

Souvenir Cum Abstract Book International Conference

(Hybrid Mode)

On

**"COMMITMENT TO VIKSIT BHARAT@2047
AN APPROACH FOR ACHIEVEMENT WITH
MULTIDISCIPLINARY ACADEMICS RESEARCH"**

FEBRUARY 08, 2025



**Creating Futures,
Changing lives**

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**INDUS INTERNATIONAL UNIVERSITY
Distt. Una, Himachal Pradesh - 174301**

Mera Bharat

Vikshit Bharat@2047



**CREATIVITY
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ENTREPRENEURSHIP
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MESSAGE

It gives me immense pleasure to know that Indus International University, VPO Bathu Tahliwal Haroli, Dist. Una-174507 is going to organize an International Conference on "Commitment to Viksit Bharat@2047 An approach for achievement with Multidisciplinary Academics Research" (Hybrid Mode) on 08th February 2025.

The objective of the conference is to chart the path towards a developed India by 2047, focusing on key themes such as Economic Growth, Social Inclusion, Environmental Sustainability, Technological Advancement, Governance Reform, Cultural Preservation, and Global Leadership.

I express my best wishes for meaningful deliberations and successful organization of this conference.

(Dr. Amarjeet K. Sharma)

Message from the Chancellor

Dr. Sudhir Kartha
Chancellor, Indus International University

It is with immense pride and great enthusiasm that I extend a warm welcome to all distinguished scholars, researchers, and thought leaders to the **International Conference on "Commitment to Viksit Bharat@2047."** This prestigious gathering is more than just an academic exchange; it is a visionary platform where ideas transform into actionable strategies, driving India's journey towards a prosperous, self-reliant future.



At **Indus International University**, we firmly believe that **innovation, collaboration, and knowledge-driven progress** are the cornerstones of a developed nation. This conference brings together some of the finest minds across disciplines, fostering groundbreaking discussions that will **shape policies, inspire research, and accelerate India's growth as a global powerhouse.**

I express my sincere gratitude to **Mr. John Neelankavil, Secretary**, and the dedicated organizing team for their tireless efforts in making this event a resounding success. To all participants—your insights and contributions today will be the driving force behind tomorrow's India.

Let this conference be a beacon of **innovation, inclusivity, and excellence.** May it spark new collaborations, fuel groundbreaking research, and lay the foundation for a **future that is resilient, sustainable, and truly Viksit Bharat!**

Best wishes for a transformative and inspiring conference!

Message from the Secretary

Mr. John Neelankavil
Secretary, Indus International University

The **International Conference on "Commitment to Viksit Bharat@2047"** is more than an academic discourse—it is a clarion call for innovation, transformation, and national progress. As we chart the path toward a **stronger, more prosperous, and self-reliant India**, this platform unites **visionaries, scholars, and changemakers** to craft ideas that will define our nation's future.



At **Indus International University**, we stand at the forefront of **academic excellence and intellectual empowerment**, nurturing a culture where **ideas lead to action and research fuels development**. This conference reflects our unwavering commitment to fostering interdisciplinary collaboration in **economics, technology, sustainability, and governance**, ensuring that **India emerges as a global leader by 2047**.

I extend my heartfelt appreciation to **Dr. Sudhir Kartha, Chancellor**, for his guidance and visionary leadership, and to all the brilliant minds gathered here today. Your insights and dedication are the catalysts that will **drive change, inspire progress, and turn aspirations into reality**.

Let this conference be a spark that ignites innovation, a forum that challenges limits, and a force that **propels India toward a brighter, bolder, and limitless future!**

Wishing you all a conference filled with inspiration, collaboration, and groundbreaking ideas!

Message from the Vice- Chancellor

Prof. (Dr.) Sanjay Kumar Bahl
Vice-Chancellor, Indus International University

It is a matter of immense pride for Indus International University to host this **International Conference on "Commitment to Viksit Bharat@2047"**—a platform dedicated to shaping India's future through **multidisciplinary academic research**. As we march towards our vision for 2047, this conference provides a crucial opportunity for scholars, researchers, and industry leaders to engage in thought-provoking discussions and **drive innovative solutions** that align with our nation's developmental goals.



I extend my heartfelt gratitude to **Prof. (Dr.) Jagdev Singh Rana, Registrar**, and **Dr. A.H. Khan, Dean, Management**, for their invaluable contributions in organizing this esteemed event. Their relentless efforts have ensured that this conference serves as a beacon of knowledge, collaboration, and inspiration.

I welcome all participants and encourage you to contribute meaningfully to this intellectual discourse. Let us work together to create a roadmap that transforms our aspirations into reality.

Best wishes for a successful and enriching conference!

Message from the Registrar

Prof. (Dr.) Jagdev Singh Rana
Registrar, Indus International University

It is an honor to be part of this prestigious **International Conference on "Commitment to Viksit Bharat@2047"**, where we unite scholars, researchers, and professionals to discuss transformative ideas that will shape India's future. This event is a testament to our university's commitment to fostering research excellence and interdisciplinary collaboration.



I extend my sincere appreciation to **Prof. (Dr.) Sanjay Kumar Bahl, Vice-Chancellor**, for his visionary leadership and unwavering support, as well as to **Dr. A.H. Khan, Dean, Management**, for his dedication to making this conference a grand success.

May this event inspire new perspectives, create lasting academic partnerships, and contribute significantly to our shared mission of a **prosperous and progressive India**.

Wishing you all an insightful and fruitful conference!

Message from the Convenor

Dr. A.H. Khan

Dean, Management, Indus International University

It is with immense pride and enthusiasm that I welcome you all to the **International Conference on "Commitment to Viksit Bharat@2047."** This conference is not just a forum for academic discussion—it is a **catalyst for transformative ideas, innovation, and strategic collaboration** that will propel India towards its ambitious vision for 2047.



By bringing together **scholars, researchers, industry experts, and policymakers**, this conference serves as a **dynamic platform for interdisciplinary dialogue in economics, technology, governance, sustainability, and beyond**. The collective knowledge shared here will contribute to shaping policies, fostering innovation, and accelerating India's progress as a global leader.

I extend my deepest gratitude to **Prof. (Dr.) Sanjay Kumar Bahl, Vice-Chancellor, Prof. (Dr.) Jagdev Singh Rana, Registrar, Dr. Sudhir Kartha, Chancellor, and Mr. John Neelankavil, Secretary**, for their **unwavering support, leadership, and commitment to academic excellence**. Their vision and dedication have played a pivotal role in making this conference a reality.

To all participants—**your engagement, research, and innovative thinking are the driving forces behind the progress we aspire to achieve**. I encourage you to **share insights, forge collaborations, and push the boundaries of knowledge** as we work together to build a **stronger, more resilient, and globally influential India**.

Wishing you a conference filled with inspiration, meaningful discussions, and groundbreaking discoveries!

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Leveraging ML Frameworks for Scalable Fraud Detection: A Comprehensive Review

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Astract:

Fraud detection in various sectors, including finance, healthcare, e-commerce, and insurance, is a growing concern due to the increasing complexity and volume of fraudulent activities. Traditional rule-based systems have limitations in detecting novel fraud patterns, making them less effective in dynamic environments. Machine learning (ML) frameworks, however, have emerged as a promising solution for scalable fraud detection, offering the ability to learn from vast amounts of data and adapt to evolving fraud strategies. This paper provides a comprehensive review of the application of machine learning techniques in fraud detection, focusing on scalability, performance, and integration into real-world systems. We discuss key ML algorithms, challenges, and future trends in the domain, highlighting their strengths and limitations. The study also reviews the effectiveness of various data preprocessing methods, feature engineering, and model evaluation strategies in ensuring robust fraud detection systems.

Transforming Data Analytics in Healthcare with SAP BW/4HANA: Challenges and Solutions

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Abstract:

The transformation of data analytics in the healthcare sector is pivotal in enhancing the quality of care, improving operational efficiency, and enabling better decision-making. SAP BW/4HANA, an advanced data warehousing solution, plays a crucial role in this transformation by integrating, processing, and analyzing large volumes of healthcare data. This paper explores the challenges and solutions associated with implementing SAP BW/4HANA in healthcare organizations, including data integration, scalability, data quality, and real-time analytics. The study also outlines the impact of SAP BW/4HANA on the operational and clinical aspects of healthcare institutions, offering insights into how data-driven decisions can optimize patient care and resource management. Furthermore, the paper discusses key strategies for overcoming these challenges and leveraging SAP BW/4HANA for data analytics in healthcare.

Keywords: SAP BW/4HANA, Healthcare Data Analytics, Data Transformation, Challenges, Solutions, Data Integration, Real-Time Analytics, Healthcare IT.

Transforming Business Models with AI Driven Data Products on Cloud Platforms

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Abstract:

Artificial Intelligence (AI) is reshaping how businesses operate, particularly in the cloud environment. The transition from traditional business models to AI-powered solutions on cloud platforms has enabled organizations to leverage data as a strategic asset. This paper explores how AI-driven data products transform business models by optimizing decision-making, enhancing scalability, and fostering innovation. A simulation-based approach is used to study the effectiveness of these AI-driven products in different scenarios. Statistical analysis highlights the operational improvements achieved through cloud-hosted AI tools. The research provides insights into best practices and future trends, concluding with recommendations for sustainable transformation through AI integration.

Keywords: AI-driven data products, cloud platforms, business models, data transformation, innovation, scalability

Optimization Algorithms in Last-Mile Delivery: Enhancing Efficiency in Fulfillment Services through ML Solutions

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Abstract:

The last-mile delivery problem remains one of the most critical challenges in fulfillment services, especially as e-commerce continues to grow. This paper explores the role of optimization algorithms and machine learning (ML) techniques in enhancing efficiency in last-mile delivery systems. We present an integrated approach that utilizes ML-driven algorithms to optimize route planning, minimize delivery costs, improve time efficiency, and increase customer satisfaction. Key machine learning models such as regression analysis, reinforcement learning, and deep learning are discussed in the context of real-world delivery scenarios. Additionally, we highlight case studies demonstrating the effectiveness of these models in reducing operational inefficiencies. The results show that applying ML solutions in last-mile delivery can lead to significant cost reductions and operational improvements. This study provides both practical and theoretical insights into how ML algorithms can be integrated into existing delivery systems to optimize performance.

Keywords: Last-mile delivery, optimization algorithms, machine learning, route planning, reinforcement learning, fulfillment services, logistics optimization, delivery efficiency.

Experiment Analysis in ML: Best Practices for Evaluating Model Effectiveness in juvikaReal-World Scenarios

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Abstract:

Machine learning (ML) has rapidly transformed industries by automating decision-making and enabling data-driven predictions. However, the effectiveness of ML models in real-world scenarios depends not only on their ability to fit data but also on their generalizability and robustness to varied inputs. This paper discusses best practices for evaluating the performance of ML models, emphasizing methodologies such as cross-validation, confusion matrices, and performance metrics like precision, recall, and F1-score. We explore various evaluation strategies, the significance of data quality, and the impact of overfitting and underfitting. Finally, the importance of model interpretability and continuous model evaluation in deployment phases is highlighted, aiming to provide practitioners with comprehensive insights for developing reliable ML systems.

