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80	173	85	5
PAPERS	AUTHORS	INSTITUTIONS	COUNTRIES

INSIDE THIS ISSUE

A Comparative Evaluation of Remaining Dentin Thickness Post Instrumentation of Teeth... p. 1

Antimicrobial Hydrogels: A Review p. 7

Post-Operative Sensitivity Following Composite Resin Restoration : A Guide for Prevention p. 12

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Spectrum is an e-magazine with the comprehensive collection of all the papers that have been published in our journal over the last two months — Volume 10, Issue 5 (September-October, 2024). This edition brings together 80 papers by 173 authors from 85 institutions. Each entry links to the abstract and the full paper.

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THIS EDITION AT A GLANCE

Research areas	
Economics	5
Dental	4
Computer Science	3
Psychology	2
Mechanical Engineering	2
Software Engineering	2

Authors by country	
India	72
United States	5
Deutschland	1
Tanzania	1
Madagascar	1

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Indexing of Volume 10 – Issue 5

S. No	Title	Page Number	Links
1.	**A Comparative Evaluation of Remaining Dentin Thickness Post Instrumentation of Teeth with Three Different Rotary Systems using CBCT – An Invitro Study** *Dr. Pradnya V. Bansode, Dr. Madhuri B. Wavdhane, Dr. Seema D. Pathak, Dr. Aishwarya Kiran Jadhav* **Government Dental College and Hospital, Aurangabad (Chh. Sambhajinagar), Maharashtra.**	1-6	View Abstract Download PDF
2.	**Antimicrobial Hydrogels: A Review** *Dr. Pradnya V. Bansode, Dr. M. B. Wavdhane, Dr. Seema D. Pathak, Dr. Vishal Jawadwad* **Department of Conservative Dentistry and Endodontics, GDC and Hospital, Aurangabad/MUHS, India**	7-11	View Abstract Download PDF
3.	**Post-Operative Sensitivity Following Composite Resin Restoration : A Guide for Prevention** *Dr. Pradnya V. Bansode, Dr. Seema D Pathak, Dr. M B Wavdhane, Dr. Shriya R. Ostwal* **GDCH, Aurangabad, Maharashtra, India**	12-17	View Abstract Download PDF
4.	**Should Rainwater Harvesting be Made Mandatory in India** *Madhav Agarwal* **Step By Step School, Noida**	18-25	View Abstract Download PDF
5.	**Maldives' Foreign Policy and its Effect on the Tourism Industry** *Yuvraj Mehta* **The Cathedral and John Connon School, Mumbai**	26-38	View Abstract Download PDF
6.	**Impact of Academic Stress on Daytime Sleepiness of Adolescents (10th to 12th Grade)** *Urvi* **Harvard Student Agency**	39-43	View Abstract Download PDF
7.	**AI and IoT-Driven Automatic Abdominal Retractor System: Revolutionizing Surgical Techniques** *Pravin Mohite* **G.H. Raisoni College of Engineering and Management, Wagholi Pune, India**	44-49	View Abstract Download PDF
8.	**Advancements in the Development of Sustainable (Textile) Materials and their Recycling Methods** *Reya Sanjay Kamdar Pande* **Prabhavati Padamshi Soni International Junior College, Mumbai**	50-56	View Abstract Download PDF

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S.No	Title	Page Number	Links
9.	**Nanomaterials in Endodontics: Applications and Scope** *Dr. Pradnya V. Bansode, Dr. Seema D. Pathak, Dr. M. B. Wavdhane, Dr. Madhura Dange* **Department of Conservative Dentistry and Endodontics, GDCH, Chhatrapati Sambhajinagar**	57-63	View Abstract Download PDF
10.	**Nanotechnology in Mechanical Engineering** *Khushdeen Singh Khosa, Harpreet Singh* **A Level Harvest International School Jassowal Kular, Ludhiana, Independent Researcher**	64-69	View Abstract Download PDF
11.	**Hypercementosis : A Challenge for Endodontic Therapy** *Dr. Pradnya V. Bansode, Dr. Seema D. Pathak, Dr. M. B. Wavdhane, Dr. Nisha Girish Dalal* **Government Dental College and Hospital, Aurangabad, Maharashtra**	70-75	View Abstract Download PDF
12.	**The Integration of Blockchain Technology in Cybersecurity: Innovations by Software Engineers to Enhance Data Integrity and Security** *Taiwo Oyewole* **Eastern Illinois University, Charleston**	76-81	View Abstract Download PDF
13.	**A Systematic Review of Renewable Power Supply Systems** *Aaryan Gupta* **Maxfort School Rohini, New Delhi**	82-87	View Abstract Download PDF
14.	**Decentralized Predictive Models for Making Procurement Decisions in Manufacturing Networks** *Patience Sarfo, Jiderechukwu Becky Ogbodo, Kingsley Anyaso* **Rochester Public Utiliities, Rochester, Minnesota, MNG 2005, INC, United States, Nestle Purina Petcare, St. Louis, Missouri.**	88-95	View Abstract Download PDF
15.	**Exploration of India’s COVID-19 Policies in Addressing the Ramifications of the Pandemic and their Implications on Public Health and The Economy** *Vinaya Dua* **Lumiere Education of Sigmas, Massachusetts, United States**	96-106	View Abstract Download PDF
16.	**A Study on Chromosomal Aberrations and Sister Chromatid Exchanges in Lead Industry Workers** *Spandhana Racharla, Shehnaz Sultana, P P Reddy* **Bhagwan Mahavir Medical Research Centre, Hyderabad, Telangana**	107-110	View Abstract Download PDF

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S.No	Title	Page Number	Links
17.	**Quantifying Financial Cyber Risks in Financial Institutions: Monte Carlo Simulations, Time-Series Forecasting, and Cost-Benefit Optimization** *Silvia Tsovwen Asakpa* **Richard Chaifetz School of Business, Saint Louis University, St. Louis, MO**	111-118	View Abstract Download PDF
18.	**Maritime Decarbonization** *Vinaya Dya* **Speciale Invest, Chennai, Tamil Nadu**	119-131	View Abstract Download PDF
19.	**Harnessing Data Analytics for Supply Chain Optimization: Insights from Industry 4.0** *Mudenahalli Ashoka Karthik* **R V College of Engineering, Bengaluru**	132-135	View Abstract Download PDF
20.	**Role of Artificial Intelligence in Business** *Shaurya Suyal* **C. R. Oasis Convent Sr. Sec. School, New Delhi**	136-140	View Abstract Download PDF
21.	**Case Study- Chronic Obstructive Pulmonary Disease** *Dr Rajesh Soni, Dr.Pulkit Goyal, Dr.Arun Mathur, Dr.Ganpat Singh* **Goyal Hospital and Research Centre Pvt Ltd, Jodhpur**	141-144	View Abstract Download PDF
22.	**Perinatal Outcomes of 100 Consecutive Cesarean Sections at a Nursing Home in Urban India** *Arrman Sanganeria, Gaurav Desai* **Independant Researcher, Mothercare Clinic**	145-148	View Abstract Download PDF
23.	**The Economic Impact of Millet Consumption: Exploring Consumer Trends and Market Potential** *Adhira Shekar, Vishal Upadhaya* **The Shri Ram School Aravali, Gurgaon**	149-174	View Abstract Download PDF
24.	**Generation of People's Comfort Journey** *Lenin Ilavendhan C* **BS Abdur Rahman Crescent Institute of Science and Technology, Chennai**	175-181	View Abstract Download PDF
25.	**Cross Sectional Study to Assess Knowledge, Practice and Attitude on High Quality Cardiopulmonary Resuscitation among Health Care Professional.** *Dr.Pulkit Goyal, Dr.Arun Mathur, Dr.Kaushal Kumar Harlalka, Dr.Ganpat Singh, Gaje Singh* **Goyal Hospital and Research Centre Pvt Ltd, Jodhpur**	182-185	View Abstract Download PDF

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S.No	Title	Page Number	Links
26.	**Expanding the Dimes Model – Methodology and Applications in Acquisition-Based Cash Flow Forecasting** *Fenil Vijay Chamariya* **Prabhavati Padamshi Soni International Junior College, Mumbai**	186-188	View Abstract Download PDF
27.	**Patent Trolls: Impact on Innovation and Legal Solutions** *Sunidhi Pandey, Maulik Pratap Singh* **Galgotias University, Noida**	189-195	View Abstract Download PDF
28.	**Shift of Indian Passenger Vehicles' Demand to SUV's** *Yashviraaj Mahajan* **Independent Researcher**	196-205	View Abstract Download PDF
29.	**Self-Corrective Retrieval-Augmented Generation** *Priya Jadam, Syeeda Mujeebunnisa* **CMR University, Bengaluru, Karnataka**	206-209	View Abstract Download PDF
30.	**Where Luxury Meets Art and Art Meets Profit: Artist Collaborations in High-End Branding** *Tara Wadhwani, Ria Jethi* **Cathedral and John Connon School, Mumbai, Metamorphosis**	210-218	View Abstract Download PDF
31.	**The Rise and Impact of Deepfakes: A Comprehensive Analysis of Detection Criteria and Societal Implications** *Samayra Chawla* **Springdales School, Pusa Road, New Delhi**	219-221	View Abstract Download PDF
32.	**Adoption and Impact of Cloud Computing in Enterprise and Business Management: A Literature Survey** *Spoorthy Reddy Maguluri* **G. Narayanamma Institute of Technology and Science (For Women) Shaikpet, Hyderabad**	222-228	View Abstract Download PDF
33.	**Data Mining** *V.Jyothika, A.MEENA* **Freelance Researcher in Cybersecurity, MSc. MPhil Computer Science, Assistant Professor, Department of AIML, Sri Krishna Adithya College of Arts and Science, Coimbatore.**	229-234	View Abstract Download PDF
34.	**Efficient Calorie Counter** *Makwana Krishna* **Independent Researcher**	235-238	View Abstract Download PDF
35.	**Categorization and Forecasting of Hepatitis C Diagnosis via an Unconventional Consensus Classifier** *S. Sri Krishna, N T Sunil Kumar, K S Saran, Dr. B. Aarthi* **SRM Institute of Science and Technology, Tamil Nadu**	239-247	View Abstract Download PDF

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S.No	Title	Page Number	Links
36.	**Understanding the Potential Risks and Uses of SLS in Daily Life** *Tunisha Chaudhary* **Independent Researcher**	248-250	View Abstract Download PDF
37.	**Corporate Social Responsibility: Ethical and Economic Considerations** *Tia Agrawal* **Perfect Communication Gurgaon**	251-255	View Abstract Download PDF
38.	**Consumer Behaviour of UPI Applications / Companies** *Kabir Bhattacharya* **Heritage Xperiential Learning School, Gurugram**	256-260	View Abstract Download PDF
39.	**Face Recognition-Based Attendance System** *Shubh Agarwal* **Delhi Public School Indirapuram, Ghaziabad**	261-267	View Abstract Download PDF
40.	**Bridging the Gap: Education Inequality and Economic Impact in India** *Taksheel Agrawal, Priyonkon Chatterjee* **Independent Researcher, Clever Harvey**	268-272	View Abstract Download PDF
41.	**Review on Inflammatory Pathway on Oral Cancer Disease** *Namrata B. Baravkar, Anuradha Patil, Dipalee Vhankhade, Nileema Modhave* **RJSPM'S College of Pharmacy,Dudulgaon, Dattakala College of Pharmacy,Swami Chincholi, Pimpri Chinchwad University,Mohitewadi**	273-283	View Abstract Download PDF
42.	**A Mathematical Slam Dunk: Eliminating Bias using Advanced Statistical Techniques to Predict the NBA MVP** *Qaid Sajjad Bandukwala, Siddharth Kannan* **PPSIJC, Mumbai**	284-287	View Abstract Download PDF
43.	**Standard Model of Particle Physics and String Theory** *Mishita Manish Mhatre* **Prabhavati Padamshi Soni International Junior College, Mumbai**	288-298	View Abstract Download PDF
44.	**The Impact of Social Media Use on Identity Formation among Adolescents** *Sora Pazer* **IU International University of Applied Sciences, Germany**	299-304	View Abstract Download PDF
45.	**Automatic Number Plate Recognition** *Swanand Joshi, Pramod Jejure, Vishal Jankar, Chatrasal Jadhav* **Zeal College of Engineering and Research, Pune**	305-310	View Abstract Download PDF

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S.No	Title	Page Number	Links
46.	**A Study on Financial Performance and Working Capital in Yuvaraj Scaffolding Private Limited, Madurai.** *S Sreeja, Keerthana.S* **Nehru College of Management, Coimbatore, Tamil Nadu**	311-316	View Abstract Download PDF
47.	**Gender Inequality in the Workplace** *Shaurya Suyal* **C. R. Oasis Convent Sr. Sec. School, New Delhi**	317-319	View Abstract Download PDF
48.	**Handwritten to Text Converter using CNN** *Akshat Newalkar, Himanshu Khade, Dhiraj Khandare, Divy Patel* **Zeal College of Engineering and Research, Pune**	320-328	View Abstract Download PDF
49.	**AI and the Future** *Shaunak Agarwal* **GD Goenka Public School Model Town, Delhi**	329-330	View Abstract Download PDF
50.	**A Bird's Eye View of Neural Networks and Object Detection Models** *Chaitya Upadhyay* **Army Public School, Khadakwasla, Pune**	331-335	View Abstract Download PDF
51.	**Comparison of Solar Energy Generated between Fixed-Angle Solar System and Single-Axis Solar Tracking System** *Nirvaan Didwania* **SolarGlide Systems, Mumbai**	336-345	View Abstract Download PDF
52.	**Advances in Cloud Computing for Gaming: A Comprehensive Literature Survey** *Sheema Mateen Ba Abbad, Varsha Dumpala, Pachipala Varshitha Reddy, Rashmitha Kompally* **G. Narayanamma Institute of Technology and Science, Shaikpet, Hyderabad**	346-349	View Abstract Download PDF
53.	**Prosthetic Design and Load Considerations on Alveolar Bone —A Laconic Review.** *Lakshmana Rao. B, K. Jayalakshmi, K.UdayaBhanu, P.V. Vaibhav* **Lenora Institute of Dental Sciences, Rajahmundry, Andhra Pradesh**	350-354	View Abstract Download PDF
54.	**Multi-Criteria Optimization of Financial Management in Digital Marketing for Large Enterprises using Fuzzy Decision-Making Systems** *Ndeye Siga Gueye* **Richard Chaifetz School of Business, Saint Louis University, MO, USA**	355-363	View Abstract Download PDF

