attain cell equilibrium within a battery management system (BMS). The technique entails the use of resistors within an electrical circuit to equalize the voltage at the terminals of battery cells, effectively eliminating any surplus voltage. The outcome of this cell balancing process substantiates the circuit's capability to sustain a uniform voltage across all cells. The cell balancing procedure encompasses the individual adjustment of each cell's charge level. Passive balancing achieves this by dissipating excess charge as heat Addressing cells with an excessive charge, a passive cell balancer presents a cost-effective and straightforward remedy; nevertheless, its efficacy is compromised by restricted energy efficiency attributable to thermal losses stemming from the resistors. Consequently, it necessitates a protracted balancing procedure. Nevertheless, While serving as a reliable and efficient method, especially for energy-efficient electronic devices and mobile applications such as electric vehicles (EVs), this passive cell balancer also offers a way to assess power constraints during both charging and discharging phases through the utilization of the bisection method.

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Paper ID - ICWTNS-2024_171

PAPER TITLE-TRANSFER LEARNING FOR REAL-TIME FACE RECOGNITION IN UNCONSTRAINED ENVIRONMENTS BASED ON IMAGE ASPECTS

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Abstract- Using a unique technique that combines transfer learning with the InceptionResNetV2 architecture, this study explores the complexities of real-time face recognition in dynamic and unconstrained situations. The research uses pre-trained models to achieve complex and precise recognition while handling the challenges involved in various lighting situations and face occlusions. The technique is enhanced by data augmentation and pre-processing methods, which improve the model's durability. The assessment method involves precise measurements such as accuracy curves and an in-depth confusion matrix, which provide extensive insights into the model's performance patterns. The study achieves 75% overall accuracy, providing information on sets for improvement significantly in the apparent task of identifying visually identical persons. Beyond contributing to the advanced field of face recognition technology, this study provides an excellent basis for managing the delicate balance between conceptual precision and the practical flexibility required by practical applications.

Paper ID - ICWTNS-2024_175

PAPER TITLE-GENO CARE PROGNOSTICATOR MODEL: HOST GENETICS PREDICT SEVERITY OF INFECTIOUS DISEASE

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Abstract- The scientific community is interested in learning how the severity of infectious disease like COVID-19 varies dramatically among patients and why this is so. A voting ensemble Geno Care Prognosticator (GCP) model that we created by fusing multiple cutting-edge machine learning techniques (XG Boost classifiers and Random Forest model both are based on decision tree) and play the main contribution of this research. To prevent modelling instability, such models have been trained to utilize medical parameters (gender and age) and genome-wide WES (Whole Exome Sequence) dataset developed through a five-fold stratified cross-validation computing technique. Our research validates the proposed GCP approach using the two covariates and sixteen recognized candidate variants of genetics, totaling 18 features. A deeper understanding of the prediction outcomes was made possible by the post-hoc modelling explanation we supplied by using Explainer Dashboard, a Python library that is an open-source framework. We used the Open Target and Enricher interacting genomics computational resources to link gene variation for tenable biological explanations and domain interpretation like ontologies, pathways, and diseases/drugs. We illustrated the complicated biological pathways using the SHAP feature significance values with unsupervised clustering. According to the results of our research, the severity of infectious diseases like COVID-19 primarily depends on the patient's gender and age. Still, complicated relationships with genes lead to severity for a subset of individuals.

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Paper ID - ICWTNS-2024_177

PAPER TITLE-IMPACT OF NETWORK SIZE ON ROUTING PROTOCOLS PERFORMANCE IN WIRELESS SENSOR NETWORK: A SIMULATION

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Abstract- Wireless sensor networks (WSNs) are a decentralized kind of network which is equipped with sensor nodes and is rapidly being utilized to intelligently monitor different environmental conditions at a minimal cost. Sensor nodes are often battery-powered and the essential issue to address is how to decrease node energy consumption so that the network lifetime may be prolonged to realistic lengths. Routing is one of the primary operations performed within the network which consumes a sufficient amount of energy. Therefore, it is very much essential to consider the finest routing protocol so that it consumes less energy. In this article, we look at several routing protocols used in WSNs, including AODV, DSDV, DSR, OSLR and M-GEAR. Furthermore, we studied the execution of selected protocols based on network factors such as network latency, packet delivery ratio, and network throughput against multiple network sizes. The simulation findings show that protocol performance varies depending on network size and that selecting the optimum protocol based on network parameters is also crucial.