Keywords: Machine Learning, Model Evaluation, Cross-validation, Performance Metrics, Overfitting, Underfitting, Generalization, Model Interpretability, Confusion Matrix, Real-World Scenarios

Impact of Effective Data Modeling Techniques on Business Intelligence Performance

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Abstract:

The effectiveness of Business Intelligence (BI) systems depends largely on how well the underlying data is structured, stored, and processed. This paper explores the impact of effective data modeling techniques on the performance of Business Intelligence (BI) systems. It examines how data models influence the quality of insights derived from BI tools, their scalability, and their ability to support decision-making. With a focus on techniques like star schema, snowflake schema, and normalized models, the paper evaluates their role in optimizing data retrieval times, query performance, and overall BI functionality. The study concludes that selecting the appropriate data modeling technique is crucial to maximizing the performance of BI systems in dynamic business environments.

Keywords: Data Modeling, Business Intelligence, Performance, Data Models, Query Optimization, Decision Support, Star Schema, Snowflake Schema.

Data Science Leadership in High-Stakes Environments: Strategies for Managing Applied Science Teams

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Abstract:

In high-stakes environments, such as healthcare, finance, and defense, the application of data science has significant implications for decision-making and performance outcomes. Leading data science teams in these settings requires a unique blend of technical expertise, strategic thinking, and effective management skills. This paper explores strategies for managing applied science teams in high-stakes environments, with a focus on ensuring both team productivity and the accuracy of data-driven decisions. By synthesizing existing literature, identifying key leadership traits, and offering practical frameworks, this research aims to provide a comprehensive guide to managing data science teams in environments where failure can have critical consequences. It also examines the challenges data science leaders face in balancing short-term demands with long-term goals, while navigating complex ethical and regulatory considerations.

DATA-DRIVEN DECISION-MAKING



Keywords: Data Science Leadership, High-Stakes Environments, Applied Science Teams, Decision-Making, Team Management, Risk Management, Strategic Leadership, Ethics in Data Science, Applied Machine Learning, Predictive Analytics.

Achieving Efficiency in System Architecture with Advanced AI Security Protocols

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Abstract:

In the rapidly evolving landscape of digital transformation, the efficiency of system architecture plays a crucial role in maintaining optimal performance and security. The integration of advanced artificial intelligence (AI) security protocols has become essential in achieving such efficiency. This research explores the role of AI-driven security measures in modern system architectures, focusing on how these protocols can optimize performance while ensuring robust protection against evolving cyber threats. The study investigates the implementation of AI techniques such as machine learning, neural networks, and anomaly detection in the context of system architecture, addressing both performance and security concerns. By examining current challenges and evaluating the impact of AI-based solutions, this paper aims to provide a comprehensive understanding of how these technologies can be leveraged to build more efficient, secure, and scalable systems. The research also explores the potential for AI security protocols to adapt to emerging threats, enhancing the long-term sustainability of system architecture in an increasingly complex digital environment. Ultimately, the findings highlight the synergies between AI and system architecture, demonstrating that advanced security protocols not only protect against threats but also contribute to the overall efficiency and scalability of modern systems.

Keywords: AI security, system architecture, machine learning, neural networks, anomaly detection, cybersecurity, performance optimization, scalable systems.

Leveraging LLMs for Enhanced Natural Language Understanding in Analytics

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Abstract:

The rise of Large Language Models has revolutionized Natural Language Understanding, enabling transformative capabilities in analytics. LLMs have been reshaping traditional approaches to data interpretation and insight generation with their ability to process and understand large amounts of unstructured data. This paper investigates how LLMs augment NLU with more accurate contextual analysis, sentiment extraction, and automated summarization, among other applications. By harnessing deep learning architectures such as transformers, these

models are incredibly versatile across a wide range of industries, from customer feedback analysis to predictive business insights. Furthermore, the integration of LLMs in analytics workflows enables better decision-making and operational efficiency, paving the way for smarter, data-driven solutions. Despite their immense potential, challenges remain regarding computational demands, ethical concerns, and domain-specific fine-tuning. This study highlights key developments, practical applications, and the evolving role of LLMs in analytics, with a focus on their potential to redefine how businesses derive value from data.

Keywords: Large Language Models (LLMs), Natural Language Understanding (NLU), analytics, transformers, data-driven insights, contextual analysis, sentiment extraction, automated summarization, predictive analytics, deep learning, decision-making, operational efficiency, domain-specific fine-tuning, computational challenges, ethical considerations.

AI Security Solutions in the Tech Industry: Emerging Trends and Future Directions

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Abstract:

Artificial Intelligence (AI) has emerged as a cornerstone in the tech industry, driving innovation across various sectors, including cybersecurity. As AI continues to evolve, its role in securing systems and data has become increasingly significant. This paper explores the emerging trends in AI security solutions, focusing on their applications, challenges, and future directions. AI-driven security technologies are revolutionizing threat detection, incident response, and data protection, offering more adaptive and proactive defense mechanisms. The integration of machine learning (ML), deep learning (DL), and natural language processing (NLP) has enabled systems to identify and mitigate threats with high accuracy and speed. However, the widespread adoption of AI in security also presents new challenges, including adversarial attacks, model vulnerabilities, and ethical concerns. This research examines these challenges while also evaluating the potential of AI to reshape traditional cybersecurity models. The paper reviews current AI security solutions, their effectiveness, and the key trends shaping the future of AI in cybersecurity. Additionally, it discusses the integration of AI with other technologies like blockchain and cloud computing for enhanced security. By understanding the evolving landscape of AI security, this paper aims to provide a comprehensive outlook on the future of AI-driven cybersecurity solutions, addressing both opportunities and threats.

Keywords: AI security, machine learning, cybersecurity, deep learning, threat detection, incident response, ethical concerns, blockchain.

.The Role of Generative AI in Predictive Maintenance for Automotive and Delivery Systems

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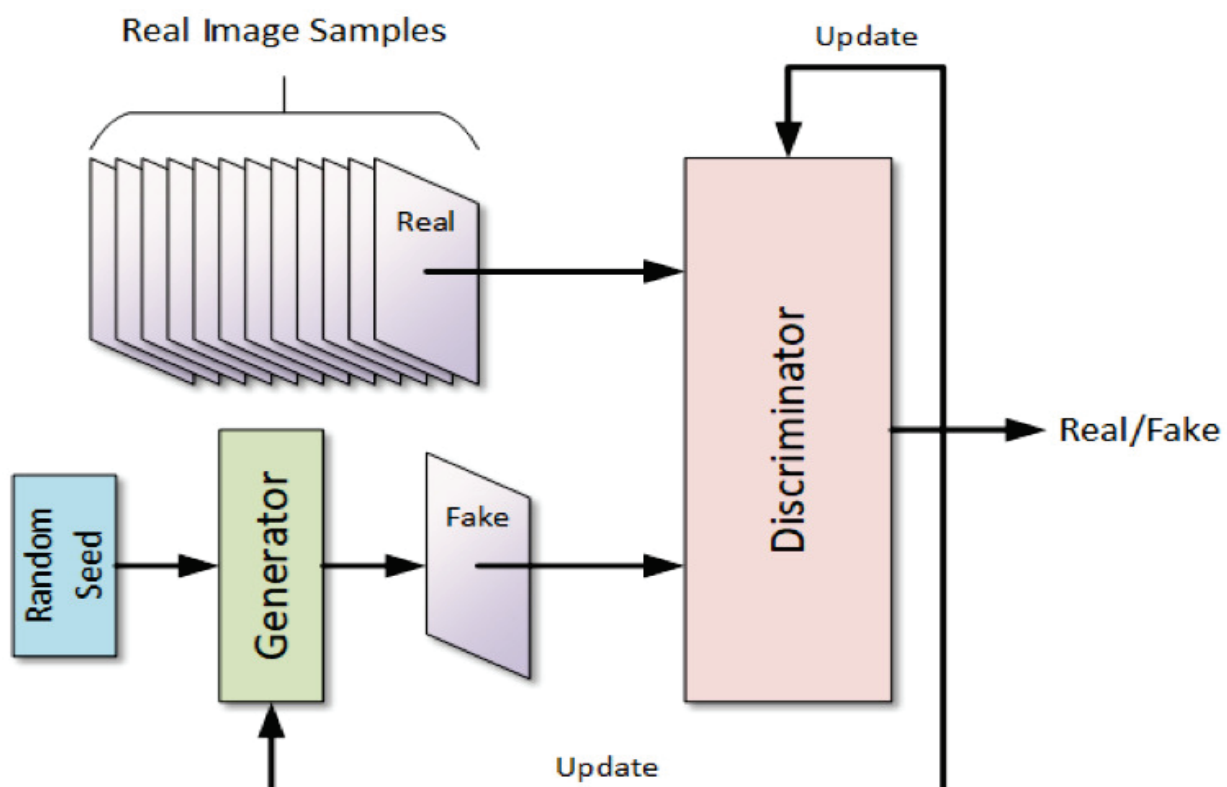
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Abstract:

Predictive maintenance, enabled by artificial intelligence (AI), is transforming industries by minimizing downtime, improving efficiency, and extending the lifespan of systems. This paper explores the application of generative AI techniques in predictive maintenance, particularly within the automotive and delivery systems sectors. Generative AI models, including deep learning algorithms, reinforcement learning, and generative adversarial networks (GANs), can analyze vast amounts of sensor data to predict failures and recommend maintenance schedules. By reducing operational disruptions, generative AI not only helps in avoiding unplanned repairs but also optimizes resource allocation and maintenance costs. This paper discusses the integration of generative AI in real-time data analytics, sensor fusion, and decision-making processes to enhance predictive maintenance strategies. The effectiveness of these AI models, along with future research directions, are also evaluated.



Keywords: Generative AI, Predictive Maintenance, Automotive Systems, Delivery Systems, Deep Learning, Sensor Fusion, Generative Adversarial Networks (GANs), Reinforcement Learning, Data Analytics, Failure Prediction.

AI and Data Strategy Alignment: Integrating Business Goals and Cloud Infrastructure

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Abstract:

This paper explores the critical alignment between artificial intelligence (AI) strategies, data management, and cloud infrastructure to achieve business goals. As organizations increasingly depend on AI for decision-making, it becomes essential to integrate these strategies with cloud capabilities to leverage data effectively. The paper discusses existing literature on AI and data strategies, outlines a comprehensive methodology for aligning these strategies, presents statistical analysis through simulations, and concludes with the implications for practitioners. The findings emphasize that successful alignment can enhance operational efficiency, reduce costs, and drive innovation.

Keywords: Artificial Intelligence, Data Strategy, Cloud Infrastructure, Business Goals, Integration, Statistical Analysis.

Big Data Use in Detecting Emerging Trends in Social Media Content

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Abstract :

Social media platforms generate vast amounts of data daily, making them rich sources for identifying emerging trends. This research explores the use of big data analytics techniques to detect and analyze these trends in real time. By integrating natural language processing (NLP), machine learning, and sentiment analysis, this study highlights the potential of big data to predict trends in diverse fields such as marketing, politics, and entertainment. Results demonstrate improved accuracy and timeliness in detecting trends compared to traditional methods, offering valuable insights for businesses and policymakers.

Keywords: Big Data, Social Media, Emerging Trends, Natural Language Processing, Machine Learning, Sentiment Analysis, Trend Detection

Leveraging Business Intelligence to Optimize Supply Chain Efficiency in Retail

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Abstract:

Business Intelligence is a relatively new, disruptive technology in increasing the efficiency of supply chains, most especially in retail. The study explores in detail how BI technologies permit real-time data analysis and predictive insight into process automation for increased efficiency in the supply chain. Retailers can achieve better decision-making, lowered costs, and improved levels of service when data across different touchpoints—inventory, logistics, customer demand, and supplier management—are integrated. This paper elaborates on how advanced analytics, data visualization, and machine learning increase the efficiency of forecasting demand, eliminating risks, and optimizing the levels of inventory. However, it highlights the various challenges retailers are facing toward the implementation of BI solutions, including issues of poor data quality, integration, and organizational resistance. These will enable the retailer to achieve agility and competitive advantage in responding promptly to market demands that change rapidly.