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S.No	Title	Page Number	Links
55.	**Barriers to Patient Recruitment and Patient Participation Concerns in Clinical Trials** *Yachika Prakash Karade, Tejshree Kailas Joshi, Dr. Priyanka Prakash Karade* **Mitcon Clinical Research Training Center, Pune, Neuron Hospital, Nagpur.**	364-374	View Abstract Download PDF
56.	**Evaluating the effectiveness of the National Mental Health Program in India** *Rohana Kohli* **Victorious Kidss Educares, Pune**	375-381	View Abstract Download PDF
57.	**Soft Power Propaganda or Diplomacy? A Detailed Exploration of Russia's, India's, and Korea's Soft Power Tactics.** *Hiya Kaur Malhotra* **Shiv Nadar School, Faridabad**	382-387	View Abstract Download PDF
58.	**Groundwater Quality Assessment of Gadwal Watershed, Jogulamba Gadwal District, Telangana, India** *D. Rajitha, Kadari Suresh, A.Narsing Rao (Retd)* **Department of Geology, Osmania University, Hyderabad**	388-397	View Abstract Download PDF
59.	**TechGenius: Empowering Innovation through Technology** *T. Suneetha, K. Mohana Pushpa* **Malla Reddy University, Hyderabad**	398-402	View Abstract Download PDF
60.	**To Promote the Conservation and use of Underutilized and Neglected Crop Guizotia Abyssinica (L.F.)Cass.** *Poonam Bandu Kodag, Annasaheb Kudhekar, Suresh Waghamare, Pratiksha Kodag* **Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Shri Sai College of Pharmacy, Aurangabad, Rashtriya College of Pharmacy Hatnoor, Aurangabad., PES modern College of Pune**	403-411	View Abstract Download PDF
61.	**The Need for Optimum Utilization of Non-Renewable Resources** *Bhoomika P, S Harshitha Singh, Vidhyashree .B* **Vishwa Chethana Degree College, Bangalore**	412-414	View Abstract Download PDF
62.	**Obstacle Avoidance in Mobile Robots: Algorithms, Optimization Techniques, and Analysis** *Thinalisha M, Yogesh Vk, Subanesh V* **PSG College of Technology, Coimbatore**	415-421	View Abstract Download PDF

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S.No	Title	Page Number	Links
63.	**Energy Storage Method: Superconducting Magnetic Energy Storage** *Thinalisha M, Yogesh Vk, Subanesh V, Bindu* **PSG College of Technology, Coimbatore**	422-426	View Abstract Download PDF
64.	**Preliminary Investigations for Iron Ore Occurrences in Warangal District, Telangana** *Kadari Suresh, D Rajitha, A Narsing Rao* **Department of Geology, Osmania University, Hyderabad**	427-431	View Abstract Download PDF
65.	**A Study on Circular Economy and its Influence on Economic Development** *P. Sree Devi* **Jawaharlal Nehru Technological University Gurajada, Vizianagaram**	432-437	View Abstract Download PDF
66.	**Crops and Weeds Detection System using Machine Learning** *Shrusti Jasani, Spandan Kathiriya, Sneh Patel, Ms. Manisha Vasava* **Drs. Kiran and Pallavi Patel Global University, Vadodara**	438-443	View Abstract Download PDF
67.	**Building a Comprehensive Enterprise Data Lake Architecture** *Ramla Suhra* **H-E-B Digital, Texas**	444-451	View Abstract Download PDF
68.	**AFBAP : Attention For Binding Affinity Prediction** *Harihar Prasad* **Greenwood High International School, Bengaluru**	452-461	View Abstract Download PDF
69.	**IoT-Based Data Logging System using Cloud** *Alok More, Atharva Khopade, Yash Kakade, Vivek Hande, Ritesh Nikam* **Vishwakarma University, Pune**	462-464	View Abstract Download PDF
70.	**User-Friendly Data Migration: An Integrated GUI Tool For Different Excel Formats to PostgreSQL Database Conversion** *Sushil Chandra, Rajeev Sonkar, Pragati Srivastava* **Remote Sensing Applications Centre, Uttar Pradesh, Remote sensing applications Centre, Uttar Pradesh**	465-470	View Abstract Download PDF
71.	**Comparative Yield Analysis of Black Pepper (Piper Nigrum L.) Genotypes of Uttara Kannada District, Karnataka** *Sudheesh Kulkarni, N K Hegde, Laxminarayan Hegde, Vijayakumar Narayanpur, Mukesh Chavan, Sadananda G K, Prashantha A, Mahantesh Naika* **University of Horticultural Sciences, Bagalkot**	471-476	View Abstract Download PDF

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S.No	Title	Page Number	Links
72.	**Formulation and Evaluation of Carvedilol Nanoparticles Precision for Immediate Drug Delivery** *Omar Nassib Suleiman, Dr.Kamal Singh Rathore, Dr. Yuvraj Singh Sarangdevot* **Bhupal Noble's University, Udaipur, Bhupal Noble's University, Udaipur**	477-481	View Abstract Download PDF
73.	**Streamlined Attendance Monitoring : Multifaced Recognition** *Makineni Saroj Vihung, Kanduri Sahith, Baddam Rithika Reddy, Samala Keerthi, Savarapu Omkaarini, Thirupathi Nanuvala* **Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering &Technology, Hyderabad**	482-489	View Abstract Download PDF
74.	**Social Media Censorship and Freedom of Expression In Tanzania. A Case of Ilala District, Dar Es Salaam** *Inocent Msuha, Camillus Nikata* **St. Augustine University of Tanzania, Tanzania**	490-499	View Abstract Download PDF
75.	**Recommended Athletic Consumption of Carbohydrates: A Review** *Zsa Zsa Anouk Wyler* **Jakarta Intercultural School, Indonesia**	500-504	View Abstract Download PDF
76.	**Formal Verification Methods for Safety-Critical VLSI Design in Avionics Systems** *Gowravajjula Sri Rama Chandra Karthik* **Broadbeach Innovations, Bengaluru, Karnataka**	505-507	View Abstract Download PDF
77.	**AI-Powered Talent Acquisition Platform** *Srushti Ganar, Prof. Pooja More, Anuja Birajdar, Pragati Birhade* **Marathwada Mitra Mandal's College of Engineering, Pune, Maharashtra**	508-511	View Abstract Download PDF
78.	**Unemployment Trends in India** *Sushmitha M, Deepu.M, Shalini.K, Aswini.B, Rehana Banu* **Vishwa Chethana Degree College, Anekal, Karnataka**	512-518	View Abstract Download PDF
79.	**Artificial Intelligence in Finance: Transforming Decision-Making, Risk Management, and Economic Dynamics** *Sindhushree. KR, Chithra. R, Kavya. L, Mangala. M, Pooja. M* **Vishwa Chethana Degree College, Anekal, Bangalore**	519-522	View Abstract Download PDF

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S.No	Title	Page Number	Links
80.	**APPROCHE D'EFFICACITÉ ÉNERGÉTIQUE POUR OPTIMISER LES COÛTS DE PRODUCTION DES ENTREPRISES INDUSTRIELLES** *Georges SOLOFOSON, Daudet Evariste ZELY, Herilalaina Fabien RANDRIANASOLO, Cyprien ZARALAHY, Holy Nivosoa RAKOTOMALALA* **Ecole Supérieure Robert de Sorbon, Université de Toamasina,Université d'Antananarivo, Université de Mahajanga**	523-540	View Abstract Download PDF

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ABSTRACTS

1 A Comparative Evaluation of Remaining Dentin Thickness Post Instrumentation of Teeth with Three Different Rotary Systems using CBCT – An Invitro Study

Paper ID V10I5-1148 · Pages 1-6 · Endodontics

Dr. Pradnya V. Bansode, Student, Government Dental College and Hospital, Aurangabad (Chh. Sambhajinagar), Maharashtra.
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Dr. Aishwarya Kiran Jadhav, Student, Government Dental College and Hospital, Aurangabad (Chh. Sambhajinagar), Maharashtra.

Aim: To evaluate and compare the remaining dentin thickness post-instrumentation of teeth with three rotary systems using CBCT. Materials and methods: In this study, a total of 36 extracted human mandibular premolars were taken. All teeth were decoronated till the cementoenamel junction. Then they were randomly divided into 3 groups according to the system used in root canal preparations namely Group I: TruNatomy file system, Group II: ProTaperNext file system, and Group III: Hyflex EDM file system. Conventional endodontic access was prepared in each tooth, and the working length was determined using a 15-k file. Pre-operative cone beam computed tomography (CBCT) scan of the teeth was taken. Cleaning and shaping of the canal were done according to the file system. Post instrumentation CBCT scan of teeth was taken. The pre-and post-instrumentation scanned images of the teeth were assessed, the difference in the mesiodistal and buccolingual area was calculated and the statistical difference was analyzed. Results: The TruNatomy files showed the least dentin removal in all regions compared to the other two files. Conclusion: All three groups under study showed statistically significant differences in dentin thickness post-instrumentation. However, The TruNatomy File System showed better conservation of tooth structure compared to ProTaperNext And Hyflex EDM file system.

Keywords: Protaper Next File System, Trunatomy File System, Hyflex EDM File System, Remaining Dentin Thickness, CBCT.

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2 Antimicrobial Hydrogels: A Review

Paper ID V10I5-1146 · Pages 7-11 · Dental

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Hydrogels are three-dimensional networks created by crosslinking hydrophilic polymer chains. These networks, made from either natural or synthetic polymers, can absorb a significant amount of water, giving the material a soft consistency similar to living tissues. The rise in microbial infections, particularly those impacting wound healing and causing biomedical implant failures, has driven the innovation of new materials with antimicrobial properties. These specialized hydrogels incorporate antimicrobial agents or possess inherent antimicrobial properties, offering promising solutions for medical applications such as wound healing, infection prevention, and tissue engineering. Their biocompatibility makes hydrogels an ideal foundation for creating materials with targeted antimicrobial effects. Antimicrobial hydrogels can be achieved by incorporating or covalently attaching known antimicrobial agents, or by designing the hydrogel to have inherent anti-microbial capabilities. This review presents an overview of these innovative antimicrobial hydrogels, highlighting their applications, effectiveness, and limitations.

Keywords: Hydrogels; Demineralized Dentin Matrix; Drug Delivery Systems; Regenerative Endodontics.

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3 Post-Operative Sensitivity Following Composite Resin Restoration : A Guide for Prevention

Paper ID V10I5-1144 · Pages 12-17 · Dental

Dr. Pradnya V. Bansode, Professor, GDCH, Aurangabad, Maharashtra, India
Dr. Seema D Pathak, Associate Professor, GDCH, Aurangabad, Maharashtra, India
Dr. M B Wavdhane, Associate Professor, GDCH, Aurangabad, Maharashtra, India
Dr. Shriya R. Ostwal, Student, GDCH, Aurangabad, Maharashtra, India

One of the main causes of dental visits is pain, and clinical findings show that patients complain of dentinal sensitivity in a variety of settings and to varying degrees of severity. Even in cases where there is no obvious deterioration in the restoration, this is a very common issue following resin composite dental restorations. This bibliographic research aimed to determine the reasons behind post-operative sensitivity in resin composite restorations and provide preventative measures so that practitioners might utilise this knowledge to lessen the incidence of this annoyance in their day-to-day work. Analysis was done on the entire texts of pertinent articles. Post-operative sensitivity in direct resin composite restorations can have a number of causes, including errors in diagnosis, treatment indications, cavity preparation, material insertion, hard dental tissue hybridisation, finishing, and polishing the restoration. In order to prevent or reduce the likelihood of post-operative sensitivity,

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it is essential at every stage of the restorative process that an accurate diagnosis should be made and appropriate method should be employed.

Keywords: Composite, Sensitivity, Post-Operative, Immediate Dentin Sealing, Decoupling

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4 Should Rainwater Harvesting be Made Mandatory in India

Paper ID V10I5-1150 · Pages 18-25 · Environmental Science

Madhav Agarwal, Student, Step By Step School, Noida

According to the World Bank, India is among the most water stressed countries in the world. India's water crisis is a complex issue that stems from a combination of multiple factors mainly rapid and unplanned urbanization and industrialization, unsustainable agricultural practices, climate change, water mismanagement, poor urban and rural planning rising sea levels and increasing pollution. The looming water crisis cannot be left ignored as it can impact the health of the population and the nation’s economic adversely. Among proposed solutions, rainwater harvesting emerges as a cost-effective solution that can be undertaken at the grass root level by the citizens themselves too. This paper analyses its advantages and challenges in an Indian context. According to the World Bank, India is among the most water stressed countries in the world. India's water crisis is a complex issue that stems from a combination of multiple factors mainly rapid and unplanned urbanization and industrialization, unsustainable agricultural practices, climate change, water mismanagement, poor urban and rural planning rising sea levels and increasing pollution. The looming water crisis cannot be left ignored as it can impact the health of the population and the nation’s economic adversely. Among proposed solutions, rainwater harvesting emerges as a cost-effective solution that can be undertaken at the grass root level by the citizens themselves too. This paper analyses its advantages and challenges in an Indian context.

Keywords: Water Crisis, Climate Change, Urbanisation, Agriculture, Pollution, Urban Planning, Mismanagement, Rainwater Harvesting

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5 Maldives’ Foreign Policy and its Effect on the Tourism Industry

Paper ID V10I5-1137 · Pages 26-38 · Economics And Business

Yuvraj Mehta, Student, The Cathedral and John Connon School, Mumbai

The Maldives, a republic of 185 islands home to 550,000 people, has made the most of its geographic location to become a well-liked tourism destination during the past 50 years. Recent events demonstrate the Maldives' dramatic change in foreign policy. Though the scenario may be best understood as representing a smaller state's unease with a revived age of strategic rivalry, a desire to broaden its range of relationships, and an atmosphere of heightened nationalism, the leadership shift is sometimes presented as a zero-sum, pro-China turn. This will be an experiment since the Maldives' security forces will need more capability to carry out independent missions including hydrography, medical evacuation, and marine surveillance. The most recent catalyst was the use of crude language by Maldivian officials against Indians in general and Prime Minister Narendra Modi in particular. President Mohamed Muizzu's new administration requested that India remove its

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military soldiers, and he made China the destination of one of his first foreign trips. During his visit, Maldives President Muizzu also exhorts China to retake the top rank in tourist arrivals, which India has been holding for the past few years.