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Paper ID - ICWTNS-2024_179

PAPER TITLE-IGENODENSE-NET: UNRAVELING THE GENOMIC PUZZLE OF THE GLOBAL PATHOGEN

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Abstract- The respiratory system of humans is impacted by infectious and deadly illnesses like COVID-19. Early identification and diagnosis of this type of illness is essential to stop the infection from spreading further. In the present research, we presented a technique for determining the condition using COVID-19's current genome sequences employing the DenseNet-16 framework. We operated a network of already trained neurons before using a transfer learning method to prepare it according to our dataset. Additionally, we preprocessed the collected information using the NearKbest interpolation approach; then, we utilized Adam Optimizer to optimize our findings. Compared with special deep learning models like ResNet-50, VGG-19, Alex Net, and VGG-16, our methodology's accuracy is 99.18%. The current research showed how a deep learning approach may be useful to categorize the genome sequence of infectious disease like COVID-19 using the suggested Geno Dense-Net architecture. The next step in this research project is conducting investigations in the clinic.

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Paper ID - ICWTNS-2024_181

PAPER TITLE-IDENTIFICATION OF INFECTIOUS DISEASE LIKE COVID-19 GENE BIOMARKERS USING A CLEAR ARTIFICIAL INTELLIGENCE APPROACH

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Abstract- This study offers an approach that uses SARS-COV-2 MNGS (meta-genomic next-generation sequencing) samples to apply XAI (explainable artificial intelligence) methodologies derived from the use of machine learning methods. The research's data set contains 15,979 expressions of genes from 234 infected persons, of whom 39.68% (93) had SARS-COV-2 that was positive and 60.29% (141) had SARS-COV-2 that was negatives. The SARS-COV-2 related gene was chosen using the LASSO (least absolute shrinkage and selection operator) technique. The class imbalanced issue has been resolved using the SVM-SMOTE (Support Vector Machine - Synthetic Minority Oversampling Technique) approach. To identify SARS-COV-2 related biomarkers possibilities and increase the comprehensibility of the final approach, an explainable strategy that utilized SHAP (Shapley Additive explanations) as well as LIME (local interpretable model-agnostic explanations) approaches were used. The XGBoost (92.98 % accuracy) approach performs better for the identification of infectious diseases like COVID-19 than the LR (91.17% accuracy), SVM (87.68% accuracy), and RF (91.18% accuracy) models. The three most significant genes connected to COVID-19 by the SHAP method were FAM83A, LGR6, and IFI27. The LIME findings demonstrated that the likelihood of a positive class was particularly influenced by the elevated degree of IFI27 expression of genes. Infectious diseases like COVID-19 could be accurately predicted using the suggested framework (XGBoost). The findings demonstrate that SHAP and LIME, along with the exploit of ML methods, it could be clarifying the biological marker prognosis for infectious disease and give health center a clear knowledge about how potential risk factors affect the forecasts made by the model.

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Paper ID - ICWTNS-2024_183

PAPER TITLE-GENOME SEQUENCE ANALYSIS OF SEVERE ACUTE RESPIRATORY SYNDROME USING GENOANALYTICA MODEL

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Abstract- We proposed a GenoAnalytica model for examining the SARS's genomic sequences. The technologies make proper data extraction from genomic sequences of viruses. We use the GenoAnalytica model, i.e. GenoCompute, and IGMiner Algorithm; to classify the range of genomic sequences, including recognizing the sequence variation from the datasets. The projected algorithm computes the nucleotide patterns and represents the nucleotides genome sequence of SARS (airborne virus) by IGMiner technique and works out on GenoCompute to calculate computation time with the minimum count in seconds. Along with this, we proposed a UMRA algorithm to compute the mutation rate of the genome sequence with minimum count in seconds as compared to the traditional method. Furthermore, we work out the different datasets (China and Algeria datasets) and determine the whole variation at the index level inside the all genome sequence. This learning also signifies the performance evaluation on altering min_sup using IGMiner and Aprori-based SPM. The severe acute respiratory syndrome coronavirus 2 has been responsible for the deadly COVID-19 pandemic. It has ruined limitless individuals all over the globe, and along with this, it continues to harm well-being and people's health. Healthcare specialists and Researchers can obtain insight into COVID-19's inherited variation or SARS-CoV-2 through cutting-edge Artificial Intelligence and genome sequence analysis tools. Using categories of equivalence for optimizing the method substantially reduces the computing cost that comes with regular and costly database estimations, which is especially advantageous for datasets with lengthy or dense sequences of data. GenoAnalytica represents a revolutionary sequence rule mining approach.