Keywords: Business Intelligence, supply chain optimization, retail efficiency, real-time data analysis, predictive analytics, process automation, inventory management, logistics, data visualization, demand forecasting, risk mitigation, competitive advantage, market responsiveness.

Enhancing Agile Methodologies in Complex Application Development Projects

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Abstract:

Agile methodologies have proven effective in streamlining project management for software development, but their application in complex application development projects presents unique challenges. This study explores strategies to enhance Agile practices to address scalability, interdisciplinary team dynamics, and evolving requirements. It integrates contemporary techniques like DevOps, SAgile, and Agile modeling, presenting a framework tailored for complex projects. Empirical data demonstrates improvements in team collaboration, delivery timelines, and product quality.

Keywords: agile methodologies, complex application development, SAgile, Scrum, DevOps, scalability, software engineering

The Role of Predictive Analytics in Enhancing Business Process Efficiency

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Abstract:

Predictive analytics has become a cornerstone for modern business operations, enabling companies to transform large volumes of data into valuable insights for decision-making and operational improvement. This paper examines how predictive analytics is utilized to enhance business process efficiency across various industries, such as retail, healthcare, and manufacturing. Using statistical algorithms, machine learning, and data mining techniques, predictive analytics can forecast potential outcomes, allowing organizations to streamline processes, reduce costs, and improve customer satisfaction. This research provides a comprehensive overview of the application of predictive analytics, supported by a detailed literature review, methodological approach, and case study analysis. The results show a significant positive impact of predictive analytics on business process efficiency, though limitations such as data quality, ethical concerns, and resource requirements need to be considered for sustainable implementation.

Keywords: Predictive analytics, business process efficiency, machine learning, data mining, operational optimization, forecasting, data quality, ethical considerations.

Real-Time Threat Detection Using Big Data Analytics in Online Social Platforms

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Abstract:

In the rapidly evolving digital landscape, online social platforms have become a central hub for communication, entertainment, and commerce. However, this ubiquity also brings about a rising concern for security threats, including cyberattacks, misinformation, hate speech, and phishing. Detecting such threats in real time is a critical challenge for platform administrators and security researchers. This paper presents a framework for real-time threat detection using Big Data analytics techniques. By leveraging massive datasets generated on social media platforms, the study proposes the application of machine learning algorithms, sentiment analysis, and natural language processing (NLP) to classify and identify potential threats. The framework integrates Big Data technologies, including Hadoop and Spark, to process and analyze large volumes of data, enabling near-instantaneous threat detection and response. Experimental results show that the

proposed system significantly improves the accuracy of threat identification compared to traditional methods, demonstrating its potential for scalable and effective security measures.

Keywords: Big Data, Threat Detection, Real-Time Analytics, Social Media, Machine Learning, Sentiment Analysis, Natural Language Processing, Cybersecurity.

Developing Resilient and Scalable AI Systems Using AWS and Spring Boot

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Abstract:

The growing demand for resilient and scalable AI systems has necessitated the integration of cloud platforms and powerful frameworks to meet modern enterprise needs. This paper explores the development of scalable and fault-tolerant AI systems using Amazon Web Services (AWS) and Spring Boot, two powerful technologies that have transformed the way software solutions are architected and deployed. AWS offers a suite of tools and services that facilitate the design of scalable cloud-based applications, while Spring Boot enables the rapid development of Java-based applications with minimal setup.

The key focus of this paper is to demonstrate how AWS can be used in combination with Spring Boot to create AI-driven applications that are both resilient to failures and scalable to meet increasing workloads. This study presents a comprehensive analysis of various AWS services, such as EC2, Lambda, S3, and SageMaker, and how they can be leveraged for building AI systems. Additionally, it outlines best practices in deploying Spring Boot applications within AWS environments, ensuring seamless integration between AI models and cloud infrastructure.

Through a detailed case study, the paper highlights the challenges encountered when building AI systems that need to handle high traffic loads while maintaining high availability and fault tolerance. By leveraging AWS's auto-scaling features, fault tolerance mechanisms, and managed machine learning services, the proposed architecture ensures that AI applications remain highly available and performant. Additionally, Spring Boot's embedded server and ease of configuration play a crucial role in enabling rapid development and deployment of AI systems.

The results of this paper demonstrate that combining AWS's cloud services with the Spring Boot framework enables the development of scalable AI systems that are highly resilient to failures. This combination is essential for enterprises looking to scale their AI systems while ensuring that they can withstand high traffic loads and handle failures without downtime. Finally, the paper discusses the future scope of AI system development, with a focus on emerging technologies such as serverless computing and AI automation.

Keywords: AI Systems, AWS, Spring Boot, Scalability, Resilience, Cloud Computing, Machine Learning, Fault Tolerance.

Impact of Macroeconomic factors on Indian Economy

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Abstract:

Climate change poses a significant threat to the growth momentum of the Indian economy, which is expected to become the third-largest economy globally by 2060. This research paper examines the potential impact of climate change on India's economic growth, using a combination of econometric modeling and scenario planning. Our results suggest that climate change could reduce India's GDP growth rate by up to 2.5% per annum by 2060, with significant implications for poverty reduction, inequality, and human development. We also identify key sectors, such as agriculture, water resources, and infrastructure, that are likely to be disproportionately affected by climate change. Our findings highlight the need for proactive climate policy and investment...

Key words: Inflation, Growth rate, global warming, Productivity, Green economy

IoT- based smart Environmental Monitoring System: A Comprehensive Analysis

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Abstract:

The emergence of the Internet of Things (IoT) has brought a revolution in global communication network technology. It has acquired many day-to-day applications in healthcare, education, agriculture, etc. In addition, IoT has also had a significant impact in the field of environmental monitoring. The significant factors in a healthy environment are air quality, water pollution, and waste management, where the world's population can live securely. Monitoring is necessary for us to achieve global sustainability. As monitoring technology has advanced in recent years, environmental monitoring systems have evolved from essential remote monitoring to an advanced environment monitoring (AEM) system, incorporating Internet of Things (IoT) technology and sophisticated sensor modules.

The rapid growth of the world's population and the exhaustion of natural resources, coupled with the increasing unpredictability of environmental conditions, lead to significant concerns about worldwide food security, global warming, water pollution, and waste overflowing. Automating tasks in the building environment, based on the Internet of Things (IoT) application, is meant to eliminate problems with the traditional approach. This study aims to examine and evaluate numerous studies involving monitoring air, water, waste, and overall environmental pollution, as well as their effect on the environment. This article categorizes studies based on their research purposes, techniques, and findings. This paper examines advanced environmental monitoring systems through sensor technology, IoT, and machine learning.

Keywords: IoT, AEM, Global Warming, Food Security, Waste, Pollution, Monitoring, Detection Etc.

Cooperative bank and its economic contribution to Himachal Pradesh. SGDP (case)

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Anil Sharma, (Research scholar)

Indus International University

Abstract:

Cooperative banks play a vital role in the economic growth of the state. They channel the funds from depositor to the investors (people) continuously. This paper will attempt to analyse the effect of cooperative bank's approach on the economic growth of Himachal Pradesh. As per census 2011, 95% of population of Himachal Pradesh lived in villages so cooperative banks had played an important role to the development of state. At Present (2023-24) there are mainly 3 banks (cooperatives) operating in HP i.e HP state cooperative bank Limited, Kangra central cooperative bank limited, Jogindra central cooperative bank limited. This study was based only on the cooperative banks and their effect on state's economic growth is significant for research. Simple statistics and direct method of collecting primary data was used. Keywords: - Cooperative banks, Economic growth, SGDP, Data,

The Impact of Sentiment Analysis in Identifying Depression Symptoms During the COVID-19 Pandemic

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Abstract:

COVID-19 harmed the lives of people in every region of the world. It has been established that, in addition to the physical symptoms, it significantly influences the patient's mental health. Depression has been identified as one of the most widespread disorders that can hasten a person's mortality at an early age. This is one of the conditions that has been singled out for this distinction. The trajectory of life for millions of people has been altered as a result of this illness. We conducted a survey that consisted of 21 questions based on the Hamilton instrument and the advice of a psychiatrist. This was done so that we could continue forward with the inquiry into the identification of depression in individuals.

After the data were compiled and analysed, it became clear that people younger than 45 years of age had a higher risk of suffering from depression when compared to those older than 45 years of age. This is because most people at this age are concerned about getting married or schooling their children. On the other side, research has revealed that those whose ages fall between 18 and 25 are also at an increased risk of suffering from depression. This is likely because, at this stage in their lives, these individuals are more conscious of the potential outcomes of their lives. Based on all of the replies received, the findings of the survey were put through several different machine learning algorithms, including Decision Tree, KNN, and Naive Bayes. These algorithms were used to analyse the results.

Further investigation is being done into how these two techniques are similar to and different from one another. According to the findings of the research, KNN has produced better results than other approaches in terms of accuracy, whereas decision trees have produced better results in terms of the amount of time needed to detect depression in a person. In conclusion, to overcome the traditional approach to a depression diagnosis, which is made up of affirmative questions and constant feedback from individuals, a model that is based on machine learning is offered as a potential alternative.

Keywords: Decision Tree, KNN and Naive Bayes, COVID-19.

'DIASPORIC WRITERS CRITICAL ANALYSIS TO RETAIN CULTURE AND TRADITION RESIDING IN FOREIGN LANDS.'

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Abstract:

The Indian diaspora is a large population of around 30 million, with Punjab being the state with the largest number of diaspora people living in different countries around the world. Diasporic writers from Punjab have migrated from Punjab to other countries such as the US, Canada, the United Kingdom or Australia. Through their writings, these writers have played a valuable role in connecting Punjabis settled in new environments with their Punjabi roots, which has helped them to retain their identity, belonging and cultural heritage even after living far from Punjab. Diasporic writers often explore the complexities of multiple identities, including homeland and national, through their experiences of migration and cultural displacement. Many writers have played a valuable role in preserving and protecting the Punjabi cultural heritage, including customs, values and folk traditions, through their work, and are working as a guide for future generations. In addition, diaspora writers from Punjab have provided a mirror to express the feelings of alienation, which highlights the tension between the motherland and the host country. The main objective of this paper is to explore the historical background as well as the literary works of diaspora writers from Punjab who are contributing their due contribution to preserve the culture and tradition of their homeland despite cultural and geographical differences.

Keywords: Diaspora, Indian, Punjab, Canada, United Kingdom, Australia, homeland.

Comparative Analysis of Machine Learning Models for Liver Disease Diagnosis: Exploring Accuracy and Computational Efficiency

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Abstract:

Liver disease is a serious condition caused by various factors that can damage the liver and impair its function. Liver performs many vital functions, and its malfunction can be life-threatening. Early diagnosis is crucial to improving survival rates. Machine learning (ML) aids in liver disease diagnosis through data pre-processing, feature extraction, and classification. Liver diseases are a growing global health challenge, requiring advanced diagnostic methods. This study evaluates traditional ML models for liver disease diagnosis, comparing their effectiveness on specific datasets. It also explores ensemble techniques and hyperparameter tuning to improve accuracy, while noting the computational demands that make these methods better suited for offline use.