Keywords: Power Bloc, Archipelago, Sovereignty, Diplomacy, Foreign Policy, Climate Change, Bilateral Relations, Net Zero, Islamic Identity, Saarc, Regional Stability, Un, Ilo,Miga, Non-Aligned, Gross Domestic Product, Geopolitical, Human Rights, Infrastructure, Hydrographic, Consular Services, Multilateral, Adaptability, Shipping Lanes, Boycott, Expatriate, Radicalization, Sustainability, Public Service, Emissions, Cooperation, Security, Tourism, Economic Development, Policy, Derogatory Remarks, Favouritism, Hydrographic Survey Agreement

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6 Impact of Academic Stress on Daytime Sleepiness of Adolescents (10th to 12th Grade)

Paper ID V10I5-1154 · Pages 39-43 · Psychology

Urvi, Student, Harvard Student Agency

For school going adolescents, academic stress has become a major source for their stress levels and this inevitably impacts their health. One of the important biologically necessary aspect which is impacted is sleep. Disturbed sleep patterns are often observed in students with academic stress. Hence this paper used ESS-CHAD and PSS testing techniques to determine the relationship between daytime sleepiness and academic stress. The study hypothesises a positive correlation between the two variables. A cohort of 33 students were surveyed based on the tests mentioned above. The results indeed found a positive correlation between the two variables. Hence, the study concluded that academic stress must be abated in order to reduce its negative impacts on adolescents and to maintain their health.

Keywords: Academic Stress, Sleep, Daytime Sleepiness

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7 AI and IoT-Driven Automatic Abdominal Retractor System: Revolutionizing Surgical Techniques

Paper ID V10I5-1163 · Pages 44-49 · Electronics Engineering

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In this paper, an AI and IoT-driven automatic abdominal retractor system designed to enhance surgical precision and efficiency by maintaining consistent retraction forces and intelligently guiding surgical procedures through real-time data from a webcam-based AI tool. Traditional abdominal retractors, manually operated by surgical assistants, often lead to variability in retraction force and increased surgical risks. The proposed system automates this process, ensuring uniform and precise retraction, while also assisting the surgeon in determining the optimal incision points during surgery. The system incorporates a high-definition webcam that continuously monitors the surgical field, utilizing advanced AI-driven image processing to analyze the live video feed. The AI tool identifies key anatomical landmarks and pinpoints the exact location where the surgeon needs to operate, providing real-time feedback and guidance. This allows surgeons to make more

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accurate decisions, improving both efficiency and patient outcomes. The information is relayed via an IoT-based interface, enabling real-time adjustments and coordination between the retractor's movements and the surgeon's actions. The retractor mechanism operates along three axes—front-back, up-down, and open-close—controlled by a Node MCU IoT device, STM32 microcontroller, and motor driver circuits. The system is powered either by a battery or a standard power supply, ensuring operational flexibility in various clinical settings. Additionally, the IoT connectivity enables remote monitoring and control, allowing for adjustments in real-time as needed. This innovative approach has the potential to revolutionize surgical procedures by integrating automation and AI, ultimately improving the accuracy, safety, and outcomes of surgeries.

Keywords: Automatic abdominal retractor, AI-driven surgery, IoT-based surgical tools, STM32 controller, Node MCU, Motor driver circuit, Real-time retraction, Surgical automation, Webcam-based AI, Remote surgical monitoring.

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8 Advancements in the Development of Sustainable (Textile) Materials and their Recycling Methods

Paper ID V10I5-1170 · Pages 50-56 · Textile Engineering

Reya Sanjay Kamdar Pande, Student, Prabhavati Padamshi Soni International Junior College, Mumbai

Due to inadequate recycling systems and the complex nature of textile products, each year, millions of tonnes of textile waste end up in landfills or are incinerated globally. This paper seeks to highlight the advancements in sustainability for textile materials, focusing on cotton and polyester, and analyse their respective recycling methods to identify strategies for reducing the annual production of textile waste. Environmental issues raised by textile materials are also considered, such as the non-biodegradability of polyester and the large amount of freshwater used in cotton production. This study examines innovative materials that can substitute traditional fibres, such as organic cotton and bio-based polyesters, highlighting their role in reducing the environmental impact of textile production. Additionally, the paper evaluates various recycling methods for these fibres and their effectiveness in managing textile waste. It was analysed that there has been a fivefold increase in publications of textile recycling from 2011 to 2021, reflecting rising global interest and progress. The trend towards sustainable fashion, embraced by many brands, highlights an increase in customer demand for eco-friendly choices and aims to minimise the industry's environmental impact. Conclusively, further research must optimise technology to develop new sustainable materials while simultaneously maintaining an affordable price to encourage the purchase of these products among consumers.

Keywords: Textile, Fibres, Cotton, Polyester, Sustainability, Recycling, Environment

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9 Nanomaterials in Endodontics: Applications and Scope

Paper ID V10I5-1149 · Pages 57-63 · Dental

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Advancements in nanotechnology have led to numerous potential applications in dentistry, with nanomaterials becoming increasingly significant in endodontics.1 Nanosized particles, like clusters of small numbers of atoms or molecules in nanostructured biomaterials, have shown significantly superior properties in biomedical research compared to the same materials at larger scales of measurement.2 These unique mechanical and chemical properties help nanomaterials to have various applications in endodontics such as obturating materials, sealers, antimicrobials, retro-filling materials, root repair and regeneration. The improved antimicrobial property of the nanomaterials is helpful in eradicating bacterial load in the canals which can be incorporated in the form of irrigants and medicaments. Applications in regenerative endodontics are currently underway creating improved scaffolds and growth-factor delivery.2 This review throws insights on the current knowledge and scientific applications of nanomaterials in the field of endodontics as well as its potential future scope.

Keywords: Nanomaterials, Endodontics, Nanotechnology, Silver Nanoparticles, Chitosan.

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10 Nanotechnology in Mechanical Engineering

Paper ID V10I5-1182 · Pages 64-69 · Mechanical Engineering

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Nanotechnology has impacted the mechanical engineering field through the integration of new materials and technologies that improve the functionality of mechanical systems. This review focuses on the application of nanotechnology in mechanical engineering taking into consideration major developments, opportunities, limitations, and future direction. Some of these advanced technologies include nanocomposites, nano-coatings, and nanolubricants, which have enhanced the properties and performance of the materials and operations in aerospace, automobiles, and environmental conservation. However, the use of nanotechnology also has its drawbacks, such as manufacturing difficulties, health hazards, and environmental impacts, which requirefurther investigation and legislation. Finally, the paper considers some of the trends in the future that can beassociated with smart nanomaterials, nanorobotics, and the use of nano-enhanced renewable energytechnologies, which can expand the potential of mechanical engineering. This paper emphasizes thesignificance of the interprofessional approach and the issues of ethics while the role of nanotechnology inmechanical engineering is growing.

Keywords: Nanotechnology, Mechanical Engineering, Nanocomposites, Nano-coatings, Nanolubricants, Environmental Impact, Smart Materials, Nanorobotics, Renewable Energy

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11 Hypercementosis : A Challenge for Endodontic Therapy

Paper ID V10I5-1168 · Pages 70-75 · Dental

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Hypercementosis : A Challenge for Endodontic Therapy

Keywords: Hypercementosis, 1st Molar, Cementum-Dentin-Canal (CDC) Junction

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12 The Integration of Blockchain Technology in Cybersecurity: Innovations by Software Engineers to Enhance Data Integrity and Security

Paper ID V10I5-1183 · Pages 76-81 · Software Engineering

Taiwo Oyewole, Student, Eastern Illinois University, Charleston

This paper analyses the emerging technology of the blockchain in the security of systems and the new developments made by software engineers to strengthen the pro-security measures. This research is based on a case of Ethereum and Bitcoin block transactions between 2015 and 2024; it evaluates the performance of these innovations in addressing crucial cybersecurity issues. The analysis identifies a notable increase in blockchain transactions, with the average number of transactions rising significantly from 6,808 in 2015 to 1,265,172 in 2021. Although there was a slight decline to an average of 1,119,292 in 2022 and 1,049,591 in 2023, the overall upward trend reflects growing adoption and utilization of blockchain technology. Some of the key insights identified show that these improvements like new consensus algorithms and scalability solutions

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have hugely improved the ability of the blockchain networks to handle moderate to high volumes of transactions without compromising the security of the networks. Technique adopted in this study is the descriptive and inferential statistics that reveals trends and patterns in the transaction data to analyse the effects of incorporating Blockchain technology in the modification and protection of data, access to the unauthorized person and strengthening the system. The study reveals a significant potential in the use of blockchain technology for deepening cyber security in its decentralized methodology and cryptosystem. For the future work, computational solutions should be advanced and should incorporate strategies that help increase scalability and enhance the roles of all the stakeholders involved in the process. Also, future research should uncover the organizational benefits and the use patterns of blockchain technology and investigate its interactions with other advanced technologies. From this study we appreciate the importance of blockchain in enhancing the cybersecurity and the need to advance and invest more in research and partnership to harness its benefits.

Keywords: Software Engineering, Cybersecurity, Blockchain, Technology, Software, Data Integrity, Security

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13 A Systematic Review of Renewable Power Supply Systems

Paper ID V10I5-1166 · Pages 82-87 · Renewable Energy

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The present paper dwells on the development and significance of power supply systems progress, relative mainly to their renewable systems of energy sources incorporation. Old electricity distribution systems which have relied on fossil fuel sources of energy supply for many years have numerous drawbacks.Even with winding and extensive development of the 21st-century global economies, outdated forms of electricity supply and the commercial systems they incorporate have their share of disadvantages as they are insensitive to changes in power circuits: Such geometric and technological changes have stalled every so often and the locational logic of control systems and regulatory organs has often rendered uncoordinated the interconnection of grids and electric infrastructure Therefore high voltage DC transmission systems came to the rescue. This paper addressed solar, wind and hydropower systems among others as captured within the development of new technologies in energy. Even with this remarkable growth in the deployment of renewable energy resources among countries, changing these resources into their grid systems is still a challenge due to intermittency or non-alignment between demand-side response obligations and supply-side response. However, new solutions to such challenges in smart grid technologies include demand responses, storage capacity for electricity, and improved management of electricity distribution. The present paper dwells on the development and significance of power supply systems progress, relative mainly to their renewable systems of energy sources incorporation. Old electricity distribution systems which have relied on fossil fuel sources of energy supply for many years have numerous drawbacks.Even with winding and extensive development of the 21st-century global economies, outdated forms of electricity supply and the commercial systems they incorporate have their share of disadvantages as they are insensitive to changes in power circuits: Such geometric and technological changes have stalled every so often and the locational logic of control systems and regulatory organs has often rendered uncoordinated the interconnection of grids and electric infrastructure Therefore high voltage DC transmission systems came to the rescue. This paper addressed solar, wind and hydropower systems among

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others as captured within the development of new

Keywords: Power Supply, Renewable Energy, Power Management, Grid Management, Sustainability

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14 Decentralized Predictive Models for Making Procurement Decisions in Manufacturing Networks

Paper ID V10I5-1189 · Pages 88-95 · Supply Chain

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This paper presents a decentralized procurement decision-making framework designed to optimize procurement strategies within distributed manufacturing networks. Traditional centralized procurement models often suffer from inefficiencies, opaque decision-making, and challenges related to multi-level risks, particularly in the context of globalized supply chains. To address these issues, this project proposes a decentralized architecture utilizing predictive modeling and machine learning techniques, supported by decentralized ledger technologies (DLT) such as blockchain. The framework integrates large language models (LLMs) to forecast supply chain risks, demand fluctuations, and pricing trends. Furthermore, smart contracts are employed to automate the procurement process, ensuring transparency, security, and compliance. The system incorporates real-time feedback mechanisms to enhance decision-making accuracy, reduce lead times, and mitigate procurement risks. Testing in collaboration with multiple manufacturing firms revealed improvements in procurement efficiency, supply chain resilience, and risk management. The paper concludes by highlighting the potential of decentralized procurement frameworks to revolutionize supply chain management across various industrial contexts.

Keywords: Supply Chain, Block Chain, Smart Contract

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15 Exploration of India’s COVID-19 Policies in Addressing the Ramifications of the Pandemic and their Implications on Public Health and The Economy

Paper ID V10I5-1184 · Pages 96-106 · Public Health And Economics

Vinaya Dua, Student, Lumiere Education of Sigmas, Massachusetts, United States

The COVID-19 pandemic became a global emergency, seriously affecting healthcare systems and economic systems all over the world. This study aims to present a comprehensive review of the policies implemented by the Indian government and central bank to address their economic impact. India, being the largest populated country, encountered extreme challenges while limiting the spread of SARS-CoV-2. This catastrophe significantly hampered the state of the economy and therefore required monetary, fiscal, educational, and technological interventions to shape economic recovery. Articles, journals, online newspapers, published documents, websites, and figures have been used to gain knowledge about the policies that were administered during the COVID-19 time. Furthermore, frameworks and models such as the AD-AS framework and the Lucas

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Asset Pricing System have been used to ease the process of understanding.

Keywords: COVID-19, India, Policy Framework

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16 A Study on Chromosomal Aberrations and Sister Chromatid Exchanges in Lead Industry Workers

Paper ID V10I5-1201 · Pages 107-110 · Genetics

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Lead is a widely used heavy metal with known toxicological effects, including severe health problems such as neurological damage, cardiovascular issues, and kidney damage. This study aimed to evaluate the genotoxic effects of lead exposure in lead factory workers. Methodology: 173 lead factory workers and 179 control subjects were included in the study. Blood samples were analysed for lead levels using Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Cytogenetic damage was assessed by examining chromosomal aberrations (CA) and sister chromatid exchanges (SCE) in peripheral blood lymphocytes. Results: Blood lead levels in lead factory workers significantly increased compared to controls. Chromosomal aberration analysis, which included gaps, breaks, dicentrics, and polyploidy, showed no significant differences between the two groups. Sister chromatid exchange frequencies were higher in lead factory workers (SCE/cell: 3.47) than in controls (SCE/cell: 3.17), although this difference was not statistically significant. Conclusion: The study showed no cytogenetic damage in lead factory workers although there was an increase in the BLLs in the workers.