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Paper ID - ICWTNS-2024_185

PAPER TITLE-INTEGRATION OF PLC AND SENSOR TECHNOLOGIES FOR AUTOMATED CAR WASHING SYSTEMS

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Abstract- This study describes the development and application of a productive automatic vehicle wash system that makes use of PLC (programmable logic controller) technology. With automation, the system seeks to improve speed, accuracy, and resource efficiency over the current car wash procedure. The PLC acts as the system's central control unit, coordinating the actions of all the system's parts to guarantee a smooth and efficient operation. Real-time monitoring, fault detection, and emergency shutdown capabilities are important components of the automatic vehicle wash system that enhance its dependability and security. By giving operators an intuitive interface for system control and monitoring, the integration of human-machine interfaces (HMIs) improves user interaction.

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Paper ID - ICWTNS-2024_189

PAPER TITLE-SOLAR POWERED AGROBOT - MULTIPURPOSE ROBOT FOR SOWING, SEEDING AND PESTICIDE SPRAYING

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Abstract- In India, agriculture provides a living for about 70% of the population. Agriculture has been formed and influenced by a wide range of climatic circumstances, cultural practices, and technical improvements since it has been practiced for thousands of years. To lessen farmers' workloads, it is crucial to develop the agricultural system. Numerous chores are completed in the agricultural field, including plowing, pesticide spraying, and sowing. The methods used now to sow seeds, apply pesticides, and plough are difficult. The equipment necessary for these jobs is pricey and complex to operate. India's agriculture sector will therefore benefit from the development of a system that saves time and labor. In this project, a robot that can plow, spray insecticides, and sow seeds is designed, developed, and constructed using solar energy. The robot is run by cloud software that sends signals to the device for the appropriate motions and systems, and it is fueled by a solar panel. This makes planting by hand less problematic and increases the efficiency of seeding, mowing, and pesticide application.

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Paper ID - ICWTNS-2024_191

PAPER TITLE-PRELIMINARY REVIEW ON SYSTEM IDENTIFICATION USING FREQUENCY DOMAIN METHOD FOR CLASS OF NON-LINEAR SYSTEMS

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Abstract- A key component of control engineering is system accuracy which makes it possible to extract models from actual systems. Even though linear systems have been researched in great detail, nonlinear system identification presents special difficulties. The initial studies into system identification for a class of nonlinear systems using frequency domain techniques are the major topic of this overview of the literature. The objective is to examine the current state of the field, spot patterns, and draw attention to any gaps that need more research. This overview of the literature explores the exploratory studies related to the use of frequency domain techniques for system identification in the context of nonlinear systems. Although conventional frequency domain methods have been widely used to linear systems, there are particular difficulties in modifying them to capture the intricacies of nonlinear dynamics. The review looks at the most recent state-of-the-art approaches, problems, and possible fixes for frequency domain identification. It delves into sophisticated signal processing methods, integrates machine learning, and offers insights from practical case studies covering a wide range of applications. In addition, the review points out important gaps in the body of knowledge, opening the door for further studies that may improve the precision and usefulness of frequency domain techniques in nonlinear -system identification.

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Paper ID - ICWTNS-2024_187

PAPER TITLE-AUGMENTED REALITY AND VIRTUAL REALITY-BASED BIOFEEDBACK: A REVIEW

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Abstract- Biofeedback (BF) therapy programs have incorporated Augmented reality (AR) and Virtual reality (VR)in recent decades. AR/VR should be used to address the issues with BF, such as poor attentional focus and motivation with trouble implementing recently learned skills in day-to-day activities. Nevertheless, there is still a lack of a thorough research summary. It is therefore the goal of this review to present an outline of empirical studies on VR/AR-based BF concerning important results, samples, hardware and software used, BF parameters, application mode, and possible drawbacks. The methodology was carried out for a systematic literature review using the PRISMA(Preferred reporting items for systematic reviews and meta-analyses). We systematically searched PubMed, IEEE Xplore, Scopus, Science Direct and Google Scholar for empirical research. The majority of the participants in the samples were adults in good health. The primary findings were pain reduction, anxiety and stress each of which was reduced at least as much by VR-BF interventions as traditional BF. In addition to improving the user experience, AR/VR-BF intervention participants demonstrated increased motivation as well as involvement and attentional focus. Additional research is required to determine the impact of gamified VR. Further research should concentrate on developing guidelines to standardize these technologies for their use in clinical practice. Evaluation of a wider range of clinical and younger samples would additionally allow for more comprehensive findings.