Keywords: Liver disease diagnosis, Machine learning, Ensemble techniques, Hyperparameter tuning.

**Impact of Environment Changes on Indian Gross Domestic Products After
Fifty Years – Threats, Challenges, Perceptions, and
Remedies – Bharat Visva Vidhata@2075 – Vision 2100**

Dr. Sanjay Kumar Bahl
(Vice Chancellor Indus International University)

Abstract:

India stands at a crucial juncture where economic growth intersects with environmental sustainability. This paper explores the long-term impact of climate change on India's Gross Domestic Product (GDP) over the next fifty years, with projections indicating a potential 47% decline due to environmental degradation, natural disasters, and declining labour productivity. The study highlights key challenges, including urbanization, industrial expansion, and socio-political instability, which exacerbate these risks. Drawing on research from global institutions, this paper proposes strategic interventions such as governance reforms, education in sustainability, and investments in renewable energy. By embracing sustainable development, India can mitigate economic vulnerabilities and work towards a resilient Vision@2100.

Keywords: Environmental changes, Indian GDP, climate change, Asian Development Bank, sustainable development, biodiversity loss, socio-economic challenges, 2070 GDP reduction, labour productivity, Vision 2100, Bharat Visva Vidhata, political governance.

**A Current Overview of the Synthesis of Polymeric Materials Related to
Psyllium Mucilage and Their Application in Drug Delivery**

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Abstract:

Drug delivery systems (DDS) are innovative methods or processes designed to deliver pharmaceuticals or other therapeutic agents to specific target sites within the body in a controlled and efficient manner. The primary goal is to maximize therapeutic efficacy while minimizing side effects and improving patient compliance. Psyllium mucilage, a natural polysaccharide derived from *Plantago ovata* seeds, has gained significant attention in the pharmaceutical field due to its biocompatibility, biodegradability, and mucoadhesive properties. Its unique characteristics make it an ideal candidate for the development of novel drug delivery systems. This review focuses on recent advancements in the synthesis of polymeric materials based on psyllium mucilage and their potential applications in drug delivery. Various synthetic strategies, including graft copolymerization, crosslinking, and blending, have been employed to modify psyllium mucilage and enhance its properties for specific drug delivery applications. The review highlights the advantages and limitations of different synthetic approaches and discusses the impact of these modifications on the physicochemical properties and drug release behavior of the resulting polymeric materials. Furthermore, the review explores the potential of psyllium-based drug delivery systems for various therapeutic applications, such as oral, colon-targeted, and ocular drug delivery. The review concludes with a perspective on the future directions and challenges in the development of psyllium-based drug delivery systems.

Keywords: Psyllium, Therapeutic Agents, Psyllium-Based Polymeric Materials, Drug Delivery Systems etc.

Heavy metals: toxicity and human health effects

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Abstract:

Effects of heavy metals on human health and toxicity Abstraction Heavy metals are enduring environmental contaminants and naturally occurring elements of the Earth's crust. There are several ways that humans can be exposed to heavy metals, such as through the food chain, contaminated water or soil, or inhaling dust or air particles. Their bioaccumulation could result in a variety of harmful effects on various organ systems and bodily tissues. Heavy metal toxicity is determined by the metal's characteristics, dosage, exposure route, length of exposure (acute or chronic), and degree of bioaccumulation. Heavy metals' ability to disrupt antioxidant defence systems, mainly by interacting with intracellular glutathione (GSH) or sulfhydryl groups (R-SH) of antioxidant enzymes like superoxide, is largely responsible for their harmful effects on human health.

Key words: Toxicity, Heavy metals, Earth's crust, Bioaccumulation

Effect of Ce co-doping on structural and functional properties of green synthesized Ba-CuO NPs and its environmental applicability

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Abstract:

The emergence of drug-resistant bacteria presents a serious health challenge today, highlighting the urgent need for antibacterial agents. Therefore, the present study worked on the green synthesis of Ce co-doped Ba/CuO NPs using *Citrus limon* plant leaves and revealed the potential of green NPs for environmental remediation. The doped and co-doped CuO NPs were characterized with X-ray diffraction (XRD), Scanning electron microscope (SEM), Energy-dispersive X-ray (EDS), Transmission electron microscope (TEM), and Fourier transmission infrared (FTIR) like techniques. The XRD confirmed the alterations in crystallite sizes from 12.38 to 9.92 nm in size for undoped and doped CuO samples. The SEM results exhibited agglomerated morphology with spherical NPs of the CuO sample. The EDS analysis verified the compositional quantification of synthesized samples. The FTIR analysis confirmed the role of green extract in the synthesis of CuO NPs. TEM results agreed with the XRD results. Moreover, the synthesized samples exhibited enhanced antibacterial activity against gram-positive and negative bacteria. Therefore, the results showed the formation of Ce co-doped Ba/CuO NPs, demonstrating the potential for environmental remediation.

Keywords: Antibacterial; Citrus limon; Co-doping; CuO NPs; Green synthesis.

Exploring the Relationship Between Depression and Alcohol Use in Indian Youth: A Statistical Analysis Using Machine Learning Techniques

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Abstract:

Machine Learning (ML) is “Programming computers to optimize a performance criterion using example data or past experience”. A computer or mobile program's ability to acquire or create unique information or abilities from examples for optimizing the performance criterion is known as ML. The ML helps in the identification of patterns and rules in datasets. It has developed from the field of artificial intelligence, which tries to have machines imitate human intelligence.

ML has a significant impact on the healthcare industry as well as every aspect of modern human existence. By analyzing data, ML-based decision support systems can be utilized to diagnose suicide, depression, and student consumption of alcohol. In this thesis, many ML approaches have been researched, and a system has been designed for the identification of student consumption of alcohol, depression, and suicide.

ML algorithms such as Linear Regression (LR), Logistic Regression (LR), Naive Bayes (NB), Long Short-Term Memory (LSTM), Support Vector Machine (SVM), Random Forest (RF), and extreme Gradient Boost (XGB) algorithms are used for analyzing the data sets. The prediction model proposed in this study is used to analyze the best predicted value from the comparison study and to interpret the data sets using ML algorithms.

The proposed ML techniques are proven to be more accurate than the existing techniques in terms of Accuracy, Precision, Recall, F1 score and Mean Absolute Error (MAE).

The main objective of this research work is to find the best prediction from the ML techniques using the proposed model. This thesis focuses on highlighting the features of datasets for analyzing the best prediction through ML algorithms.

Keywords: Machine Learning, Suicide, Depression, Student alcohol consumption, Linear Regression, Logistic Regression, Naive Bayes, Long Short-Term Memory, Support Vector Machine, Random Forest, and eXtreme Gradient Boost.

Moving Object Detection Survey Utilizing Background Subtraction Methods: A Review

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Abstract:

In computer vision based application recognizing moving items is critical task and important. For various PC vision application Background subtraction is quick approach to identify moving object. Background subtraction isolates the closer view from foundation. Background subtraction strategies are generally changed for moving object detection in videos in many applications, for example, video surveillance, human motion capture and traffic monitoring. A standout amongst the most direct procedure for recognizing moving article from a video game plans is the

background subtraction estimation where the present edge is subtracted from the reference picture or background show.

Keywords: Foreground Detection; Moving Object Detection; Background Modeling; Background Subtraction; Computer Vision.

POST-SILICON ERA : EXPLORING EMERGING MATERIALS AND TECHNOLOGIES

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Abstract:

As silicon-based semiconductors reach their physical limits, emerging materials like graphene, transition metal dichalcogenides (TMDCs), and topological insulators, along with advanced architectures such as quantum dots and spintronics, offer promising alternatives. Graphene surpasses with exceptional electron mobility and thermal conductivity, making it suitable for high-speed electronics and sensors, while TMDCs show promise for flexible electronics and optoelectronic devices. Quantum dots enable advancements in quantum computing and optoelectronics, whereas organic semiconductors offer flexibility despite challenges in longevity and efficiency. This paper retraces their superior properties, including high electron mobility and energy efficiency, and their potential to revolutionize computing, sensing, and connectivity. Despite challenges in synthesis and integration, interdisciplinary collaboration is essential to accelerate commercialization. Increased investment and global cooperation will be key to driving the next era of semiconductor innovation.

Keywords: Semiconductor, Silicon, Quantum Dots, Spintronics, Advanced Materials, Computing.

Leveraging E-Voting System for Modernizing Electoral Processes for Local Bodies in India- A Descriptive Approach

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Abstract:

Polity in India is centered on the democratic principles and it involves the election of the public representatives through the direct participation of the citizens of the country. The electoral system asks the citizens of the country to use their franchise to cast the vote and to elect the representative of their own choice. The successfulness of the democracy in a country is directly influenced by the ratio of the eligible citizens of the country who participate in the process of elections to cast the vote over the eligible citizens who could not participate in the election process. The governments across the country derive various citizen-centric awareness programs from time to time to make them aware about the importance of their right to use their vote to elect the representatives of their own choice. Presently, the election process for the Legislative assemblies across the country and Parliament of India is carried out by using the Electronic Voting Machines (EVMs) and the elections at the majority of the Civic Bodies across the Country are carried out by using the Ballot Papers. The election process through EVMs and through the Ballot Papers requires the mandatory presence of the eligible voters at the polling booths, to cast their vote. The majority of the population could not reach at the designated polling booths to cast their vote due to various bottlenecks and real-life problems that occur in the way of the citizens. The present paper suggests an alternative approach to enable the citizens of the country to use their franchise

to cast vote in an online mode, while residing at their place of residence, so as to ensure the maximum participation of the citizens in the election process and which is the major ingredient to strengthen the democracy in a Country.

Keywords: Authentication, Civic Body, Database System Electronic Voting Machine (EVM), Voter ID.

Research for beginners in business analytics

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Abstract:

There are several definitions of business analytics: some emphasize the scope/area/problem, some emphasize the nature of the data, and some focus on the tools and methodologies that enable the process.

What all these definitions have in common is that business analytics includes all the tools that transform data into insights to enable faster and better decision making.

Despite the fact that this name has recently existed for important time specified by various labels.

Business analysis has become one of the most dynamic researches in both science circles and industry and practice. Business Analytics active research aims to provide a dedicated platform for analysts to share their research findings.

The basic aims to be the premier destination for rigorous and relevant analytical research, covering all aspects of business analytics - descriptive/diagnostic, predictive and prescriptive.

Here we provide an overview of the challenges and opportunities in business analytics research to establish the foundation for this prospective research. descriptive research design is used as simple methodology and result is encourage going deeper to take better business decisions.

Keywords: business analytics, information, descriptive analytics, networking, machine learning

Acoustical study of sodium cholate in aqueous solution of anti-HIV drugs

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Abstract:

Sodium cholate is a natural anionic bile salt, also referred to as a bio-surfactant, found in the liver of vertebrates and produced as a byproduct of cholesterol metabolism. This amphiphilic compound features a hydrophobic steroid nucleus and hydrophilic hydroxyl groups, distinguishing it structurally from conventional surfactants. In pharmaceutical formulations, sodium cholate serves as a vital solubility and permeability enhancer, improving the bioavailability of poorly soluble drugs. The aim of present work is to explore intermolecular interactions between sodium cholate and anti-HIV drugs (Emtricitabine and Lamivudine) by acoustical study at a wide range of temperatures from 298.15K to 313.15K, with a regular 5K increment. Experimental density (ρ) and speed of sound (u) values are used to evaluate crucial acoustical parameters such as intermolecular free length (L_f), relative association (RA), acoustic impedance (Z) and molar sound number ($[U]$). Further, the results obtained from these parameters are employed to assess various intermolecular interactions like solute-solute, solute-solvent and solvent-solvent within surfactant-drug-water ternary system.