Keywords: Lead Genotoxicity, Chromosomal Aberrations, Sister Chromatid Exchanges

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17 Quantifying Financial Cyber Risks in Financial Institutions: Monte Carlo Simulations, Time-Series Forecasting, and Cost-Benefit Optimization

Paper ID V10I5-1190 · Pages 111-118 · Finance

Silvia Tsovwen Asakpa, Student, Richard Chaifetz School of Business, Saint Louis University, St. Louis, MO

This study assesses the financial impact of cyberattacks on financial institutions by applying Monte Carlo simulations, ARIMA-based forecasting, and Value at Risk (VaR) and Conditional VaR (CVaR) models to quantify direct and indirect losses, including regulatory fines, operational disruptions, and reputational damage. A cost-benefit analysis determines the optimal level of cybersecurity investment, and correlation analysis evaluates the systemic risks posed by cyberattacks across the financial ecosystem. The research finds that institutions face an average loss of $427.28 million over 10 years, with potential losses rising to $705.01 million in worst-case scenarios. VaR suggests a maximum expected loss of $268.23 million, while CVaR points to potential extreme losses of $437.36 million. Time-series forecasting projects continued growth in cyber losses, reaching $114.68 million annually by 2028. The study also reveals diminishing returns on cybersecurity investments beyond $1 billion, though positive ROI persists. Predictive models for cyber insurance estimate premiums

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ranging from $10.60 million to $176.52 million, helping institutions optimize risk mitigation strategies. These findings underscore the critical need for financial institutions to integrate cybersecurity into broader risk management frameworks, balancing investment with financial returns to enhance resilience against evolving threats.

Keywords: Finance, Cybersecurity, Analytics, Monte Carlo

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18 Maritime Decarbonization

Paper ID V10I5-1192 · Pages 119-131 · Decarbonization

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With increasing globalization and industrialization, world trade is experiencing significant growth. The maritime industry is the backbone of global trade, but it is a significant contributor to GHG emissions. This research paper delves into the negative impacts of the maritime industry on our environment, focusing on Heavy Fuel Oils (HFO's), which emit large quantities of CO2 ,exploring the alternatives to these fuels such as Ammonia, Hydrogen, LNG's etc. The study includes a case study of a company dominating market share in the maritime industry (Maersk) and another company which is a startup that has adopted environmentally friendly practices to achieve sustainability. Moreover, key obstacles such as fuel maturity, costs, and technological limitations are examined and policies implemented by the international organizations and steps taken by the Indian government are also considered. With increasing globalization and industrialization, world trade is experiencing significant growth. The maritime industry is the backbone of global trade, but it is a significant contributor to GHG emissions. This research paper delves into the negative impacts of the maritime industry on our environment, focusing on Heavy Fuel Oils (HFO's), which emit large quantities of CO2 ,exploring the alternatives to these fuels such as Ammonia, Hydrogen, LNG's etc. The study includes a case study of a company dominating market share in the maritime industry (Maersk) and another company which is a startup that has adopted environmentally friendly practices to achieve sustainability. Moreover, key obstacles such as fuel maturity, costs, and technological limitations are examined and policies implemented by the international organizations and steps taken by the Indian government are also considered.

Keywords: Decarbonization , Maritime , Sustainability

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19 Harnessing Data Analytics for Supply Chain Optimization: Insights from Industry 4.0

Paper ID V10I5-1213 · Pages 132-135 · Data Analytics

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The emergence of Industry 4.0 has revolutionized supply chain management through advancements in data analytics. This paper explores how organizations leverage data analytics to optimize their supply chains, focusing on increased efficiency, improved decision-making, and enhanced customer satisfaction. By examining key concepts, technologies, and detailed case studies, this research highlights the transformative potential of

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data analytics within the context of Industry 4.0, providing actionable insights for both researchers and practitioners.

Keywords: Data Analytics, Supply Chain Optimization, Industry 4.0, Demand Forecasting, Inventory Management, Predictive Analytics, Artificial Intelligence (AI), Internet of Things (IoT), Machine Learning, Logistics Optimization, Supplier Relationship Management, Risk Management, Big Data, Digital Twins, Case Studies

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---

20 Role of Artificial Intelligence in Business

Paper ID V10I5-1214 · Pages 136-140 · Artificial Intelligence

Shaurya Suyal, Student, C. R. Oasis Convent Sr. Sec. School, New Delhi

The purpose of this paper is to analyze how the development of artificial intelligence (AI) is causing shifts in today’s business processes. Today's business environment is characterized by remarkable technological changes which have brought to the fore a new dimension of artificial intelligence (AI) as a crucial factor of innovation and competition in every industry (Haan, 2023). This paper also reviews the level of advancement of current AI technology the extent to which this technology is being utilized and its consequences in businesses around the world (McGinnis, 2020).

Keywords: Artificial Intelligence In Business, Challenges, Advantages, Transformation, Industry

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21 Case Study- Chronic Obstructive Pulmonary Disease

Paper ID V10I5-1227 · Pages 141-144 · Medical

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Chronic obstructive pulmonary disease (COPD) and is associated with worsened clinical symptoms and prognosis. The prevalence of PH-COPD is not concretely established as classification criteria vary historically, but the presence of severe disease out of proportion to underlying COPD is relatively rare. Right heart catheterization, the gold standard in diagnosis of PH, is infrequently performed in COPD, and the overlap in the clinical symptoms of PH and COPD presents diagnostic challenges. Proven treatments are limited. Trials exploring the use of vasodilator therapy in this patient group generally demonstrate improvements in hemodynamic accompanied by worsening gas exchange without clearly demonstrated improvements in clinically meaningful outcomes. In-depth workup of underlying pulmonary hypertension and use of pulmonary vasodilator medications may be appropriate on an individual basis. We present a case study and a review and discussion of the pertinent literature on this topic. Chronic obstructive pulmonary disease (COPD) is a very common condition especially found among those of the older generation who have a history of smoking, a widely accepted practice where harmful effects were not known in the 1940’s, 1950’s, and even the early 1960’s (Cummings & Proctor, 2015). The long term effects of smoking were eventually understood in the scientific community as people would present with cases of diminished lung function. The risks were published

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and shared with the public as the medical community better understood the phenomenon (Cummings & Proctor, 2015). After the effects of smoking on lung function became better understood, treatments were devised and experimented to help improve respiratory status. Reactive airway disease and its treatment also played a role in the development of treatment for those who had the condition labeled as chronic obstructive pulmonary disease (COPD). Some of the treatments that were developed were in the classes of medications labeled as beta 2 agonists, anticholinergics, also known as muscarinic receptor antagonists, and corticosteroids. Each agent demonstrates a specific modality to help improve air exchange in individuals whose lung function has been compromised by bronchoconstriction, the lack of functional alveoli, airway inflammation, and excessive sputum production. Here presents a case of a 70 year old female who has a

Keywords: COPD, Chronic Obstructive Pulmonary Disease, Pulmonary Hypertension ,

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22 Perinatal Outcomes of 100 Consecutive Cesarean Sections at a Nursing Home in Urban India

Paper ID V10I5-1188 · Pages 145-148 · Biology

Arrman Sanganeria, Student, Independant Researcher
Gaurav Desai, Independent Researcher, Mothercare Clinic

Background: Cesarean section has become an important obstetric intervention both in institutions and nursing home setup. Outcomes of cesarean sections nursing homes are not well documented in literature. Objectives: To analyse data of 100 consecutive cesarean sections done at a nursing home in urban India. Method: This was a retrospective study carried out at Mothercare Nursing Home in the city of Mumbai over a period of six years. Medical records of patients who underwent a cesarean section at our nursing home between 2015 to 2021 were recorded. Demographic data including patient's age, mean parity, previous medical and surgical history, USG findings, cesarean section and newborn records were documented. Caesarian sections done were classified as per Robson criteria. Data was analysed using Microsoft excel. Results: A total of 100 consecutive patients (mean age=30.9±4.2 yrs, mean parity=0.6±0.7 yrs, mean BMI= 23.4±1.4 kg/m2) who satisfied our inclusion criteria were included in this study and underwent a cesarean section. In total 78 patients underwent an elective cesarean delivery and 22 had an emergency cesarean section. Primary and secondary cesarean section was done in 66 and 34 women respectively. There were 104 conceptions (n=4 twin gestation) resulting in 43 male and 61 female births. Number of women who were normal weight (BMI 18-25 kg/m2) were 72 and total number of overweight and obese women were 28 (BMI over 25 kg/m2). Majority of patients were categorised into modified Robson class 2 and 5. A majority of women were in the 25-35 year age group (n=83). Most deliveries occurred at term (n=98, mean birth weight 2.87±0.47 kg). Two preterm newborns required NICU care. There was no maternal mortality in our cohort. Conclusions: Cesarean delivery is a safe and feasible procedure in a nursing home. Good backup systems and protocols are a must to conduct this surgery in a safe and effective manner. Most patients were modified Robson criteria 2 and 5.

Keywords: Cesarean Section, Perinatal Morbidity, Robson Criteria

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23 The Economic Impact of Millet Consumption: Exploring Consumer Trends and Market Potential

Paper ID V10I5-1226 · Pages 149-174 · Economics

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ABSTRACT The article makes a persuasive case for re-examining millet production's role in India's economy. Historically significant and environmentally resilient, millet presents a promising option for sustainable agriculture in water-scarce regions. Its low input requirements highlight its potential as an economically viable crop. However, despite these benefits, millet has become neglected in the 21st century. Investigating the causes of this decline and exploring ways to revive millet production is essential. The article provides an economic analysis, using secondary data, to elucidate the economic dynamics of millet production. This analysis reveals the challenges and opportunities in reintegrating millet into India's agricultural sector. By understanding millet's economic potential and addressing cultivation and consumption barriers, policymakers can leverage this ancient grain to promote sustainable farming practices and spur economic growth.

Keywords: Cost, Consumption, Millet, Economic Development, Green Revolution, Sustainability

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24 Generation of People’s Comfort Journey

Paper ID V10I5-1239 · Pages 175-181 · Indian Railways

Lenin Ilavendhan C, Student, BS Abdur Rahman Crescent Institute of Science and Technology, Chennai

As urbanization and population growth increase, train systems face overcrowding challenges. This paper examines the potential of reducing overcrowding by increasing the number of train coaches. Through case studies from various metropolitan rail networks, the study analyzes the operational, financial, and infrastructural impacts of coach expansions. Key factors like platform length, scheduling, and safety are assessed. The findings indicate that while adding coaches can help alleviate overcrowding, success relies on integrated station upgrades, operational changes, and capacity planning. Practical recommendations are offered for transportation authorities to enhance train services and manage congestion in busy urban areas.

Keywords: Icf Coaches, Lhb Coaches, Indian Railways, Chennai-Coimbatore Route, Overcrowding, Train Capacity, Safety Features, Platform Length, Train Scheduling, Operational Efficiency, Passenger Comfort, Coach Design, Anti-Collision Technology, Higher Speed, Maintenance Requirements, Passenger Demand, Urbanization, Ridership Trends, Cost-Benefit Analysis, Infrastructure Challenges, Rail Network, Train Services.

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25 Cross Sectional Study to Assess Knowledge, Practice and Attitude on High Quality Cardiopulmonary Resuscitation among Health Care Professional.

Paper ID V10I5-1241 · Pages 182-185 · Medical

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Dr.Ganpat Singh, Independent Researcher (MBBS, MD), Goyal Hospital and Research Centre Pvt Ltd, Jodhpur
Gaje Singh, Independent Researcher (Post Basic BSc Nursing ,AHA BLS Instructor), Goyal Hospital and Research Centre Pvt Ltd, Jodhpur

ABSTRACT: Background: Cardiac arrest is leading cause of death in India and globally. cardiac arrest death is no one in non-communicable death in India. According to American heart Association general Worldwide, there are >135 million cardiovascular deaths each year. In India, it is estimated that about 5-6 lakh people die every year due to sudden cardiac arrest, and a good proportion of them are under the age of 50. Prompt response by health care professional and provide High quality CPR combination of Chest Compression at the rate of 100-120 compression/min, with depth of compression 5-6 cm without any interruption, complete chest recoil and give 2 rescue breathing within 10 seconds after opening airway by head tilt and chin lift for medical victim and jaw thrust for trauma victim, which is delivered continued cycle during cardiac arrest by one or 2 rescuer in out hospital and through megapode team in hospital Continue CAB 5 cycle of High-quality CPR within 2 minutes. Methods: Its Cross-Sectional study of duration of 2 month from November 2023 to December 2023.continued among health care professional working at Goyal Hospital and Research centre pvt ltd. Knowledge assessed through 20 multiple questions and practiced assessed by skill check list contain 10 points of High-Quality CPR and attitude observed and assessed by verbal question while skill case scenario. Result: The median for knowledge score nursing staff was 14.5 (70.25%) and Practice score median was 7 (70%). knowledge score between critical and nun critical area was not found statistically significant. Distribution of subjects based on scores in knowledge and of High Quality BLS 5.55% (5) of Nursing staff poor knowledge score and 30% (27) of nursing staff had average knowledge score. 55.55% (50) having good knowledge score .and remaining 8.88 (8) are excellent in knowledge Conclusion: The present study identified the Knowledge and practice score of BLS or CPR is Average in nursing staffs, even though they have positive and good attitude towards it. BLS training should be the part of the curriculum and CNE to solve this issue.