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Paper ID - ICWTNS-2024_205

PAPER TITLE-DETECTION AND CLASSIFICATION OF NEOVASCULARIZATION IN PROLIFERATIVE DIABETIC RETINOPATHY USING DEEP LEARNING

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Abstract- Proliferative Diabetic Retinopathy (PDR) is a severe retinal disorder that poses a substantial risk to diabetic patients. Among the various complications associated with PDR, neovascularization stands out as a critical condition characterized by the abnormal growth of blood vessels on the retina. If left undetected and untreated in its early stages, neovascularization can lead to severe vision loss and even blindness. This paper explores the potential of utilizing fundus images, which provide a detailed view of the eye's posterior, for the early detection and classification of neovascularization. Given the intricate and random growth pattern and small size of neovascularization, conventional image processing techniques face challenges in accurate detection. In response to the inherent challenges associated with the precise detection and classification of neovascularization in fundus images, this study endeavours to harness the capabilities of deep learning methodologies. Deep learning has demonstrated exceptional proficiency in the automated extraction of pertinent features from complex objects characterized by intricate attributes. Specifically, the present investigation introduces a novel system, leveraging the prowess of pre-trained deep neural networks that have garnered prominence within the field. The ensemble of pre-eminent neural architectures encompasses Inception ResNetV2, DenseNet, ResNet50, ResNet18, AlexNet, and VGG19, collectively representing a comprehensive spectrum of deep learning models.

Paper ID - ICWTNS-2024_207

PAPER TITLE-UNVEILING DIABETIC HEALTH INSIGHTS THROUGH ADVANCED MACHINE LEARNING FOR ENHANCED WELL-BEING IN THE DIGITAL AGE

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Abstract- The contemporary societal emphasis on occupational commitments often leads individuals to overlook their deteriorating health. This situation underscores the necessity for a ubiquitous health assessment system that promptly detects and diagnoses ailments such as diabetes, countering the demanding landscape of the swiftly advancing digital era. To address this, we propose a health prediction system founded on machine learning methodologies including "K-Nearest Neighbor," "Decision Tree," "Random Forest," and "Naive Bayesian." The comparative analysis of these techniques, when applied to two distinct datasets (dataset1 and dataset2), reveals KNN achieving 94.15% accuracy and Random Forest attaining the highest accuracy at 96.49%. Acknowledging the primacy of accuracy as a pivotal algorithmic benchmark, we contemplate a synergistic integration of machine learning techniques with meta-heuristic methodologies to further refine predictive precision.

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Paper ID -ICWTNS-2024_209

PAPER TITLE-HARNESSING THE POWER OF CONVOLUTIONAL NEURAL NETWORKS FOR EARLY DIAGNOSIS OF EMPHYSEMA

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Abstract- In this study, our goal was to create a specialized computer model using deep learning to spot emphysema in chest X-rays, using a large dataset from the NIH. Emphysema, a long-term lung problem, is dangerous and can be deadly if not caught early. Doctors often use chest X-rays to find it, and now, with advanced computer methods, these X-rays can be read more accurately. Our research showed that our computer model was correct 83% of the time in finding emphysema on X-ray images. This reveals how powerful computer techniques can make finding emphysema more precise and effective. Since quick and accurate detection of emphysema is crucial for a person's health, our study provides important insights into improving this process using advanced technology.

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PAPER TITLE-MACHINE LEARNING BASED HYBRID APPROACH TO DETECT INTRUSION IN WIRELESS COMMUNICATION

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Abstract- Recognizing the crucial role of communication, data delivery, and access across various sectors, including government, business, and individual domains, it becomes imperative to pinpoint faults and vulnerabilities in cyber communication. To safeguard personal, governmental, and business data from the growing threats of advanced attacks on wireless communications, the implementation of an Intrusion Detection System is essential. Information security serves as a robust defence for both host machines and networks. Analytical methods, particularly machine learning, are employed for the identification and prevention of diverse wireless network threats.

In this paper, a novel approach is presented based on a machine learning model and is integrated with different cross-validation techniques to find a few performance matrix parameters in identifying and eliminating intrusions from a wireless network. This hybrid methodology employs various attributes, such as the Gini Index and Entropy of the decision tree (DT) model, Different DT methodologies, including those using the Gini Index, train-split method, and information entropy, along with their respective subdivisions like K-Fold validation and Stratified K-Fold validation, are implemented and evaluated on a recent dataset containing DDoS network attack activities.