Keywords: Acoustical parameters; Emtricitabine; Lamivudine; Sodium cholate; drug-surfactant interactions.

Review on the Use of Chitosan-Based Polymeric Materials in the Remediation of Wastewater

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Abstract:

Water pollution is a critical environmental concern, often caused by industrial discharge, agricultural runoff, and improper waste disposal, leading to harmful contaminants such as heavy metals, organic compounds, and pathogens in water sources. Traditional wastewater treatment methods, while effective, can be costly and environmentally taxing. In recent years, the biopolymer chitosan, derived from chitin found in the exoskeletons of crustaceans, has gained attention as an eco-friendly alternative for wastewater treatment. Chitosan offers remarkable adsorption properties due to its functional groups, which can efficiently bind and remove contaminants, including heavy metals, dyes, and organic pollutants, from water. This review explores the mechanisms by which chitosan interacts with pollutants, its effectiveness in various treatment processes (such as flocculation, adsorption, and coagulation), and its potential advantages over conventional methods, including biodegradability and low toxicity. Furthermore, the paper discusses recent advancements and challenges in enhancing chitosan's performance for large-scale wastewater treatment applications.

Keywords: Chitosan, Chitosan-based Material, Hazardous Dye, Hazardous Metal and Wastewater Treatment.

**Sant Sahitya: *Pasay dan* by Saint Dnyaneshwar – a Lighthouse:
for Harmony, Peace & Fraternity in the World**

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Abstract:

Vasudhaiv Kutumbakam, He Vishwachi Maze Ghar, Vrush Valli Amha Soyare Vanchare these are the few representative quotes from the Saint Literature that is rich Sant Sahitya of India spreading the message to the whole world of harmony and peace. Twenty first century has been witnessing tremendous technological inventions and invasions like fast speed internet, artificial intelligence, supersonic transportation, encroachment of social media, local for global which has altered the pace and peace of human life. All these external reformations have confined in switching the internal core of humans which is evident in the ongoing social, political, economic, psychological turmoil throughout the world. The Saint literature that is Sant Sahitya has always stood as a lighthouse showing the right direction to the society and people there in the times of turmoil and crisis throughout the medieval history of India and especially in Maharashtra. The voluminous literature crafted by them is the treasure house of age-old knowledge and wisdom which has shown the right path to the people during the external and internal turmoil. Although this tradition of saint literature is not forgotten, there is dire need on the part of academicians to bring this wisdom into limelight on the world platform. This research paper aims to put forward the eternal message of world peace and fraternity embedded in *Pasay dan* by Saint Dnyaneshwar as it functions as Lighthouse for fumbled generations. The primary source for the study is *Pasay dan* which is prayer for the humanity at the end of *Dnyaneshwari* in which *Saint Dnyaneshwar* is asking for welfare and well-being of humanity to the God. Descriptive and analytical research method is used for this study.

PEPTIC ULCERS

Avtar Mehmi, Amanpreet Kaur

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Abstract:

A peptic ulcer is a severe erosion of the stomach or duodenum lining, reaching past the muscularis mucosa to the muscle layer due to gastric acid production. It is also known as a stomach ulcer and represents a breakdown in the mucosal lining of the stomach, the initial part of the small intestine, and occasionally, the lower esophagus. Although there is a common belief that caffeine and coffee worsen symptoms, their impact is relatively minor. Management goals include alleviating ulcer pain, promoting ulcer healing, preventing ulcer recurrence, reducing complications, and eradicating *Helicobacter pylori* in infected patients. *Helicobacter pylori* (H. pylori) infection is a primary cause of peptic ulcers, as this bacterial infection damages the stomach lining. Another key contributor is the long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, aspirin, and naproxen. Furthermore, smoking and excessive alcohol consumption can exacerbate the risk of ulcers by increasing stomach acid production and reducing blood flow to the stomach lining, making it more vulnerable to damage.

Keywords: Definition; Pathophysiology; Peptic Ulcer Disease; Treatment.

Keywords: *Pasay dan*, Sant, Sant Sahitya, Vishwa

Brand Loyalty: The Anatomy of Consumer Devotion

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Abstract:

Brand loyalty is a function of brand trust, brand satisfaction, brand feeling and a combination of these factors. This paper tries to examine the steps undertaken when cultivating brand loyalty, its types, factors that influence it, and how it may be developed. It employs a multi-method approach to analyze and report the determinants of brand loyalty, its merits, downsides, and possible solutions. Results highlight that emotional marketing, maintaining constant product quality and individualized marketing has the potential of creating and nurturing brand loyalty.

Keywords: Brand, Brand Loyalty, Consumer, Purchase

Gender Disparities in Women's Rights in India – A Study of Socio-Legal Barriers and Policy Gaps

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Abstract:

Background: Gender disparities in women's rights in India continue despite a variety of legislative efforts aimed at promoting equality. This paper examines the comprehensive challenges faced by women, including societal norms, economic inequalities, and inadequate legal protections. Notwithstanding constitutional guarantees and diverse legislative frameworks intended at promoting women's rights, functioning remains weak, often due to entrenched patriarchal attitudes and insufficient political representation. The Gender Gap Report 2023 highlights India's low ranking in gender parity, with only 27.4% of women participating in the workforce and minimal representation in legislative bodies. According to the 2024 Global Gender Gap Report, India position extremely low in gender equality, insertion 129th out of 146 countries surveyed, India has closed 64.1% of its gender gap in 2024. **Objectives:** To investigate the socio-legal barriers affecting women's rights in India. To discover policy gaps that contributes to gender disparities. To propose recommendations for improving women's rights and empowerment. **Research Statement:** The research statements focus on sympathetic why existing statutes and laws do not efficiently transform into improved conditions for women in India. **Method:** The study employs secondary data analysis from different reports, legal documents, and literature to assess the present state of women's rights. **Results and Discussion:** Findings specify that entrenched patriarchal norms and insufficient law enforcement exacerbate gender inequality. Despite legal frameworks like the Sexual Harassment of Women at Workplace laws, dowry laws, domestic violence etc implementation remains weak due to societal attitudes. **Conclusion:** Addressing gender disparities in women's rights requires comprehensive reforms which include legal, social, and educational dimensions. A mutual effort is necessary for nurturing an environment conducive to gender equality in India.

Keywords: Gender Disparities, Women's Rights, Socio-Legal Barriers, Policy Gaps, Gender Equality.

The Rise of Realism: A Comprehensive Review of Physics Engines in Gaming

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Abstract:

The evolution of physics engines in gaming has revolutionized the industry, transforming static environments into dynamic, immersive worlds. From their rudimentary beginnings in early arcade games with basic collision detection and gravity simulations, physics engines have progressed to advanced systems capable of simulating complex rigid-body dynamics, soft-body physics, and fluid interactions. The emergence of dedicated engines like Havok and PhysX marked a turning point, enabling developers to create more realistic and interactive gameplay experiences. These advancements have birthed new genres, such as physics-based puzzles, and introduced innovative mechanics like ragdoll physics and vehicle dynamics, enhancing player agency and immersion. Challenges such as performance optimization and unpredictable behavior persist, yet emerging technologies—AI integration, VR/AR applications, and machine learning—promise to redefine the future of game physics. By bridging realism with creativity, physics engines continue to shape the design and storytelling potential of modern and future games.

Keywords: Physics Engines, Game Development, Realistic Simulations, AI Integration, VR/ARGaming

BENZIMIDAZOLE – A REVIEW

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Abstract:

In the field of Medicinal Chemistry, because heterocyclic compounds are a component of the structure of many biological materials, their use in the field of medicinal chemistry is growing by the day. Benzimidazole is a heterocyclic molecule created when benzene and imidazole are fused together. As a heteroatom, benzimidazole has two nitrogen. Benzimidazole scaffolds are very common among these prospective heterocyclic medicines. Condensation of o-phenylenediamine with formic acid results in commercially accessible benzimidazole. N-riosityldimethylbenzimidazole is the most common benzimidazole molecule in nature, and it functions as a cobalt axial ligand in vitamin B12. Antiulcer and anthelmintic medications contain benzimidazole and its derivatives, which are significant therapeutic agents. Benzimidazole derivatives have a wide range of pharmacological properties, including antihypertensive, anticancer, antiviral, antidiabetic, antibacterial properties. Because of the medications' uses in the treatment of microbial infections and other biological activities, more strong and significant pharmaceuticals are being developed. However, noteworthy hurdles such as drug resistance, expensive and time-consuming synthetic procedures, a lack of structural knowledge on receptors, a lack of modern software, and so on, can still be addressed in order to further research.

Non alcoholic steatohepatitis
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Abstract:

NASH, a severe form of non-alcoholic fatty liver disease (NAFLD), progresses from simple steatosis through multiple hits, including genetic predisposition, fat accumulation, insulin resistance, and gut microbiota dysregulation. Obesity, a key contributor to NAFLD, triggers adipokine secretion, endoplasmic reticulum stress, and oxidative stress, leading to hepatic steatosis, inflammation, and fibrosis. Gut microbiota play a crucial role in initiating this multifactorial disease, while oxidative stress drives the progression from NAFL to NASH. Immunological responses, including macrophage and T-cell infiltration, are also implicated. Although antioxidant therapy with vitamin E has shown promise in controlling hepatitis pathology in the short term, long-term efficacy remains uncertain. Therefore, novel treatment strategies that incorporate current understanding of NAFLD molecular pathogenesis are urgently needed.

Keywords: non-alcoholic fatty liver, non-alcoholic steatohepatitis, gut microbiome, oxidative stress.

Challenges and Solutions in Machine Learning Based EEG Signal Analysis for

Identification of Major Depressive Disorder

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Abstract:

Major Depressive Disorder (MDD) or depression is a psychiatric problem which adversely affects the emotional state of a person, like how a person thinks, feels and behaves. More than 300 million people across the globe carry this disease burden and it is anticipated by World Health Organization (WHO) that by 2030, MDD will become the major cause of disease burden. Presently diagnosis of MDD is done on the basis of accepted MDD classification criteria like Diagnostic and Statistical Manual of Mental Disorders-fifth edition (DSM-V) and Hamilton Depression Rating Scale (HAM-D). This approach depends on observed behavior by a health practitioner of a MDD patient responding to a standardized questionnaire during face-to-face interview session. Thus, the diagnosis of MDD is primarily subjective in nature. The major reason behind any misdiagnosis is because of the fact there are no established laboratory tests to detect MDD. Thus, the primary objective of this research work is to develop a model which would help to diagnose accurately MDD at an early stage by using EEG signals. Thus, it can prevent MDD from becoming severe and untreatable which in turn would save a number of lives of MDD patients, improve quality of life of the patient and substantially decrease the cost associated with medical care.