Keywords: High Quality CPR, Cardiopulmonary Resuscitation , BLS, Cardiac arrest

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26 Expanding the Dimes Model – Methodology and Applications in Acquisition-Based Cash Flow Forecasting

Paper ID V10I5-1245 · Pages 186-188 · Economics

Fenil Vijay Chamariya, Student, Prabhavati Padamshi Soni International Junior College, Mumbai

The DIMES (Dynamic Integrated Model for Estimating Synergies) model is a novel framework designed to predict the future cash flows of companies based primarily on acquisition activity. Unlike traditional models that

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focus primarily on previous growth, DIMES emphasizes the impact of synergies created through acquisitions. This paper explores the core methodology of DIMES, its application in various industries, and highlights how the model dynamically incorporates acquisition data to estimate future performance. The inclusion of factors like depreciation on cash flow due to inflation is treated as an error, which the model can refine as more accurate data is incorporated. This paper provides a detailed explanation of the methodology and showcases the practical utility of DIMES for financial forecasting.

Keywords: Synergies, Cash Flows, Acquisition, Depreciation

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27 Patent Trolls: Impact on Innovation and Legal Solutions

Paper ID V10I5-1196 · Pages 189-195 · Patent Laws

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The proliferation of patent trolls, formally known as Non-Practicing Entities (NPEs), has become a notable impediment to innovation, especially in sectors such as technology, software development, and biotechnology. Patent trolls exploit the patent system by acquiring patents not to further technological advancement or product development, but to generate revenue through aggressive litigation and settlement tactics. This paper explores the multifaceted impact of patent trolls on innovation, analysing their economic repercussions on businesses, startups, and the broader technology ecosystem. It delves into the legal mechanisms and strategies employed worldwide to counteract the activities of patent trolls, including legislative reforms, judicial decisions, and administrative measures. The study concludes by proposing a series of targeted reforms aimed at creating a more balanced and effective patent system. These reforms are designed to safeguard genuine innovation and technological progress while discouraging and mitigating the detrimental effects of exploitation and abusive patent litigation practices. By examining case studies, legal precedents, and policy initiatives, this paper seeks to offer a comprehensive analysis and practical recommendations for addressing the challenges posed by patent trolls in the contemporary patent landscape.

Keywords: Patent Trolls, Non-Practicing Entities (NPEs), Innovation Impediments, Patent Exploitation, Aggressive Litigation Patent System Reforms, Intellectual Property Rights, Technology Ecosystem

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28 Shift of Indian Passenger Vehicles' Demand to SUV's

Paper ID V10I5-1243 · Pages 196-205 · Micro-economics

Yashviraaj Mahajan, Student, Independent Researcher

The ever-growing market for passenger vehicles in India is currently going through a phase of increased demand for Sports Utility Vehicles (SUVs). The aim of this research is to analyse the data from previous researches and their conclusions and verify it and drawing our own conclusions through a survey of Indians who have the disposable income available to them for the purchase of passenger cars. The main reasons for this shift were found to be the greater reliability and ground clearance, the higher perceived safety of SUVs in

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comparison to other vehicles such as sedans and hatchbacks and the growth of hybrids and electric vehicles contributing to the growth of SUVs. For greater ease of understanding, the factors affecting this shift have been further classified into ‘Industry Trends’ and ‘Consumer Understanding’ heads.

Keywords: SUV's, Passenger Vehicles, Automobiles, Growth Of SUV's, Demand of SUV's, Shift To SUV's, Indian Automobile Market

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29 Self-Corrective Retrieval-Augmented Generation

Paper ID V10I5-1242 · Pages 206-209 · Data Science

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Though they are quite good at producing text, large language models (LLMs) frequently make mistakes or give incorrect information. This occurs as a result of LLMs heavy reliance on training material, which may eventually become outmoded or lacking. Retrieval-Augmented Generation (RAG) was developed as a solution to this problem. In RAG, pertinent data is retrieved and integrated from outside sources by the model. RAG does have several drawbacks, though, like the ability to retrieve superfluous or irrelevant data, which might confuse the model and produce inaccurate or ineffective results. Self-Corrective Retrieval-Augmented Generation (SCRAG), a novel method, attempts to address these issues by merging the internal knowledge of the model with the world data systemThough they are quite good at producing text, large language models (LLMs) frequently make mistakes or give incorrect information. This occurs as a result of LLMs heavy reliance on training material, which may eventually become outmoded or lacking. Retrieval-Augmented Generation (RAG) was developed as a solution to this problem. In RAG, pertinent data is retrieved and integrated from outside sources by the model. RAG does have several drawbacks, though, like the ability to retrieve superfluous or irrelevant data, which might confuse the model and produce inaccurate or ineffective results. Self-Corrective Retrieval-Augmented Generation (SCRAG), a novel method, attempts to address these issues by merging the internal knowledge of the model with the world data systems. In SCRAG, the model uses a technique called reflection tokens to assess the value of the information it retrieves in addition to retrieving it. This enables the model to modify its behavior according on the task and the caliber of the data it has acquired. In order to address this, SCRAG includes a simple method for evaluating the accuracy of the data that is retrieved. The model conducts a more thorough search—it even retrieves information from the internet to identify more reliable sources if the data is erroneous or insufficient. SCRAG also employs a decompose-then-recompose procedure that aids in the model's ability to dissect the recovered data, concentrate on the most pertinent portions, and eliminate unimportant information. This guarantees that the model produces accurate and trustworthy replies by using only high quality data.

Keywords: Self - Corrective RAG, Retrieval Augmented Generation, LLMs Based Rag, Knowledge Based RAG

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30 Where Luxury Meets Art and Art Meets Profit: Artist Collaborations in High-End Branding

Paper ID V10I5-1194 · Pages 210-218 · Art And Marketing

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Ria Jethi, Metamorphosis

Artist collaborations have become a pivotal strategy in luxury brand marketing, blending creativity and exclusivity to captivate high-end consumers. These partnerships, whether through fashion, beauty, or technology, allow brands to rejuvenate their image, appeal to new audiences, and enhance their cultural relevance. By leveraging the artistic vision of designers like Sabyasachi Mukherjee, Masaba Gupta, and Manish Malhotra, luxury brands craft unique collections that resonate with consumers' desire for originality and status. However, these collaborations also raise important questions about brand dilution, balancing accessibility with exclusivity, and ethical concerns around cultural representation. This paper examines how artist collaborations enhance brand value while navigating the complexities of maintaining a luxury identity

Keywords: Art, Marketing, Culture, Luxury

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31 The Rise and Impact of Deepfakes: A Comprehensive Analysis of Detection Criteria and Societal Implications

Paper ID V10I5-1236 · Pages 219-221 · Ai

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Some believe that the new era of deepfake technology has improved digital media, but others believe it has brought up major risks as well as creative opportunities. This study offers an investigation of deepfakes, concentrating on the detection criteria found by analyzing more than a thousand movies that were selected from Kaggle datasets. The study is based on formulae for inconsistent lighting and shadows, visual transitions, and auditory synchronization.

Keywords: Deepfakes, Digital Media, Detection Criteria, Lighting Inconsistencies, Auditory Synchronization.

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32 Adoption and Impact of Cloud Computing in Enterprise and Business Management: A Literature Survey

Paper ID V10I5-1256 · Pages 222-228 · Computer Science And Engineering

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Cloud computing has emerged as a transformative force in enterprise and business management, offering scalable, flexible, and cost-effective solutions. This literature review examines the adoption patterns and impact of cloud computing across various business environments, including large enterprises, small and medium-sized enterprises (SMEs), human resource (HR) management, and Enterprise Resource Planning (ERP)

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systems. The review reveals that cloud computing enables organizations to streamline processes, reduce overhead costs, and better manage resources. Cloud ERP systems improve operational workflows and boost productivity, while cloud-based HRMS enhance the flexibility and scalability of HR functions. Successful cloud adoption requires strong top management support and robust security frameworks. As businesses increasingly turn to cloud technologies for competitive advantages, developing advanced frameworks and solutions that address the unique challenges of SMEs and dynamic HR environments will be crucial. Cloud computing is poised to continue playing a transformative role in shaping the future of business management, offering unprecedented opportunities for efficiency and growth in a rapidly evolving technological landscape.

Keywords: Cloud computing, Enterprise management, Business applications, Small and medium-sized enterprises (SMEs), Human resource management, Enterprise Resource Planning (ERP)

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33 Data Mining

Paper ID V10I5-1252 · Pages 229-234 · Data Mining

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Data mining is the process of discovering patterns, correlations, and anomalies within large datasets to predict outcomes. By applying a variety of techniques from statistics, machine learning, and database systems, data mining transforms raw data into valuable insights. This paper explores the methodologies and applications of data mining, highlighting its significance in fields such as finance, healthcare, and marketing. Key techniques discussed include classification, clustering, regression, and association rule learning. The study also addresses the challenges and future directions in data mining, emphasizing the need for scalable and efficient algorithms to handle the ever-increasing volume of data.

Keywords: Data Mining,Cybersecurity,

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34 Efficient Calorie Counter

Paper ID V10I5-1264 · Pages 235-238 · Bio Physics

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This paper presents a novel formula for calculating total calories burned, incorporating both physical activity and basal metabolic rate (BMR). The model integrates mass, time, distance covered, and heart rate intensity into a comprehensive equation. By adjusting for heart rate zones and converting energy units from joules to calories, the formula provides a more personalized estimate of energy expenditure. This approach improves accuracy by accounting for individual metabolic differences, aiming to enhance current methods for fitness tracking and calorie estimation.

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Keywords: Calorie Estimation, Energy Expenditure, Heart Rate, Metabolic Rate, Fitness Tracking, Personalized Formula, Physical Activity

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35 Categorization and Forecasting of Hepatitis C Diagnosis via an Unconventional Consensus Classifier

Paper ID V10I5-1273 · Pages 239-247 · Cse (aiml)

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Liver diseases are increasingly becoming one of the most fatal health conditions in several countries, especially after Covid-19 (i.e., after 2019) and the prevalence of liver disease has been rising since then due to factors such as excessive alcohol consumption, inhalation of harmful gases, and the intake of contaminated food, pickles, drugs and medications and not to miss, also due to the Covid-19 virus. To address this issue, several multimodal data are collected and given as input to build categorization and forecasting models aimed at predicting liver diseases, especially Hepatitis C and, by utilizing machine learning approaches, we comprehensively assess the patients' liver conditions and the stage of Hepatitis C. We first categorize the results into positive and negative outcomes using rudimentary machine learning algorithms. As we process the liver parameters and their percentages, we present the results as votes derived using the Unconventional Consensus Classifier Algorithm to classify the stages of Hepatitis C. This project aims to develop a robust machine-learning model for the categorization and forecasting of liver disease diagnosis. Leveraging various machine learning algorithms, including decision trees, support vector machines, and so on, the project focuses on accurately predicting liver disease based on a set of medical and demographic features. By analyzing the available existing data and utilizing advanced data preprocessing and feature engineering methods, the proposed system seeks to assist healthcare professionals in early diagnosis and treatment planning, ultimately improving patient outcomes.

Keywords: Liver Disease, Hepatitis C, Machine Learning, Categorization and Forecasting, Consensus Classifier Algorithm.

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36 Understanding the Potential Risks and Uses of SLS in Daily Life

Paper ID V10I5-1271 · Pages 248-250 · Chemistry

Tunisha Chaudhary, Student, Independent Researcher

A popular chemical in personal care goods like shampoos and cleaning solutions is sodium lauryl sulfate, or SLS. Its emulsifying and foaming qualities make it valuable. Many Concerns have been voiced about its possible negative effects on health, especially skin irritation, as well as its environmental impact. This paper discusses the history of SLS, its uses, and the safety issues that surround it. Further covered is the topic of substitute ingredients for SLS, especially in the cosmetics sector. Despite SLS's effectiveness, these results imply that

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safer and more environmentally friendly options exist.

Keywords: SLS, Sodium Lauryl Sulfate, Environment, Chemistry, Risks, Alternatives.

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37 Corporate Social Responsibility: Ethical and Economic Considerations

Paper ID V10I5-1258 · Pages 251-255 · Economics

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This research paper focuses on the constant conflict of businesses working towards corporate social responsibility with ethical or economic considerations. Hence, it reviews the government, markets and social norms as the pressure behind corporate social responsibility. This brings us to the basic rationale behind CSR and to whom these firms bring those CSR schemes. The paper also analyses various companies' perspectives on CSR and their expenditures on these schemes. Further, it talks about CSR as a byproduct of the ethical practices of the firms, which follows up to consider the kinds of CSR that are important to be taken care of. This leads to the origin of CSR, as the result of labour conflicts in the 19th century, which elaborates on the current situation in the three pressures which discipline companies into a certain social behaviour.

Keywords: Corporate Social Responsibility, Ethics, Government, Market, Social Norms.

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38 Consumer Behaviour of UPI Applications / Companies

Paper ID V10I5-1283 · Pages 256-260 · Psychology

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Abstract: Due to factors such as demonetization and COVID-19, UPI has quickly become India’s first choice when it comes to digital payment and is now being incorporated in other countries such as Bhutan and, more recently, France. This research paper explores the various reasons behind the rapid growth of UPI since its introduction in 2016 and why it has become so easy to adopt and integrate into our daily transactions. The paper compares UPI to other forms of digital transactions, and cash transactions, and goes into depth on the advantages, as well as barriers, faced when using UPI.

Keywords: Payment, Digital, UPI, Economy, Demonetization, Merchant Discount Rate, Growth, Cashless

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39 Face Recognition-Based Attendance System

Paper ID V10I5-1282 · Pages 261-267 · Ai

Shubh Agarwal, Student, Delhi Public School Indirapuram, Ghaziabad

This research paper is about the creation of a program for attendance marking using face recognition, which takes the concepts of the Haar Cascade algorithm created by Viola and Jones and the LBPH classifier developed by Timo Ahonen et al. Each student’s data was collected by a program interface that also took photos of each

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student for face detection and recognition to take place. The success of the program was it was able to detect each student correctly with an accuracy of 91%. This program has been successfully implemented in the last 12 months.