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PAPER TITLE-PERFORMANCE EVALUATION OF FOAMED CONCRETE BY THE PROPOSED METHOD OF TWO-STAGE FOAM INJECTION USING A MODIFIED ADDITIVE

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Abstract- The study focuses on foam concrete produced by the classical method and the two-stage foam introduction method. The problem addressed is the uneven distribution of the foam concrete's pore structure vertically. Measurements revealed a significant scatter in the density and strength of samples produced by the classical method compared to the two-stage foam introduction method. This scatter is attributed to the influence of the foam concrete production process on the quality of the material's pore structure. The two-stage foam introduction method demonstrated less scatter in density and strength, indicating a more uniform distribution of the pore structure. These findings can be used to optimize the foam concrete production process, improve its properties, and expand its application areas in construction. The results highlight the influence of the modified additive on the strength indicators of foam concrete. The study's findings have practical implications for enhancing the quality and application of foam concrete in the construction industry.

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PAPER TITLE-VIDEO GAME SALES PREDICTION MODEL USING REGRESSION MODEL

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Abstract- The video game industry has grown rapidly in recent years. Researching and predicting video game sales is difficult because it depends on a wide range of variables, including game genre, platform, publishers, developers, and marketing campaigns. Other factors that may also play a role include the status of the economy and social media trends. Nonetheless, a number of models that can precisely forecast video game sales can be created with the aid of data analysis and machine learning techniques. This work presents a machine learning-based video game sales prediction model that makes use of regression algorithms, such Gradient Boosting Regressor, Ridge Regression, and Linear Regression, among others, to forecast worldwide video game sales based on a variety of variables and factors, such as the game's genre, platform, publishers, developers, critic reviews, and user ratings. We used a dataset of past video game sales data from Kaggle, a reputable source of datasets, to train the model. Our evaluation's findings demonstrate that our suggested model can reliably forecast video game sales. This model can be used by a variety of video game publishers and developers to predict sales of upcoming titles and make informed decisions about development, marketing, and pricing.

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PAPER TITLE-SYMMETRIC AND ASYMMETRIC ANALYSIS OF GRAPHENE BASED ANTENNA

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Abstract- In this research a Graphene based antenna is tested for symmetric and asymmetric structures using Aluminum oxide substrate. Recent research on Graphene shows a huge amount of potential in microwave applications due to its tunability properties. It's resistance value changes with the application of voltage bias. This is of great interest while deigning millimeter and microwave wave components and structures. The symmetrical and asymmetrical analysis of the antenna gives various characteristics of the antenna along with its radiation and absorption peaks in Terahertz range. The said antenna can be analyzed using plasmonic which has many applications as Biomaterial, Sensor and in Quantum Mechanics.

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PAPER TITLE-CROWD FUNDINGWEBSITE BASED ON BLOCKCHAIN TECHNOLOGY WITH WEB3.0

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Abstract- Crowdfunding has revolutionized the way individuals and organizations raise money for their projects. With the growth of online platforms and social media, this innovative fundraising method allows entrepreneurs and nonprofits to reach a network of potential investors and donors globally. Trust and reliability are key factors in crowdfunding success, and the integration of blockchain technology takes this goal to the next level. The decentralized nature of blockchain gives a new level of democracy to the fundraising process, gives donors and recipients greater freedom, transparency and incentives for participation. The trend towards distributed autonomous organizations (DAOs) has more distant disrupted traditional raised money methods as more capital is directed towards blockchain-based crowdfunding campaigns. This has made fundraising more accessible, more flexible, and more efficient, freeing it from the limitations of centralized control bodies. Crowdfunding using blockchain technology has enormous potential for growth and impact, and this is an exciting development in the world of fundraising.

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PAPER TITLE-GRAPHENE ENABLED PLASMONIC ARRAY ANTENNA WITH KINETIC THEORY OF PLASMA

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Abstract- This paper is a brief report on the kinetic theory of a plasmonic Nanoantenna with the design and simulation of a 2x2 square patch array antenna of Graphene over an Al2O3 substrate. In this paper, the theoretical analysis of charge transport in channels is defined by the Boltzmann-Vlasov equation. The random transport of charged particles is based on the collision of charged particles in a velocity space curve. Absorption is defined by the Fermi velocity of charged particles. The Nano patch array antenna is designed at an infrared frequency absorption band of 28.5 THz and transmission band of 31.5 THz. The antenna is placed on the dielectric constant of Al2O3 substrate (ϵ_R=9.8) of thickness 5 micrometer. Both absorption and transmission bands have a high gain of nearly 8.47 dB. The absorption band and transmission bands are in the infrared frequency bands. These antennas are highly directive and give a wide bandwidth of 0.5 THz in the absorption band and 0.8 THz in the transmission band. The antenna consumes a small no of elements to achieve high gain. Due to its compactness and highly directional beam, these antennas are very useful for short-distance wireless communication in Nano networks.