The work basically comprises analysis of a public dataset and a Collected dataset. While the Public dataset is an open access data, the Collected dataset has been collected from Central Institute of Psychiatry (CIP), Ranchi, India. The analysis of the Public dataset has been done using various classifiers namely: Multi Layered Perceptron Neural network (MLPNN), Radial Basis Function Network (RBFN), Linear Discriminant Analysis (LDA), Quadratic Discriminant Analysis (QDA), Support Vector Machine (SVM), Logistic Regression (LR), Naïve-Bayesian (NB), Decision Tree (DT), Adaptive Neuro Fuzzy Inference System (ANFIS) as well as three variants of Hybrid

ANFIS– ANFIS along with Genetic Algorithm (ANFIS-GA), ANFIS along with Particle Swarm Optimization (ANFIS-PSO) and ANFIS along with Firefly Algorithm (ANFIS-FA) and Bagging. The features extracted were mainly divided into two categories: a) linear feature: delta, theta, alpha and beta and their corresponding sub-bands delta1, delta2, theta1, theta2, alpha1, alpha2, beta1 and beta2, alpha asymmetry and theta asymmetry and paired theta asymmetry b) non-linear feature: Relative Wavelet Energy (RWE), Wavelet Entropy (WE), Approximate Entropy (ApEn), Sample Entropy (SampEn), Correlation Dimension (CD) and Detrended Fluctuation Analysis (DFA). While the feature reduction technique used was Principal Component Analysis (PCA), the feature selection Techniques used were: Variance Inflation Factor (VIF), Min- Redundancy-Max-Relevance (mRMR), Multi-Cluster Feature Selection (MCFS), Maximum Likelihood Estimation (MLE) and Relief.

Based on the analysis of the public dataset, it was found that depression affects mostly the temporal region of the brain. So, in the Collected dataset, features from only the channels in temporal region were selected. The classifier used was Bagging along with SVM's three kernel function: Polynomial, Gaussian and Sigmoidal. The features used were a) linear features: delta, theta, alpha, beta, gamma 1 and gamma 2 band power and their corresponding asymmetry as well as paired asymmetry b) non-linear: SampEn and DFA. Feature selection technique used was Relief.

From the analysis of public dataset, it was found that highest classification of 93.33% was achieved by combining linear and non-linear feature i.e. combination of alpha power and Relative Wavelet Entropy (RWE) with MLPNN as well as RBFN classifier. GA and FA perform equally well in training ANFIS with highest accuracy of 83.33 % using delta1 power as well as delta power. The combination of alpha2 and theta asymmetry showed the highest classification accuracy 88.33% for SVM along with Multi Cluster Feature Selection (MCFS).

Based on analysis of the Collected dataset, highest classification accuracy of 96.02% and 79.19% was achieved for detection and severity scaling of depression using SVM (Gaussian Kernel Function) and Relief as feature selection. From the analysis, it was found that depression affects mostly the temporal region of the brain (temporo-parietal region). It was also found that depression affects the higher frequency band features more and also it affects each hemisphere differently. It can also be analysed that out of all the kernels of SVM, Gaussian kernel is more efficient than other kernels.

Thus, from the study it can be concluded that SVM (Gaussian kernel function) works most effectively among all the applied classifiers and Relief works most effectively among all the selection techniques based on analysis of both the dataset. It can also be concluded that depression primarily affects the temporal region of the brain. Since high accuracy (96.02%) is achieved, the proposed framework using 6 channels (FT7, FT8, T7, T8, TP7, TP8) and feature (DFA, paired asymmetry and Asymmetry and Gamma2 band power) along with SVM (Gaussian kernel function) as a classifier could act as adjunctive clinical decision support for identifying depression in early stages of depression. Thus, it can prevent depression from becoming severe and untreatable which in terms would save a number of lives of depression patients, improve quality of life of the patient.

Keywords: Major Depressive Disorder (MDD), Multi Layered Perceptron Neural Network (MLPNN), Radial Basis Function Network (RBFN), Linear Discriminant Analysis (LDA), Quadratic Discriminant Analysis (QDA), Relative Wavelet Energy (RWE), Wavelet Entropy (WE), Multi-Cluster Feature Selection (MCFS), Support Vector Machine (SVM), Logistic Regression (LR), Naïve-Bayesian (NB), Decision Tree (DT), Approximate Entropy (ApEn), Sample Entropy (SampEn), Correlation Dimension (CD), Detrended Fluctuation Analysis (DFA).

A Novel Review of Methods for Detecting Blackhole Attacks

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Himachal Pradesh, India

Professor, Department of Computer Science, Indus International University Una, Himachal
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Abstract:

Black hole attacks occur when a hacker takes over a group of nodes, changes their code, and stops packets from reaching the base station. As an output, data is stolen and sent to the attacker's (black hole) location. These assaults are simple to create and might lower system efficiency by severing the network, that would stop base stations from getting important data. Throughput and end-to-end latency are two network efficiency metrics that can fluctuate due to blackhole nodes, with throughput decreasing and end-to-end latency increasing. Through a comprehensive review of all current techniques, this research reveals their limits and efficiency. This study indicated the favourable result of the Cuckoo search algorithm for black hole strike detection adopting the AODV protocol. A network simulator is used to generate the network for 30 nodes.

Keywords: Blackhole, Attack, Security, AODV, Network-Simulator, Detection,

Transforming Pharmaceutical Healthcare: Innovations in Research and Development for Advanced Drug Delivery

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Abstract:

Pharmaceutical research and development (R&D) plays a pivotal role in addressing global health challenges by driving innovations in drug formulation and delivery technologies. This study explores cutting-edge strategies that enhance therapeutic efficacy, patient compliance, and the accessibility of essential medicines.

The research focuses on integrating computational tools and advanced manufacturing techniques for drug design and development. Small-molecule drugs were optimized through molecular modeling and QSAR analysis to ensure high target specificity. These molecules were incorporated into novel delivery platforms, including orodispersible films and controlled-release tablets, produced using precision-based technologies like 3D printing.

Preclinical and clinical investigations demonstrated a significant improvement in drug bioavailability (40%) and reduced dosing frequency, leading to a substantial increase in patient adherence (up to 60%). The implementation of cost-efficient production methods further highlighted the potential for scalable solutions in resource-limited regions.

This study exemplifies how innovative R&D approaches can address unmet medical needs by fostering multidisciplinary collaborations. The findings provide a foundation for developing transformative healthcare solutions that advance global pharmaceutical accessibility and efficacy.

Keywords: 3D printing, bioavailability, computational drug design, healthcare innovation, pharmaceutical R&D.

Survey Report on Quantum Cryptography in Cyber Security

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Abstract:

Quantum cryptography has emerged as a transformative technology for secure communication, leveraging quantum mechanics to provide unparalleled confidentiality and integrity. This review explores advancements in quantum cryptography from 2010 to 2025, focusing on theoretical frameworks, experimental breakthroughs, and practical implementations. Significant progress includes the development of quantum key distribution (QKD) protocols such as BB84 and Ekert91, demonstrating secure communication over long distances and integrating quantum and classical cryptographic techniques. Future research directions emphasize scaling QKD systems, refining practical protocols, and uncovering novel applications in secure network architectures, positioning quantum cryptography as a cornerstone for next-generation communication security. Keywords: Quantum cryptography, secure communication, quantum mechanics, quantum key distribution (QKD), BB84 protocol, Ekert91 protocol, cryptographic techniques, secure network architectures, communication security

The Rise of Realism: A Comprehensive Review of Physics Engines in Gaming

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Abstract:

The evolution of physics engines in gaming has revolutionized the industry, transforming static environments into dynamic, immersive worlds. From their rudimentary beginnings in early arcade games with basic collision detection and gravity simulations, physics engines have progressed to advanced systems capable of simulating complex rigid-body dynamics, soft-body physics, and fluid interactions. The emergence of dedicated engines like Havok and PhysX marked a turning point, enabling developers to create more realistic and interactive gameplay experiences. These advancements have birthed new genres, such as physics-based puzzles, and introduced innovative mechanics like ragdoll physics and vehicle dynamics, enhancing player agency and immersion. Challenges such as performance optimization and unpredictable behavior persist, yet emerging technologies—AI integration, VR/AR applications, and machine learning—promise to redefine the future of game physics. By bridging realism with creativity, physics engines continue to shape the design and storytelling potential of modern and future games.

Keywords: Physics Engines, Game Development, Realistic Simulations, AI Integration, VR/ARGaming

"Diversity in Indian Diaspora: A Literary Perspective"

Nisha sharma¹

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Abstract:

Indian Diaspora refers to the people of Indian origin living outside India. The topic exemplifies the resilience and adaptability of that community deeply rooted in its heritage while actively shaping its global identity. Indian literature plays a crucial role in representing the multifaceted experiences of Diasporic communities. The writings of Jhumpa Lahiri, Kiran Desai and Vikram Seth have become leading voices in the contemporary literature exploring Diasporic experiences with their meticulous portrayal of identity, belonging and cultural heritage. Jhumpa Lahiri's *The Namesake* explores the experiences of a Bengali family in America. The novel explores the character's sense of belonging and how they negotiate life across culture. Kiran Desai's *The Inheritance of Loss* juxtaposes characters like Sai and Biju's struggle with identity in globalized context. The struggle between the older and younger generation illustrating how colonial history impacts cultural retention. Vikram Seth's *An Equal Music* and *Two Lives* explore characters who navigate hybrid identities in transcending geographical boundaries. His characters often grapple with cross-cultural relationships and loyalties. He celebrates cultural heritage in its diversity and richness.

Keywords: Diaspora, Jhumpa Lahiri, Kiran Desai and Vikram Seth, cultural heritage

A study on performance evaluation of public sector undertakings in Himachal Pradesh

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Abstract:

In Himachal Pradesh, the process of creating necessary institutional frame work was started at the end of the Third Five Year Plan, when the state started playing an important role in industrialization. To diversify its industrial structure, various institutions such as H.P. State Small Industrial and Export Corporation (1966); H.P. Finance Corporation (1967); Khadi and Village Industries Board (1968); H.P. Agro Industries Corporation (1970); H.P. Mineral and Industrial Development Corporation (1971); H.P. Tourism Development Corporation (1972); H.P. Forest Corporation (1974); H.P. State Handloom & Handicraft (1974); etc. have been created. At present, there are 23 Corporations and boards as public sector enterprises in the state. So, it becomes very essential to study the performance of these Corporations to pin point their strength and weakness. A large number of empirical researches on performance evaluation of public enterprises has been conducted in the country. Keeping in view the importance of these Corporation in the economy of the state and country, the present Study has been conducted.

Keywords: Financial performance, Operational performance, Employees attitudes, Revenue and cost performance, Hypothesis, Research Design.

Translation and Indian English Literature: Enriching Through Regional Voices

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Abstract-

Translation has been vital in connecting India's regional literary heritage with a global audience, significantly enriching Indian writing in English. India's multilingual diversity holds a treasure trove of literature in languages like Hindi, Bengali, Tamil, Malayalam, and Urdu, which often remain inaccessible to non-regional readers. Translation bridges this gap, bringing iconic regional works to Indian English literature and showcasing the nation's cultural and social diversity. This paper explores how translation enhances thematic, stylistic, and narrative richness in Indian English writing while addressing challenges like preserving cultural essence, managing linguistic differences, and balancing fidelity with creativity. Highlighting contributions from translators like A.K. Ramanujan and Arshia Sattar and works such as Tagore's *Gitanjali* and Premchand's *Godaan*, the study demonstrates how translation amplifies regional voices.

Ultimately, translation acts as a cultural mediator, preserving India's literary heritage and ensuring its relevance in the global literary discourse.

Keywords: Indian English literature, translation, regional languages, cultural diversity, multilingualism, Rabindranath Tagore, Premchand, literary heritage, global readership, cross-linguistic dialogue.