Keywords: Face Detection, Face Recognition, Haar-Cascade algorithm, LBPH classifier, Attendance Marking

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40 Bridging the Gap: Education Inequality and Economic Impact in India

Paper ID V10I5-1278 · Pages 268-272 · Education And Employment

Taksheel Agrawal, Student, Independent Researcher
Priyonkon Chatterjee, Professor, Clever Harvey

This paper examines the disparities in school enrollment and dropout rates across various Indian states and their correlation with economic conditions. The paper uncovers states with higher government and private enrollments and dives deeper into steps taken by government and its impact. Despite government initiatives like Sarva Shiksha Abhiyan, significant inequalities persist, particularly affecting marginalized communities and girls. The study utilizes secondary data from ASER and MOSPI, analyzing trends from 2009 to 2018. Findings reveal that states like Tripura and West Bengal have high government school enrollments, while Manipur leads in private school enrollments. Dropout rates are notably high in states like Uttar Pradesh, possibly due to less government initiatives, whereas Kerala and Tamil Nadu show low rates due to robust educational policies. The regression analysis indicates that higher per capita NSDP correlates with lower dropout rates and increased private school enrollments, suggesting economic factors significantly influence educational trends. Conversely, government school enrollments decrease with better economic conditions, highlighting the need for improved public education quality. The paper underscores the importance of targeted policies and social awareness in specific states to address these disparities and promote inclusive education.

Keywords: Enrollment rate, Educational inequality, Statewise disparities, Indian economics, Government policies

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41 Review on Inflammatory Pathway on Oral Cancer Disease

Paper ID V10I5-1281 · Pages 273-283 · Oral Cancer

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Anuradha Patil, Assistant Professor, Dattakala College of Pharmacy,Swami Chincholi
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Oral cancer, characterized by malignant lesions in the oral cavity, poses significant health challenges globally. Inflammation has been increasingly recognized as a crucial factor in the pathogenesis and progression of oral cancer. This review synthesizes current knowledge on inflammatory pathways involved in oral cancer, emphasizing their role in tumor initiation, promotion, and progression. Key inflammatory mediators, including cytokines, chemokines, and prostaglandins, are examined for their contributions to the tumor microenvironment and their interactions with cancer cells. We explore the mechanisms by which chronic

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inflammation leads to genetic and epigenetic alterations, facilitating the transformation of normal epithelial cells into malignant ones. Additionally, the review discusses the impact of inflammatory signaling pathways, such as NF-κB, COX-2, and IL-6, on oral cancer progression and their potential as therapeutic targets. Insights into these inflammatory mechanisms offer valuable perspectives for developing novel diagnostic and therapeutic strategies to improve outcomes in oral cancer management

Keywords: Oral Cancer, Inflammatory Mediator, Diagnosis and Treatment

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42 A Mathematical Slam Dunk: Eliminating Bias using Advanced Statistical Techniques to Predict the NBA MVP

Paper ID V10I5-1253 · Pages 284-287 · Machine Learning

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Predicting the Most Valuable Player (MVP) awards in the NBA is a complex task that involves analysing player statistics and performance metrics. For the history of the tournament, MVP selection has been based on subjective opinions and votes from sports analysts, and votes from the players themselves. However, using mathematical concepts in machine learning techniques, it is now possible to make more objective and data-driven predictions. In this study, we use mathematical concepts from the field of machine learning: Random Forest [1] and SMOTE [2] (Synthetic Minority Over-sampling Technique), to predict MVP award shares.

Keywords: Machine Learning, Feature Engineering, Entropy, Gini Index, Random Forests, Class Imbalance

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43 Standard Model of Particle Physics and String Theory

Paper ID V10I5-1287 · Pages 288-298 · Quantum Physics

Mishita Manish Mhatre, Research Scholar, Prabhavati Padamshi Soni International Junior College, Mumbai

Quantum Physics remains an unapproachable and intimidating topic for high schoolers. Research papers available online contain complicated mathematics, rendering topics such as Quantum Field Theories in the Standard Model and String Theory inaccessible for students trying to gauge interest in these fields. This paper aims to provide an intuitive understanding, at the least, of these topics. It contains concise, relatively detailed explanations of the quantum field theories that explain the presence and interaction of the fundamental forces in our universe. It explores first the Standard Model, familiarizing readers with QED, QCD and Electroweak theory. The study examines flaws in this model before describing key attempts at the unification of forces in the quantum world: Grand Unification theory, Kaluza-Klein Idea and Supersymmetry. It links then to String Theory. The paper tries an interdisciplinary approach, by examining the implication of String Theory from the perspective of physics and mathematics. Conclusively, more research is required before one can determine whether String theory is realistic or not.

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Keywords: Quantum Physics, String Theory, Standard Model, Gravity, Electroweak Theory, Quantum Electrodynamics, Quantum Chromodynamics, Supersymmetry

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44 The Impact of Social Media Use on Identity Formation among Adolescents

Paper ID V10I5-1307 · Pages 299-304 · Social Sciences

Sora Pazer, Lecturer, IU International University of Applied Sciences, Germany

This study examines the relationship between social media use and identity formation among adolescents aged 14 to 21. A quantitative survey (n = 131) assessed social comparison, online identity, and the influence of social media feedback on self-esteem. Results show a significant correlation between social comparison and the importance of online identity. Adolescents who spend more time on social media report a stronger influence of online reactions on their self-esteem. While social media fosters identity exploration, it also encourages validation-seeking behavior. These findings underscore the need for mindful social media use among adolescents.

Keywords: Adolescence, Identity Formation, Online Identity, Self-Esteem, Social Comparison, Social Media Use

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45 Automatic Number Plate Recognition

Paper ID V10I5-1308 · Pages 305-310 · Engineering

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Automatic Number Plate Recognition (ANPR) systems have become essential for various applications, including traffic monitoring, law enforcement, and toll collection. This paper presents a comprehensive study of an ANPR system that utilizes advanced image processing techniques and machine learning algorithms to achieve high accuracy in license plate detection and recognition. The proposed system employs a multi-step approach: image acquisition, preprocessing, plate localization, character segmentation, and optical character recognition (OCR). By integrating deep learning models for feature extraction and classification, the system demonstrates improved performance in diverse environmental conditions. Experimental results show that the proposed ANPR system achieves a recognition accuracy of over 95%, indicating its potential for real-world applications. Furthermore, the paper discusses challenges faced in ANPR implementation, including variations in plate design, illumination conditions, and occlusions, and suggests future directions for research to enhance robustness and efficiency.

Keywords: Automatic Number Plate Recognition, Image Processing, Machine Learning, Optical Character Recognition, Deep Learning, Traffic Monitoring, License Plate Detection.

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46 A Study on Financial Performance and Working Capital in Yuvaraj Scaffolding Private Limited, Madurai.

Paper ID V10I5-1309 · Pages 311-316 · Finance

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Working capital is considered to be the life force of an economic entity and it's efficient management decides the tradeoff between liquidity and profitability. The words of H. G. Guthmann clearly explain the importance of working capital. "Working Capital is the life-blood and nerve center of the business." In the words of Walker, "A firm's profitability is determined in part by the way its working capital is managed." The object of working capital management is to manage firm's current assets and liabilities in such a way that a satisfactory level of working capital is maintained. If the firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy. Thus, need for working capital to run day-to-day business activities smoothly can't be overemphasized. So, in this perspective, the present study is undertaken to examine and evaluate the working capital management of Yuvaraj scaffolding private limited Limited by adopting Ratio Analysis.

Keywords: Balance Sheet, Comparative Statement, Ratios, Working Capital, Profitability.

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47 Gender Inequality in the Workplace

Paper ID V10I5-1297 · Pages 317-319 · Economics

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This paper examines the fundamental issues of gender equality in the workplace. Gender inequality is omnipresent and cross-cultural, irrespective of geography or the nation's GDP. The paper thus seeks to explore the works of women in various occupations and the complaints they raise against the persistent wage gap, the so-called pay gap. There is a distribution of women about the spheres of their active engagement and working areas available, and men have managed to retain most of the 'good' spheres.

Keywords: Gender Difference, Sexism, Discrimination, Women’s Rights, Equality

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48 Handwritten to Text Converter using CNN

Paper ID V10I5-1314 · Pages 320-328 · Computer Engineering

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The technology has become an essential part of digitizing documents for banks, educational and others. In this paper we have craft a handwriting to text converter by using CNN which is able to input the handwritten

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character and convert it into computerized text. This is because CNNs are really good at image processing and what we are doing in the input debugger is identifying and splitting those individual characters from a huge variety of handwritten input. A dataset of handwritten characters is used to train the model, which uses its hierarchical feature extraction capabilities to pick up patterns and subtleties on how handwriting appears. The obtained results from the experiments identifies that CNNs are very good in predicting high accuracy and low error rate for handwriting to text conversion hence using them in real world application makes a boom on it by performing well across industries.

Keywords: Handwriting Recognition, Convolutional Neural Networks (CNN), Handwriting-to-Text, Image Processing, Document Digitization, Machine Learning.

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49 AI and the Future

Paper ID V10I5-1304 · Pages 329-330 · Computer Science Engineering

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AI refers to technology that simulates human intelligence to perform tasks like decision-making and problem-solving. It is used in various applications such as recommendation systems, chatbots, messaging and more. The concept of AI dates back to ancient myths, but modern AI began in the 1940s and 50s with pioneers like Alan Turing. Although AI has achieved significant breakthroughs, including machine learning, it also brings ethical concerns such as job displacement and security risks.

Keywords: Artificial Intelligence (AI), Machine Learning, Human Intelligence Simulation, Decision-Making, Problem-Solving, Alan Turing, Dartmouth Conference, AI Winter, Deep Learning, Job Displacement, Ethical Implications, Automation, Chatbots, Recommendation Systems, Autonomous Weapons, Data Processing, Cybersecurity Risks, Bias In Ai, Ai-Powered Robots, Future of AI

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50 A Bird’s Eye View of Neural Networks and Object Detection Models

Paper ID V10I5-1320 · Pages 331-335 · Computer Science

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This paper explores the field of Object Detection and the advancements in the same. We delve deep into different neural network-based object detection models, with emphasis on their application and address some of the challenges faced in this field. Object detection has a growing importance in fields like agriculture, manufacturing, security surveillance, autonomous vehicles etc. This paper compares different models: Convolution Neural Networks (CNN) Region-based Convolutional Neural Networks (R-CNN), Fast R-CNN, Faster R-CNNs, You Only Look Once (YOLO) and Single Shot Detectors (SSD) based on robustness, adaptability, and real-time processing capabilities. We see which models are suited for real-time applications and which are suited for feature extraction. Despite significant progress,, there are still challenges that are faced in this field.

Keywords: Object Detection, Artificial Intelligence, Machine Learning, RCNN, Fast RCNN, Faster RCNN, Yolo, SSD, Applications of Object Detection.

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51 Comparison of Solar Energy Generated between Fixed-Angle Solar System and Single-Axis Solar Tracking System

Paper ID V10I5-1319 · Pages 336-345 · Mechanical Engineering

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Solar energy is an essential source of renewable energy. The solar system harnesses the power of the sun to generate heat or electricity. Photovoltaic (PV) systems convert sunlight into electricity using solar panels. By monitoring the sun's path across the sky, a system known as single-axis solar tracking adjusts the angle of solar panels to maximize energy production. In this paper, a comparison between the solar energy generated by fixed-angle solar systems and single-axis solar tracking systems is presented under similar conditions. This paper focuses on the single-axis solar tracking system developed which is a simple and non-complicated design with no programming logic control (PLC) system. The paper also highlights the advantages of incorporating tracking technology into solar installations. The main advantage of the single-axis solar tracking system over the fixed-angle solar system is that the former gives a higher energy yield and the design of the single-axis solar tracking system is also very cost effective.

Keywords: Solar System, Single-Axis Solar Tracking System, Fixed-Angle Solar Tracking System

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52 Advances in Cloud Computing for Gaming: A Comprehensive Literature Survey

Paper ID V10I5-1327 · Pages 346-349 · Computer Science

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Cloud computing has revolutionized the gaming industry by enabling high-quality gaming experiences through powerful remote servers, removing the need for expensive hardware. This approach, known as cloud gaming, allows players to stream games directly to devices with minimal hardware requirements. Platforms like Google Stadia, Microsoft xCloud, and NVIDIA GeForce Now deliver games on-demand, making them more accessible and scalable. Key benefits include reduced costs, cross-platform compatibility, and improved game development and distribution models. However, challenges such as latency, bandwidth demands, and data security remain hurdles to overcome. Despite these issues, cloud gaming is expected to grow significantly as technological advancements in network infrastructure and edge computing enhance its performance. With its potential to reshape gaming industry by making immersive, high-quality gaming experiences more accessible, scalable, and cost-effective for players and developers worldwide. Cloud gaming is seen as a key driver of future innovations in the industry.

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Keywords: Cloud gaming, Remote servers, Streaming games, Cross-platform compatibility, Latency, Scalability

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53 Prosthetic Design and Load Considerations on Alveolar Bone —A Laconic Review.

Paper ID V10I5-1340 · Pages 350-354 · Dentistry

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For prosthetic therapy to be successful and last a long time, the design and load considerations on the alveolar bone are essential. The prosthetic option selected—removable, fixed, or implant-supported will determine which issues need to be taken into account. To distributing forces uniformly and avoiding undue stress on the alveolar bone, the design must offer sufficient retention and support. Prosthodontists can design prosthetic restorations that maintain the integrity and health of the alveolar bone while simultaneously restoring function and aesthetics by carefully weighing all relevant criteria. This review article aims to discuss various loads falling on the supporting alveolar bone from various prosthetic treatment options.

Keywords: Alveolar Bone; Prosthetic Design; Stress Distribution; Bone Resorption.

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54 Multi-Criteria Optimization of Financial Management in Digital Marketing for Large Enterprises using Fuzzy Decision-Making Systems

Paper ID V10I5-1343 · Pages 355-363 · Business Administration

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In large enterprises, optimizing financial management in digital marketing campaigns is a complex, multi-dimensional challenge that requires balancing multiple criteria, such as budget allocation, return on investment (ROI), and risk mitigation. This study presents a novel approach to optimizing digital marketing strategies using fuzzy decision-making systems and multi-criteria decision-making (MCDM) algorithms, specifically the TOPSIS method. A comprehensive dataset of 500 marketing campaigns was analyzed, capturing key financial variables such as budget, cost per click (CPC), click-through rate (CTR), conversion rate, customer lifetime value (CLV), and risk levels. The results demonstrate how fuzzy logic can be applied to assess and minimize financial risks while maximizing returns and engagement. Key insights were visualized through a 3D surface plot of budget, conversion rate, and ROI, and a box plot illustrating the relationship between engagement levels and risk. The TOPSIS algorithm ranked campaigns based on their financial performance, showing clear distinctions between high- and low-performing strategies. Sensitivity analysis further illustrated the effects of budget allocation on ROI and conversion rates, providing a holistic view of the optimization process. The study contributes to the field of financial management in digital marketing by demonstrating how fuzzy logic and MCDM approaches can drive data-driven decision-making in large enterprises. The findings have significant implications for strategic

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budget allocation, risk management, and campaign prioritization in the context of large-scale digital marketing efforts.