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PAPER TITLE-ANALYSIS OF LINEAR FEEDBACK SHIFT REGISTER USING CLOCK GATING TECHNIQUE

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Abstract- Random number generators (Linear Feedback Shift Registers (LFSRs) are critical components in digital systems, performing functions such as pseudo-random number generation and error detection. The need for more energy-efficient designs has grown in recent years, which has led to research on power-saving measures like clock gating. A linear feedback shift register is a type of shift register in which the incoming bit is determined by a linear combination of its previous state. The most used linear function is exclusive-or. LFSRs are used to generate pseudo-random numbers and quick digital counters. Power and delay are two critical factors in circuit performance. The power and delay values of a regular LFSR are compared to those of an LFSR developed using the clock gating technique. The power values of gated circuits are 5.02 μW,10.26 μW and 21.39 μW.

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PAPER TITLE- TEXT SUMMARIZATION METHODS USING NLP

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Abstract- There is a vast amount of textual content available, and it continues to develop every day. Consider the internet, which is made up of web pages, news stories, status updates, blogs, and many other things. Because the data is unstructured, the best we can do is perform a search and glance through the results. Much of this text material needs to be reduced to shorter, focused summaries that capture the important elements, both so we can explore it more easily and to ensure that the larger papers include the information we need. The proposed solution for this problem is a web application that uses abstractive text summarization to provide a paraphrase of the essential points. text, using a vocabulary set not the same as the original document Summaries cut down on reading time and make the selection process easier when investigating documents. The efficacy of indexing is improved by automatic summarization. Human summarizers are more prejudiced than automatic summarizing techniques. Flask, Python 3, web development (HTML, CSS, BOOTSTRAP), and the Text Summarizing API are the tools and technologies utilized in text summarization (which uses NLP). One of the next goals could be to apply the topic-focused summarization framework to news articles or blogs, as well as to expand the machine learning research.

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PAPER TITLE-BUILDING AN INTELLIGENT TELEGRAM BOT WITH NLP

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Abstract- This paper details the development of an intelligent chatbot employing natural language processing and the Telegram API. Emphasizing medical applications, specifically in psychological assessment and counselling, the chatbot incorporates emotion recognition to enhance user engagement. Results indicate the chatbot's proficiency in identifying and responding to user emotions, showcasing its potential for emotionally intelligent interactions. The study contributes to the evolving field of intelligent chatbots, underscoring their relevance in medical contexts. The chatbot's smooth interaction underscores its applicability in scenarios where understanding and addressing user emotions are pivotal. This research lays the groundwork for future advancements in emotionally aware chatbot technology.

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PAPER TITLE-OPTIMIZING HYBRID RENEWABLE ENERGY SYSTEMS VIA SOFT COMPUTATIONAL OPTIMIZATION APPROACHES

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Abstract- The significant surge in conventional energy prices has spurred an augmented focus on exploring renewable. energy solutions such as. solar, wind, sand hydro-based energy.

[1] Achieving the optimal design is crucial, and this may be done in several ways, such as by lowering the. levelized cost of energy. (LCE), minimizing investment expenses, and minimizing the net present cost. (NPC), using multi-objective optimization, and more. The optimization, sizing, operation, design, and. control of hybrid renewable energy systems (HRES) has received a great deal of attention in recent studies.

[2] This work significantly advances the adoption of renewable energy by providing a complete analysis of the optimization of hybrid energy systems through the use of soft computing approaches as established in the literature.

[3] The substrate evaluated in this paper emphasizes how effective soft computing approaches are as powerful instruments for hybrid energy system optimization.

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PAPER TITLE-RESOURCE ALLOCATION IN CLOUDSIM AND KUBERNETES

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Abstract- Modern cloud computing provides a variety of tools for effective resource management and application deployment. In particular, these may be algorithms for distributing virtual machines in a particular environment. But we will focus on comparing two approaches to resource management: virtual machine allocation using Cloud Sim and container allocation in Kubernetes.

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