A Review on NDT in Manufacturing: Safeguarding Quality, Reducing Costs, and Improving Safety

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Abstract:

In contemporary manufacturing, non-destructive testing, or NDT, is an essential method that guarantees product quality, lowers expenses, and improves safety without destroying materials. NDT helps manufacturers fulfill strict quality standards while optimizing resources by making it possible to detect defects in structures and components. This study examines the value of NDT across a variety of sectors, including energy, automotive, and aerospace, emphasizing how it preserves product integrity and reduces material waste.

Important NDT techniques that efficiently find hidden flaws including fractures, corrosion, and weak points in structures include magnetic particle testing, eddy current testing, radiography testing, and ultrasonic testing. Early defect discovery reduces the chance of failures that could damage a brand's reputation, improves product reliability, and avoids expensive recalls. Furthermore, NDT's cost-saving advantages come from its capacity to evaluate materials without destroying them, which lowers waste and material costs.

Beyond quality control, NDT helps with predictive maintenance, which reduces downtime, prolongs the life of equipment, and identifies possible issues before they happen. NDT is still developing as a result of industry demands for more sustainable and effective production techniques, which highlights its critical position in contemporary manufacturing. As it develops, safety, performance, and cost effectiveness will all increase, making it a vital tool for industrial production in the future.

Keywords: Non-Destructive Testing (NDT), quality assurance, cost reduction, safety, manufacturing, ultrasonic testing, radiographic testing, eddy current testing, magnetic particle testing, product integrity, defect detection, material waste.

Impact of Artificial intelligence on Hiring

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Abstract:

Globalization is making the globe more technologically savvy, which means businesses need to stay current to remain competitive. More than ever, human resource management (HRM) is crucial, particularly when it comes to hiring new staff members who will contribute their expertise to an organization. The ability to automate tasks that were previously completed by humans is another benefit of technical advancements. Therefore, it is crucial to think about and assess how technology may affect HRM in general and the hiring process in particular. AI is vital tool to solve recruitment problem. Use of AI remove different biases such as confirmation and nepotism. Using algorithm read profile of candidate 360 way . my research is based on social media profile of 20 recruiter from Himachal Pradesh una region.

Keywords: Globalization, organization, HRM , AI.

“Factors Influencing Demand: An Analysis of Price, Income, and Alternatives”

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Abstract:

Understanding demand is crucial for businesses, policymakers, and economists to analyze market trends, predict future demand, and make informed decisions. This paper examines the interplay between three critical factors—pricing, income, substitutes and complements—and play a major role in shaping consumer demand across various sectors.

Pricing directly influences consumers’ purchasing decisions through mechanisms such as price elasticity, perceived value, and affordability. For example, if prices go up, consumers may buy less, especially for non-essential items. However, necessities like basic groceries often see steady demand even with price increases. This is because such goods are less sensitive to price changes, a concept known as inelastic demand. On the other hand, income levels influence what consumers can afford. People with higher incomes have more flexibility to purchase luxury goods, while those with lower incomes tend to be more careful with their spending. Substitutes also play a big role in demand. When there are similar products available, consumers may switch to cheaper or better alternatives, forcing companies to compete on quality and pricing.

We explore how changes in prices, income levels, and substitute products influence demand. This analysis highlights the importance of thoughtful strategies. Policies that promote fair pricing, income equality, and competition can create better market conditions. Businesses must adapt by offering competitive prices, focusing on customer needs, and innovating to stand out in crowded markets. Ultimately, understanding these factors helps everyone—from companies to governments—make smarter choices for both consumers and the economy.

Keywords: Market demand, pricing strategies, income elasticity, substitute goods, price elasticity, consumer behaviour, competition, demand analysis.

Applications of Hydrogel-Based Drug Delivery Systems

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Abstract:

Hydrogels are three-dimensional polymer networks with exceptional properties that make them valuable in various industries, including drug delivery, tissue engineering, biosensing, and regenerative medicine. This review paper aims to provide a comprehensive overview of hydrogels, covering their design concepts, synthesis processes, and characterization procedures. It discusses the different types of hydrogel materials, such as natural polymers, synthetic polymers, and hybrid hydrogels, highlighting their unique characteristics and applications. Furthermore, it explores advancements in hydrogel-based platforms for controlled drug delivery and bioprinting methods for tissue engineering.

IN-SILICO GUIDED SYNTHESIS AND STUDY OF HYBRID BENZOTHAIAZOLE DERIVATIVES AS POTENTIAL EGFR INHIBITORS FOR CANCER THERAPY

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Abstract:

Heterocyclic compounds, particularly benzothiazole (BT) derivatives, have shown considerable potential in the development of novel anticancer agents. The Epidermal Growth Factor Receptor (EGFR), a transmembrane tyrosine kinase receptor, is crucial for regulating cell proliferation, survival, and differentiation. Overexpression or mutations in EGFR are commonly associated with various cancers, including non-small cell lung cancer (NSCLC), making EGFR a key target in anticancer therapy. Despite the availability of EGFR inhibitors such as gefitinib, erlotinib, and afatinib, drug resistance remains a major challenge in clinical settings, particularly in NSCLC patients, leading to treatment failure and disease progression. In this study, we aim to address EGFR-targeted drug resistance by designing and developing novel, potent benzothiazole-based compounds. Using virtual screening, we identified four promising hits based on their predicted binding affinity and interactions with the EGFR target. Molecular docking analysis revealed that two compounds, MRS2 and MRS4, exhibited superior binding scores compared to other compounds, as determined through both blind and non-blind docking methods. Further, ADME (Absorption, Distribution, Metabolism, and Excretion) property analysis was conducted to ensure the absorption and bioavailability of the screened compounds. The identified active compounds (MRS2 and MRS4) were subsequently synthesized by chloroacetylation and cyclization approach. All compounds were characterized using physicochemical properties and spectroscopic techniques such as UV-Vis, IR, and NMR spectroscopy. The identified compounds offer significant promise in overcoming EGFR inhibitor resistance, providing a potential new strategy for more effective anticancer therapies. This study highlights the potential of the benzothiazole scaffold in the development of next-generation EGFR inhibitors, opening avenues for future research focused on addressing drug resistance in cancer treatment.

Keywords: Benzothiazole (BT), EGFR, anticancer agents, in-silico study, ADME

Ferrite Nanoparticles as an Efficient Catalyst for the Synthesis of

Arylidene Barbituric Acid Derivatives

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Abstract:

Magnetic nanoparticles are widely known for their unique properties, which have led to a broad range of applications and significant interest across various fields. In addition, these nanoparticles serve as an effective catalyst in synthetic chemistry, primarily because they can be easily separated using an external magnet. The capability of magnetic separation is a crucial characteristic that makes magnetically separable catalysts more preferable. In this study a magnetically separable ferrite catalyst was synthesized using auto-combustion method and was characterized via XRD, SEM and FT-IR. The catalyst proved to be highly efficient as a heterogeneous acid catalyst for the synthesis of arylidene barbituric acid derivatives. Key attributes of this novel protocol include its solvent-free nature, cost-effectiveness, high yields, and eco-friendliness, enabling the production of desired products in a short time frame. Additionally, the catalyst can be easily recovered and reused, enhancing its practical utility.

Sustainable Practices in Beverage Service: Reducing Waste and Carbon Footprint

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Abstract:

The beverage service industry significantly contributes to global waste and carbon emissions, necessitating the adoption of sustainable practices to mitigate its environmental impact. This research explores key strategies for reducing waste and lowering the carbon footprint in beverage service, focusing on eco-friendly packaging, circular economy principles, energy-efficient operations, and sustainable sourcing of ingredients. Additionally, the study examines the role of technological advancements, consumer behavior, and regulatory frameworks in promoting sustainability within the sector. By integrating best practices and emerging trends, this paper provides a comprehensive roadmap for businesses to transition toward more environmentally responsible service models. The findings highlight the importance of collaborative efforts among industry stakeholders, policymakers, and consumers to drive meaningful change. Implementing sustainable beverage service practices not only enhances environmental stewardship but also improves operational efficiency and brand reputation, ultimately contributing to a more sustainable future.

Keywords: Sustainability, Beverage Service, Waste Reduction, Carbon Footprint, Eco-Friendly Packaging, Circular Economy, Energy Efficiency, Sustainable Sourcing, Consumer Behavior, Green Practices, Environmental Impact, Hospitality Industry, Renewable Resources, Regulatory Frameworks, Climate Change Mitigation.

Review on how A.I based technologies improve the growth of forests in India

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Abstract:

India's forests play a vital role in maintaining ecological balance, supporting biodiversity, and providing livelihoods to millions. However, challenges such as deforestation, forest degradation, and climate change threaten their sustainability. This research investigates the potential of Artificial Intelligence (AI)-based technologies to enhance forest growth and management in India. AI techniques, including machine learning, computer vision, and remote sensing, are leveraged to monitor forest health, predict deforestation patterns, and optimize reforestation efforts. By integrating AI-driven predictive analytics with satellite imagery and Internet of Things (IoT) sensors, this study aims to develop precision forestry strategies that improve forest cover, enhance biodiversity, and ensure sustainable resource management. Furthermore, the research evaluates the socio-economic and environmental benefits of adopting AI technologies in forest management. The findings underscore the transformative potential of AI in addressing India's forestry challenges, paving the way for data-driven conservation and sustainable growth of forest ecosystems.

Keywords: AI in forestry, prediction, biodiversity conservation, satellite imagery, IoT sensors, sustainable forestry, forest monitoring, environmental sustainability, remote sensing.

An overview of the synthesis, and medicinal uses of psyllium-related polymeric materials

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Abstract:

The viscous dietary fibers have positive effects on human health, both in the prevention and treatment of chronic diseases. Psyllium is a soluble dietary fiber with multifaceted health benefits. Psyllium, derived from *Plantago ovata* is a soluble dietary fiber with a rich history of traditional use. This review aims to summarize the current state of knowledge on psyllium health benefits, therapeutic applications, and food uses. Psyllium has been shown to have numerous health benefits, including lowering cholesterol levels, improving blood sugar control, aiding in weight management, and supporting healthy gut bacteria. Dietary fibers from psyllium have been used extensively both as pharmacological supplements, and food ingredients, in processed food to aid weight control, regulation of glucose control for diabetic patients, and lowering hyperlipidaemic serum cholesterol levels. This article addresses the therapeutic potential of psyllium for the treatment of constipation, diarrhea, irritable bowel syndrome, inflammatory bowel disease-ulcerative colitis, colon cancer, diabetes, and hypercholesterolemia while taking into account the pharmacological significance of psyllium polysaccharide and its gel-forming properties.

Key Point: Psyllium, Medicinal Properties, Constipation, Diarrhoea, Irritable Bowel Syndrome, Colon Cancer, etc.

"Impact of GST Implementation on State Taxes & Excise Revenue Collection in Himachal Pradesh: A Comparative Analysis of Pre-GST and Post-GST Trends"

Bhartiya rakesh
(Research Scholar)

Abstract:

The research paper analyzes the pre-GST and post-GST trends in State Taxes & Excise revenues of Himachal Pradesh, focusing on tax collection efficiency and staff vacancies. The pre-GST Value Added Tax (VAT) system relied on manual processes, whereas GST, introduced on 1st July 2017, brought a technology-driven, IT-based system aimed at reducing compliance costs. Despite hopes for increased revenue, growth has been marginal due to a rising staff vacancy rate in the State Taxes & Excise department. The vacancy rate increased from 24.02% in 2016-17 to 44.61% in 2023-24, impacting revenue collection efficiency. The study uses secondary time-series data (2010-11 to 2023-24) to compare revenue collections, expenses, and staffing levels across both tax regimes. The paper concludes that optimal human resources are crucial for effective tax collection, as the cost of revenue collection is directly linked to staff availability and efficiency in both periods.