Keywords: Digital Marketing, Fuzzy Logic Algorithm, Multi-Criteria, Finance

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55 Barriers to Patient Recruitment and Patient Participation Concerns in Clinical Trials

Paper ID V10I5-1363 · Pages 364-374 · Clinical Research

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Difficulties with clinical trial recruitment severely hamper research advancement and the generalizability of study results. The research site may take a lot of time and effort to enroll participants in clinical studies. Every research is unique in several ways, including stages, study indications, eligibility requirements, etc. When determining the enrollment deadline, the potential duration of the trial is usually based on the study's indication and the accessibility of the patient population in the research site's geographic region. Every clinical trial's success depends on its ability to recruit and retain patients, yet these efforts are under extreme strain globally. Patients also have concerns and face significant challenges when participating in clinical trials, such as lack of trust, communication, family support, fear of side effects, etc. This manuscript explores the differences between barriers to recruitment and concerns about participation It consists of a survey intended to collect information on these matters. The collected data is then analyzed and presented using graphs and charts to illustrate the results.

Keywords: Clinical Trial Recruitment, Participation Concerns, Barriers to Recruitment, Clinical Trials, Awareness of Clinical Trials, Strategies.

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56 Evaluating the effectiveness of the National Mental Health Program in India

Paper ID V10I5-1332 · Pages 375-381 · Medicine

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The burden of mental health disorders in India has risen in recent decades. To address the shortage of mental healthcare professionals and infrastructure, the Government of India launched the National Mental Health Program in 1982, which promotes community participation and capital expenditure in this industry. However, the NMHP has been widely criticised for budgetary and administrative incoordination. This research paper examines the NMHP to determine its effectiveness in reducing the social costs associated with untreated mental health issues in India.

Keywords: Mental health, India, National Mental Health Program (NMHP), social costs, mental healthcare infrastructure, externalities, substance use disorder.

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57 Soft Power Propaganda or Diplomacy? A Detailed Exploration of Russia's, India's, and Korea's Soft Power Tactics.

Paper ID V10I5-1330 · Pages 382-387 · World Relations

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This paper discusses the emerging importance of soft power in global diplomacy from various perspectives, particularly the forms and methods developed in international cooperation, trust building, and categorizing cultural influence. Using the contexts of three case studies- Russia, India, and South Korea, this paper further elucidates how countries engage in soft power strategies from media influence, and cultural exchanges, to technological leadership in boosting their countries' global ranking. The analysis extends to how soft power works in the mold of global challenges and geopolitical tensions, where potential future diplomatic relations might take shape.

Keywords: Soft Power, Russia, India, Korea, Military Domination, Education, K Drama, Bollywood.

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58 Groundwater Quality Assessment of Gadwal Watershed, Jogulamba Gadwal District, Telangana, India

Paper ID V10I5-1345 · Pages 388-397 · Hydrogeology

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Gadwal watershed is the part of Krishna River basin and situated in the eastern part of the Jogulamba Gadwal district, Telangana, Southern India and falls in the Survey of India Toposheet No.s E43X15, E43X16, E44S4 and D44A1 with geographical area of 644 sq.km Due to rapid increase in population, industrialization and agriculture use resulted in depletion of groundwater resources and also the quality. To understand the groundwater quality scenario in the study area, 36 groundwater samples were collected from dug wells and bore wells during the Pre-monsoon (May) – 2022 and Post monsoon (November) – 2022 and 14 chemical parameters were analyzed. GIS software is used for preparation special distribution of chemical parameters. Key words : Gadwal Watershed; Quality; Nitrate; Fluoride; GIS analysis.

Keywords: Gadwal Watershed; Quality; Nitrate; Fluoride; GIS Analysis.

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59 TechGenius: Empowering Innovation through Technology

Paper ID V10I5-1331 · Pages 398-402 · Big Data

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This paper presents TechGenius, a comprehensive study application designed to empower BTech students by leveraging innovative technology. The platform offers an intuitive, interactive, and personalized learning experience, integrating features such as adaptive quizzes, real-time progress tracking, peer collaboration, and curated study resources aligned with university curricula. With AI-powered tools for doubt resolution and intelligent recommendations, TechGenius enhances student engagement and optimizes learning outcomes. This solution not only bridges the gap between traditional education and modern technology but also equips students with the skills and knowledge needed for academic and professional success. The paper highlights the architecture, features, and impact of TechGenius in fostering innovation and reshaping the future of technical education.

Keywords: Study App, Personalized Learning, Adaptive Quizzes, Real-Time Progress Tracking, Peer Collaboration, Ai-Powered Tools, Doubt Resolution, Intelligent Recommendations, Educational Technology, Student Engagement, Modern Learning, Technical Education, Innovation In Education.

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60 To Promote the Conservation and use of Underutilized and Neglected Crop Guizotia Abyssinica (L.F.)Cass.

Paper ID V10I5-1362 · Pages 403-411 · Botany

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Niger, scientifically known as Guizotiaabyssinica, is an important secondary oilseed crop originating from Ethiopia and belonging to the Asteraceae family. Also known as ramtil or khurasani, it has gained prominence for its medicinal properties and oil-rich seeds. While Ethiopia is its place of origin, India has emerged as a leading producer.With its rich oil content of around 40%, primarily composed of linoleic acid, niger finds extensive use in edible oil production and traditional medicine. In India, it remains a staple in various rural and tribal areas. However, despite its significance, scientific exploration of its benefits has been limited.Niger is an annual herb, reaching up to 2 meters in height, with a well-developed taproot and hollow, hairy stems. Its bright yellow flowers produce small, glossy black seeds containing valuable fatty acids and proteins. Niger is cultivated in several countries worldwide, including Ethiopia, India, and Brazil.The crop has diverse uses, from edible oil extraction to medicinal applications. Its seeds are employed in treating ailments such as syphilis and coughs, while its oil is utilized for birth control. Its nutritional composition includes essential amino acids like arginine and aspartic acid, making it a valuable dietary supplement.Despite its potential, niger cultivation faces challenges such as limited genetic variation, susceptibility to diseases, and declining production areas. Efforts are underway to introduce advanced varieties with improved traits like disease resistance and higher oil

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content.In India, states like Madhya Pradesh, Maharashtra, and Odisha lead in niger cultivation, though production has seen fluctuations over the years. Initiatives are required to educate farmers on proper cultivation techniques, enhance research for advanced varieties, and address production challenges to unleash niger's full potential as a valuable oilseed crop.

Keywords: Niger, Guizotiaabyssinica, Oilseed Crop, Cultivation, Medicinal Properties, Chemical Composition, Fatty Acids, Amino Acids, Production, Varieties, Intercropping, Water Management, Fertilizer Management, Pest Control, Disease Control, Weed Control, Harvesting, Financial Balance, Potential, Research.

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61 The Need for Optimum Utilization of Non-Renewable Resources

Paper ID V10I5-1267 · Pages 412-414 · Science

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Energy consumption has become a critical aspect of our daily lives, with domestic energy use accounting for a significant portion of total energy consumption and its associated emissions. This paper explores the potential of Hybrid Renewable Energy Systems (HRES) to efficiently produce clean energy, thereby addressing the global power deficit caused by the depletion of conventional energy sources and the growing energy demand across various sectors. The study highlights the need for optimal utilization of renewable resources and examines how this optimization is linked to the management of waste stockpiles. The constraints on the effective use of economic instruments in promoting recycling, particularly when government budgets are balanced, are also discussed. The analysis focuses on the mechanisms necessary to establish a supportive regulatory framework for renewable energies, with the ultimate goal of helping policymakers learn from each other's experiences and contribute to the collective effort to meet renewable energy targets.

Keywords: Non-Renewable Resources, Optimum Utilization, Energy, Renewable Resources

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62 Obstacle Avoidance in Mobile Robots: Algorithms, Optimization Techniques, and Analysis

Paper ID V10I5-1315 · Pages 415-421 · Robotics And Automation

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ABSTRACT: A path-planning technique for robots with obstacles is proposed. The formulation of the issue is in Cartesian space. A map of possible robot configurations is obtained by the application of nonlinear programming techniques. Next, a weighted graph is linked to the map, and a search algorithm is employed to identify a series of robot configurations that avoid collisions between two pre-selected points. Spatial robotic manipulators and redundant planar robotic manipulators with prismatic and revolute joints have both benefited

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from the application of this approach.

Keywords: Collision Avoidance, Cartesian Path Planning, Robotics, Real-Time Performance, Optimization Techniques, Sampling-Based Planners, Machine Learning Models.

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63 Energy Storage Method: Superconducting Magnetic Energy Storage

Paper ID V10I5-1302 · Pages 422-426 · Renewable Energy

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Abstract - Magnetic Energy Storage (SMES) is a highly efficient technology for storing power in a magnetic field created by the flow of direct current through a superconducting coil. SMES has fast energy response times, high efficiency, and many charge-discharge cycles. These qualities make SMES a good candidate for smoothing power fluctuations and enhancing grid resilience, as well as providing better stability for renewable energy systems. This paper covers the fundamental concepts of SMES, its advantages over conventional energy storage systems, its comparison with other energy storage technologies, and some technical and economic challenges related to its widespread deployment in renewable energy. The prospects for SMEs contributing to a more sustainable and efficient energy infrastructure are also considered.

Keywords: Superconducting Magnetic Energy Storage (SMES), Energy Storage, Superconductivity, Renewable Energy, Grid Stability, Cryogenic Refrigeration, Power Efficiency, Energy Density, Pulse Power, PCS Systems, Technical Challenges, Sustainability.

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64 Preliminary Investigations for Iron Ore Occurrences in Warangal District, Telangana

Paper ID V10I5-1376 · Pages 427-431 · Economic Geology

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The mining of iron ore, an essential raw material for Iron & Steel Industry is arguably of prime importance among all mining activities undertaken by any country. India is amongst the leading producers as well as exporters of iron ore in the world. Iron ore deposits occur within the Pakhals in the area around Bayyaram and also in the adjacent area comprising of Dharwars. The deposits present in the Pakhals are exposed, generally on the hills comprising of ferruginous Sandstones and shale. Iron ore deposits of considerable importance, occurring at Motla Timmapur (170 41'': 800 07) ; Bayyaram (170 58' 00") 800 11' 00") & Irslapuram (170 36'00" ; 800 8' 45''). Preliminary geological prospecting carried out to know the available resources.

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Keywords: Iron ore, Pakhal, Bayyaram, Prospecting, Mineralogy.

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65 A Study on Circular Economy and its Influence on Economic Development

Paper ID V10I5-1377 · Pages 432-437 · Commerce And Management

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The circular economy is clearly beneficial to sustainability efforts, but it also offers economic benefits to organizations. Moreover, consumers are increasingly demanding more sustainable practices from the brands with which they interact, and expect to see positive outcomes for the planet through their purchases. The innovation to enable circularity will drive new opportunities for growth, greater resource security and sustainability and a more competitive economy. However, the circular economy model could provide a strong framework for development and a basis for setting principles to guide business innovation, policy, and education. Therefore, the paper largely focuses on the circular economy and its growth on economic development and the methodology of the study is purely based on the secondary data.

Keywords: Circular Economy, Sustainable Practices, Innovation, Competitive Economy

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66 Crops and Weeds Detection System using Machine Learning

Paper ID V10I5-1372 · Pages 438-443 · Crops And Weeds Detection System Using Machine Learning

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Weeds are one of the most harmful agricultural pests for crops. For the waste of crops, Weeds are highly responsible. For the solution of this problem research community as build up a crops and weeds detection system. This technology is build up by using Machine learning. In this paper, we present a literature review on current state-of-the-art ML techniques for weed detection. Our study presents a detailed analysis of ML.

Keywords: Agriculture, Weeds, Crops.

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67 Building a Comprehensive Enterprise Data Lake Architecture

Paper ID V10I5-1324 · Pages 444-451 · Software Engineering

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Organizations need to be driven by “data” more than ever to stay ahead of the curve and be competitive. With the tremendous data growth of data both by volume as well as variety, it is no longer sustainable to store the data in traditional data warehouses as they are not designed to be scalable. Data lake architecture which is typically built on top of cheap hardware is the most economically viable solution for this problem as they are

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elastic and can scale up based on the increasing data needs of an organization. While the solution might seemingly look straightforward there are many nuances associated with this shift in paradigm and a very careful and thoroughly thought through design is necessary when building an enterprise data lake architecture. This white paper explores various aspects related to setting up a comprehensive enterprise data lake which can steer towards the success of the organization. It also touches up on the pit falls and opportunities based on the research and case studies relevant in this area. Finally, a summary and outlook on data lake management is presented to the readers.

Keywords: Artificial Intelligence, Big Data, Data Lake, Data Lake House, Heterogeneous Data, Data Science, Data Warehouse, Machine Learning, Heterogeneous Computing.

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68 AFBAP : Attention For Binding Affinity Prediction

Paper ID V10I5-1386 · Pages 452-461 · Bioinformatics

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This paper introduces the AFBAP model, a novel machine learning model that leverages transfer learning benefits from pre-trained transformers ProtBert and ChemBERTa for feature extraction, and utilises a CNN-based prediction module prefaced by a task-adaptive feature transformation to predict protein-ligand binding affinity with state-of-the-art accuracy. It accepts one-dimensional sequential inputs for both proteins and ligands, in the form of amino acid strings and SMILES strings respectively. AFBAP's performance over a number of datasets using standard evaluation metrics validates the fact that the model achieves higher accuracy with lower training times and lower compute. AFBAP democratizes access to computational methods of optimizing drug discovery, paving the way for rapid and accessible innovation in drug discovery research.

Keywords: Protein-ligand binding affinity, Transformers, Convolutional Neural Network, Task-adaptive feature transformations, Transfer Learning, Binding Affinity, Drug Discovery, Machine Learning, BERT

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69 IoT-Based Data Logging System using Cloud

Paper ID V10I5-1388 · Pages 462-464 · Engineering

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The shift from the digital to the smart era is ongoing due to the ongoing advancements in information technology. IoT is being incorporated into government business operations. Remote data monitoring and measuring systems are essential for the business sector. Data gathering in the manufacturing of electronic systems requires the usage of data loggers. Data loggers, which are gadgets that record different data like temperature and humidity, are employed for this purpose. To collect data from the data logger, create a framework. The program is made to collect data continuously and in real time without interfering with normal

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business operations. Sensor data is gathered and sent to the system for further processing.

Keywords: Internet of Things, Real Time System, Web-Based Application, Visualization & Analysis, Cloud Storage, Security & Privacy

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70 User-Friendly Data Migration: An Integrated GUI Tool For Different Excel Formats to PostgreSQL Database Conversion

Paper ID V10I5-1371 · Pages 465-470 · Computer Science

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The exponential growth of data in various formats has necessitated efficient methods for data management and integration into relational databases. Traditional approaches to importing data from Excel and CSV files into PostgreSQL can be cumbersome and time-consuming, often requiring intricate coding or manual input. This paper introduces a user-friendly graphical user interface (GUI) application that automates the import process, thereby addressing these challenges. The application allows users to effortlessly select folders containing multiple data files, streamlining the data ingestion process. By employing Python libraries such as Pandas and SQLAlchemy, it facilitates seamless data transfer while ensuring data integrity. Significant benefits include enhanced productivity through automation, reduced human error, and improved accessibility for users with varying technical skills. Ultimately, this tool not only simplifies the workflow for researchers and data analysts but also emphasizes the growing need for effective data handling solutions in an increasingly data-driven world

Keywords: Postgres, Excel, CSV, XLS, Migration, Python, Convert CSV, Automation

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71 Comparative Yield Analysis of Black Pepper (Piper Nigrum L.) Genotypes of Uttara Kannada District, Karnataka

Paper ID V10I5-1385 · Pages 471-476 · Horticulture

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Indian black pepper fetches a premium price in major international spices markets because of its intrinsic quality. But the continuous use of low yielding cultivars, non-availability of planting materials, losses due to biotic and abiotic stresses and also non adoption of appropriate agronomic practices are some of the prominent

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factors contributing to lower productivity of black pepper in India. There is no reliable information on the availability of improved local genotypes of Uttara Kannada district for the arecanut based mixed system of cultivation in Karnataka. However, some of the superior genotypes are believed to be high yielders with superior quality and tolerant to drought situation, pest and diseases, that may be available in the farmers fields. In this connection present experiment conducted at Uttara Kannada district of Karnataka using 52 genotypes. Among the genotypes, green pepper yield per vine was the highest in Panniyur 1 and was on par with the genotypes viz., SV 11, SV 7 and Kudure Bala. Whereas, maximum dry pepper yield per vine was recorded by the genotype SV 11 and was on par with genotype Kudure Bala, national check var. Panniyur 1 and SV 7. However, the highest recovery of black pepper was observed in farmer variety Sigandini (37.74 %) and was at par with the genotypes Magod Jaddi, Kudure bala, SV 11, Sambar Dadiga, Kari Dadiga, Havali Special and Kurimale compared to national var. Panniyur 1

Keywords: Black Pepper, Yield, Genotypes, Karnataka

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72 Formulation and Evaluation of Carvedilol Nanoparticles Precision for Immediate Drug Delivery

Paper ID V10I5-1395 · Pages 477-481 · Pharmacy

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Carvedilol is a non-selective beta-adrenergic blocker and alpha-1 adrenergic antagonist used primarily in the management of heart failure, hypertension, and left ventricular dysfunction following myocardial infarction. Its dual mechanism of action not only reduces heart rate and myocardial contractility but also promotes vasodilation, enhancing overall cardiac output and decreasing systemic vascular resistance. Clinical studies demonstrate that carvedilol improves morbidity and mortality in patients with heart failure and is associated with fewer adverse effects compared to traditional beta-blockers. This medication is typically well-tolerated, but potential side effects include hypotension, dizziness, and fatigue. Ongoing research continues to explore its therapeutic applications and long-term benefits. Its unique pharmacological profile allows for simultaneous reduction in heart rate and systemic vascular resistance, resulting in improved cardiac output and hemodynamic stability. Clinical trials have demonstrated that carvedilol significantly reduces morbidity and mortality rates in heart failure patients compared to traditional beta-blockers. This project aims to evaluate the efficacy, safety, and clinical applications of carvedilol, along with its impact on patient quality of life and long-term outcomes. Carvedilol is the first beta blocker approved for treatment of all forms of congestive heart failure (mild, moderate, severe). Since its introduction, carvedilol has rapidly become the standard of care for the management of heart failure. The registration of carvedilol for heart failure treatment has broken old medical dogmas through strong scientific evidence, both preclinical and clinical. Carvedilol was approved for heart failure indication following a long and difficult saga of scientific, medical, business and regulatory issues within and outside the sponsoring company. This review of the case history of carvedilol's development in heart failure highlights the complex interpersonal, emotional, legal and political struggles that often govern and impact drug discovery and development. It also demonstrates the importance of personal and team ethics and

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a commitment to follow the direction of firm scientific evidence in order to overcome deeply rooted beliefs, fears and prejudices.

Keywords: carvedilol, β-blocker, hypertension, diabetes, atherosclerosis, Alpha-1 antagonist, Heart failure, Hypertension, Myocardial infarction Cardiovascular therapy, Vasodilation, Hemodynamic stability.

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73 Streamlined Attendance Monitoring : Multifaced Recognition

Paper ID V10I5-1405 · Pages 482-489 · Computer Science And Engineering

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In order to precisely discover human beings, conventional attendance structures normally depend on biometric techniques like fingerprint or iris scanning. But these systems frequently have scalability and performance problems, especially while handling large companies straight away. This research gives a novel technique to decorate attendance monitoring through using ultra-modern multi-face popularity techniques. In assessment to conventional biometric systems which are commonly restricted to unmarried user processing, our device can effortlessly control several customers immediately. It makes use of a combination of several algorithms to detect spoofing, become aware of faces, and perform excessive-precision recognition. By integrating these techniques, the system overcomes common issues associated with traditional techniques, such as false identities and unauthorized access, and provides a robust solution provide accurate and reliable attendance records This method not only provides accurate and speedy attendance tracking but also ensures the integrity of the process Becoming an ideal solution for environments that require biometric identification systems.

Keywords: Face Recognition, Multi-Face Detection, Haar Cascade Classifier, FaceNet Model, Anti-Spoofing, Convolutional Neural Network (CNN), Attendance System, Machine Learning, Computer Vision, Image Processing, Real-Time Processing

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74 Social Media Censorship and Freedom of Expression In Tanzania. A Case of Ilala District, Dar Es Salaam

Paper ID V10I5-1404 · Pages 490-499 · Communication

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This study assessed the level of social media censorship and the freedom of expression among social media

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users in Ilala District, Dar es Salaam, Tanzania. The study adopts a mixed-methods approach, combining quantitative surveys with qualitative interviews to explore levels of awareness of mechanisms for managing censorship and regulatory frameworks affecting social media users. The results also revealed that concerning social media censorship, the majority of people had a different comprehension of it, where a big proportion of the respondents showed a limited understanding of the laws and policies regarding it. Results indicated that only 58% of participants were aware of the Tanzanian laws concerning social media surveillance; this represents a critical gap in knowledge. Users are reacting to censorship by self-censoring, encrypted communication, and activism. The study also emphasizes increasing public education on social media regulations and digital literacy to protect freedom of expression in an increasingly regulated online space. Such findings go toward policy development and add to the broad debate over digital rights and freedom of expression.

Keywords: Social Media Censorship, Freedom of Expression, Digital Rights.

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75 Recommended Athletic Consumption of Carbohydrates: A Review

Paper ID V10I5-1321 · Pages 500-504 · Biology

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This paper explores the relationship between carbohydrate consumption and its effect on athletic performance with deep insight into the timing, amount, diets, and temperature. Evaluating data from different research papers found that carbohydrates can be crucial in sustaining and increasing athletic performance. However, most studies emphasize the importance of personalized carbohydrate consumption and caution against common diet trends on social media. One common trend is that consuming carbohydrates 2-4 hours before physical exercise can improve glycogen storage and performance. Recommendations on carbohydrate consumption may vary depending on intensity and duration, while overconsumption may hinder athletic performance.

Keywords: Carbohydrates, Exercise, Athletes, Diets, Performance

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76 Formal Verification Methods for Safety-Critical VLSI Design in Avionics Systems

Paper ID V10I5-1380 · Pages 505-507 · Vlsi And Aerospace

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In modern avionics systems, ensuring the safety and reliability of hardware designs is paramount. Safety-critical components in aviation must meet stringent standards, as failures can have catastrophic consequences. Formal verification methods, including model checking, theorem proving, and equivalence checking, offer a mathematical approach to ensure that VLSI (Very Large-Scale Integration) designs meet their specifications without flaws. This paper explores formal verification methods applied to VLSI designs in avionics systems, discussing their role in adhering to certification standards, comparing different techniques, and providing real-

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world examples of their use in the aerospace industry.

Keywords: Formal Verification, VLSI Design, Avionics Systems, Model Checking, Theorem Proving, Equivalence Checking, Safety-Critical Systems, DO-254 Standard, Aerospace Hardware Verification, Finite-State Machines, Temporal Logic, Cadence Conformal, SPIN Tool, AI-Assisted Verification, Hardware Debugging, Aviation Safety

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77 AI-Powered Talent Acquisition Platform

Paper ID V10I5-1356 · Pages 508-511 · Artificial Intelligence (ai)

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Recruitment processes are frequently inefficient and time-intensive, often plagued by manual resume screening, mismatches between candidates and jobs, and delays in scheduling interviews. This paper discusses the creation of an AI-driven Talent Acquisition Platform that incorporates Generative AI technologies to transform recruitment practices. The platform automates key functions such as extracting candidate information, accurately matching resumes with job descriptions, optimizing the onboarding process, and facilitating efficient interview scheduling. The integration of GEN AI models also offers real-time analytics to deliver actionable insights. This study examines how these advancements improve recruitment precision, decrease the time-to-hire, and enhance the overall hiring experience for both employers and job seekers. The paper provides a detailed look at the platform's system architecture, implementation strategies, and performance metrics, with a focus on scalability, data security, and user interaction.

Keywords: AI Recruitment, Generative AI, Talent Acquisition, Resume Matching, Interview Scheduling, Firebase

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78 Unemployment Trends in India

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The increase in the young population due to demographic dividends or the rise in young people seems to be one of the sources of future economic growth in India. Although with the increase in school and college enrolment rates, the proportion of youth in the labor force has been declining their high proportions in the labor force indicate that the problem of youth unemployment and underemployment would remain a serious policy issue for many more years to come in India. During the last two & half decades, from 1983 to 2007-2008, it analyses labor and workforce participation rate trends. Unemployment, joblessness, working poor, growth and employment elasticities, etc. the poor employability of the workforce would hamper the advantages due to

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demographic dividend if measures are not taken to improve the educational attainment and skill development of the youth. The present paper has focused on the causes of unemployment, various types of unemployment, and possible measures have been suggested.

Keywords: Unemployment, Rate of Unemployment, Trend in Unemployment.

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79 Artificial Intelligence in Finance: Transforming Decision-Making, Risk Management, and Economic Dynamics

Paper ID V10I5-1280 · Pages 519-522 · Artificial Intelligence In Finance

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Artificial intelligence (AI) is revolutionizing the finance sector by enhancing decision-making, risk management, and operational efficiency. This paper explores AI's role in finance, its evolution, applications, and economic impacts, highlighting key techniques such as machine learning and deep learning. AI’s ability to process large datasets and detect patterns offers financial institutions opportunities to optimize performance and mitigate risks. However, AI also presents challenges such as labor displacement and regulatory concerns. This study examines AI's techniques, benefits, and implications while considering the macro and microeconomic effects of AI. The paper also emphasizes the need for adaptive public policies to promote equitable growth

Keywords: Artificial Intelligence, Finance, Artificial Intelligence in Finance

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80 APPROCHE D’EFFICACITÉ ÉNERGÉTIQUE POUR OPTIMISER LES COÛTS DE PRODUCTION DES ENTREPRISES INDUSTRIELLES

Paper ID V10I5-1296 · Pages 523-540 · Science Energétique

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Madagascar est une île de la côte orientale de l'Afrique qui possède de nombreuses ressources minières. Une société minière comme Ambatovy a décidé d'explorer le nickel et le cobalt dans ce pays et elle était confrontée à un problème de crise financière et de compétitivité sur le marché du nickel du LME. Le prix du nickel a diminué en raison du surstock de China Nickel. Pour éviter des mesures drastiques telles que des licenciements, l'entreprise a appliqué une nouvelle stratégie de réduction des coûts de production. Le secteur de l'énergie est l'un des secteurs les plus précieux qui peuvent bénéficier d'économies significatives s'il est

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bien optimisé. L'efficacité énergétique ou économie d'énergie a été mise en place afin d'optimiser la consommation et l'approvisionnement en énergie dans cette entreprise. Conformément à la norme AQME2011, Ambatovy utilise le modèle 3R de clés d'efficacité énergétique : -Réduction à la source : le comportement de l'utilisateur final doit s'aligner sur cette politique et mettre en place le FMS (Procédure de gestion du carburant), négocier le coût du contrat avec le fournisseur de carburant à Madagascar.-Récupération : continuez à utiliser ce que nous avons encore en moteur, stock bien optimisé et remplacement : Ambatovy a remplacé tous les bus à l'intérieur du site de l'usine par des bus et des véhicules électriques (tuctuc), cela peut économiser plus de 35 % des coûts quotidiennement car cela permet à l'entreprise arrêter le loyer, réduire les coûts de maintenance et récupérer la surproduction de la centrale électrique d'Ambatovy. Cette optimisation de la gestion de l'énergie permet à l'entreprise de réduire les coûts de production, d'éliminer les déchets et d'utiliser des véhicules solaires et électriques qui sont plus propres et respectueux de l'environnement.

Keywords: Madagascar, Reduction, Récupération, Replacement, coûts, énergies

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