Public Archaeology in India: Bridging Heritage Preservation, Cultural Exchange, and Sustainable Practices

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Abstract:

Public archaeology has become an essential tool in the preservation and promotion of cultural heritage, focusing not only on safeguarding historical sites but also on fostering cultural exchange and revitalizing traditional arts. Both public and private sectors in India are actively participating in public archaeology by organizing heritage walks, handicraft workshops, and lecture series aimed at raising awareness about the nation's rich tangible and intangible heritage. These initiatives help educate the general public about historical significance and cultural value. In the realm of intangible heritage, musicians are working with ancient music pieces, giving them a modern twist while preserving traditional forms. Additionally, various organizations are working to preserve old vernacular architectural styles by reconstructing buildings using traditional techniques, which are eco-friendly and sustainable. The contribution of public archaeology is further evident through these innovative efforts, where both sectors play a vital role in bridging the gap between academic research and public engagement, promoting an understanding of heritage as a shared resource. Heritage walks create immersive experiences, helping participants connect with the physical space and its historical significance. Traditional art workshops enable the preservation and transmission of cultural practices while revitalizing local craftsmanship. Museums serve as dynamic platforms for cultural exchange and heritage celebration. Through these evolving means, public archaeology fosters a deeper appreciation of the past, supports sustainable heritage management, and empowers communities to actively preserve their cultural identity for future generations.

Keywords: Public Archaeology, Heritage Preservation, Cultural Exchange, Traditional Arts, Community Engagement.

The Societal Impact of Artificial Intelligence

Isha (Bca 1st year)

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Abstract:

Artificial Intelligence (AI) is transforming society, offering significant opportunities for enhancing lives while also presenting notable challenges. This paper examines the influence of AI across various sectors, highlighting its advantages in boosting efficiency, productivity, and personalized services. It also discusses the ethical, social, and economic issues that arise from AI, emphasizing the need for governance and regulation to ensure its responsible development and application.

A Review on Technology's Influence on Music Production

Juvika (Bca 1st year)

Indus International University, H.P, India

Abstract:

The evolution of technology has profoundly transformed the music industry, influencing how music is created, distributed, and consumed. This paper explores the multifaceted impact of technology on music, examining historical developments, the rise of digital platforms, the role of social media, and the implications for artists and consumers. By analyzing these dimensions, we aim to provide a comprehensive understanding of how technology has reshaped the musical landscape.

Exploring Pyrazole Derivatives as Potential PDE7 Inhibitors: Insights from Molecular Docking and ADME Studies

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Abstract:

Phosphodiesterase 7 (PDE7) has emerged as an important therapeutic target due to its role in immune regulation and neurological disorders. Selective inhibition of PDE7 has been linked to potential treatments for inflammatory diseases, neurodegenerative disorders, and autoimmune conditions. In this study, we computationally evaluated a series of pyrazole derivatives as potential PDE7 inhibitors using molecular docking and ADME (Absorption, Distribution, Metabolism, and Excretion) studies. Molecular docking was employed to analyze the binding affinity and interaction patterns of pyrazole derivatives within the active site of PDE7. Several derivatives exhibited high binding energy scores, comparable to known PDE7 inhibitors, indicating their promise as lead compounds. In addition to docking studies, ADME profiling was conducted to assess the pharmacokinetic properties of these compounds. The results revealed favourable drug-like characteristics, including high oral bioavailability, metabolic stability, and optimal absorption and distribution profiles. Importantly, none of the selected pyrazole derivatives showed significant toxicity risks, making them suitable candidates for further investigation. The combination of strong docking interactions and promising pharmacokinetic properties suggests that pyrazole derivatives could serve as potential PDE7 inhibitors with therapeutic relevance. However, further validation through in vitro enzyme inhibition assays and in vivo pharmacological studies is required to confirm their efficacy and safety. This study provides valuable computational insights that could aid in the rational design and development of novel PDE7 inhibitors for the treatment of inflammatory and neurodegenerative diseases.

Keywords: Pyrazole, PDE7, Molecular Docking, ADME studies, Inflammation.

The Advancement of Technology: Transformations, Challenges, and Future Prospects

Navin kumar

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Abstract:

The advancement of technology has been a cornerstone of human progress, shaping every aspect of modern life. From the Industrial Revolution to the rise of artificial intelligence (AI), quantum computing, and biotechnology, technology has driven significant transformations in industries, societies, and economies. However, while technological advancements have opened up new possibilities, they also present complex challenges, including ethical concerns, cybersecurity risks, and social implications. This paper explores the key transformations brought about by technological progress, the challenges associated with these innovations, and the future prospects of emerging technologies. Through a comprehensive review, the paper highlights both the potential benefits and the risks that accompany rapid technological change.

In-Silico Docking-Based Screening of Phytoconstituents as Potential Agonists of Free Fatty Acid Receptor 4 (GPR120): A Computational Perspective

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Abstract:

Free Fatty Acid Receptor 4 (GPR120) is a G-protein-coupled receptor (GPCR) that plays a vital role in maintaining metabolic balance, improving insulin sensitivity, regulating inflammation, and managing lipid metabolism. Because of these functions, GPR120 has become an attractive target for developing treatments for metabolic disorders like type 2 diabetes, obesity, and inflammatory diseases. While synthetic agonists have been widely studied, natural compounds, known as phytoconstituents, present an exciting alternative due to their structural diversity, natural origin, and potential safety advantages. This review explores how in-silico docking-based screening can help identify phytoconstituents that might act as GPR120 agonists. Various computational techniques, including molecular docking, molecular dynamics simulations, and ADME (Absorption, Distribution, Metabolism, and Excretion) analysis, are used to predict how well these compounds bind to GPR120, their stability, and their pharmacokinetic properties. Research has shown that certain plant-derived compounds, such as flavonoids, terpenoids, alkaloids, and polyphenols, interact strongly with critical sites on GPR120, suggesting their potential to activate the receptor. Beyond highlighting these promising findings, this review also discusses the challenges and limitations of using computational screening methods alone. Since *in-silico* studies provide predictions rather than definitive proof, further experimental validation through laboratory and clinical studies is necessary to confirm the therapeutic potential of these compounds. Ultimately, this study underscores the importance of computational techniques in modern drug discovery and how they can accelerate the identification of natural bioactive compounds that may lead to new, effective treatments for metabolic and inflammatory diseases.

Keywords: GPR120, Diabetes mellitus, Phytoconstituents, *in-silico*, Molecular docking.

A study on Crisis of Human Values in Today's Life

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Abstract: The term "crisis" describes a challenging circumstance or emergency. It primarily leads to uneven and unfavourable situations in a group or civilization. These unfavourable circumstances may be social, political, economic, environmental, or a combination of these. A major problem in modern living is the absence of human values, or the "value crisis." The predominance of customs like female violence, dowries, and irrational superstitions, among others, reflects this. To stop these activities, individuals must be placed in value-oriented classes. Individuals will do whatever it takes to satisfy their demands. People are abusing their freedom, there is a lack of ethics, and women are being raped. People don't think about their social responsibilities towards society. All these happenings reflect an intense value crisis in our society.

So, it becomes very essential to study these crises. A large number of empirical studies on crisis of human values have been conducted in the whole world. Keeping in view the importance of human values in the economy of the country, the present study has been conducted.

Keywords: Crisis, Human Values, Ethics,

Synthesis and Evaluation of 2,4-Thiazolidinedione Derivatives: Antimicrobial and Antidiabetic Potential.

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Abstract:

Heterocyclic compounds are widely distributed in nature and are of very much interest in our daily life. 2,4-Thiazolidinedione (2,4-TZD) is a five-membered pentacyclic heterocyclic ring containing sulphur, nitrogen, and carbon as the members of the ring system while possessing two ketonic groups at 2nd and 4th positions as the substituents. In our research we have synthesised 12 compounds of the series of 3,5-substituted-2,4-TZDs. All the synthesised compounds were characterised by IR and ¹H-NMR spectroscopic methods. The synthesised compounds were evaluated for their *in vitro* antimicrobial potential against *Bacillus subtilis* and *Escherichia coli* using cup plate method against ciprofloxacin standard. Out of all the evaluated compounds, compound 1c (13 ± 0.5 mm) (11 ± 0.5 mm) and 1f (16 ± 0.5 mm) (13 ± 0.5 mm) were found to possess significant antimicrobial potential against *Bacillus subtilis* and *Escherichia coli* respectively when compared to standard. Despite of antimicrobial activity, the synthesised compounds were also evaluated for their antidiabetic potential. Out of all the evaluated compounds, 1f showed maximum decrease in serum glucose level (139 ± 3.89) against standard at a dose of 30 mg/kg. Moreover, molecular docking studies were also performed against PPAR-γ (PDBID- 1FM6). ADME studies were also performed and all the compounds showed zero violation of Lipinski's rule.

Keywords: Antimicrobial, antidiabetic, ADME, molecular docking 2,4-thaizolidinedione

Impact of Social Media on School Students

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Abstract:

This research aims to examine the multifaceted impact of social media on school students, particularly focusing on its influence on their academic performance, social behavior, and mental health. Social media platforms such as Instagram, Facebook, Snapchat, and TikTok have become integral to students' lives, shaping their communication styles, learning habits, and self-perception. While social media facilitates access to educational resources and fosters global connectivity, its excessive or improper use can lead to challenges such as addiction, decreased academic productivity, and deteriorating mental health. Through a descriptive research methodology involving surveys, interviews, and focus group discussions, this study provides a detailed analysis of how social media affects the lives of school students.

A Review on Role of Internet of Things (IoT) in Education

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Abstract:

The Internet of Things (IoT) is a fast-growing network of connected devices that can communicate and share data. In education, IoT is like a fresh wave of change, offering new opportunities to improve teaching, learning, and the infrastructure of educational institutions. This paper explores how IoT can benefit education, showing its practical applications in classrooms and campuses. It also highlights recent research on IoT in education, discusses the challenges it faces, and looks at how it could shape the future of learning. IoT has the potential to make education more efficient, engaging, and adaptable to the needs of students and teachers.

Mixed Boundary Value Problem for Viscoelastic Trapezoidal Plates: A Numerical Investigation of Free Vibration

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Abstract:

The effect of bi-linear thickness variation on the free vibration of the visco-elastic trapezoidal plate with bi-linear temperature variations under the boundary condition CCCS, or clamped - clamped - clamped simply supported, will be addressed throughout this paper. This is an essential concept to consider when creating structures with multiple applications in many different kinds of industries, which includes civil engineering, mechanical engineering, automobile manufacturing, and the aerospace industry. The behavior of the plate's vibrations, the consequences of bilinear temperature, and the bilinear thickness have all been examined using the theory of thin plates. The main objective of this research is to examine the trapezoidal plate's vibrations along the x and y axes while keeping in mind the heat impact. To evaluate the vibration equation solution, we implement the Rayleigh Ritz strategy, and we first calculate the first two modes of vibrations. Keywords: Vibrations, modes of vibrations, trapezoidal plate, clamped, simply – supported, bilinear temperature, and bilinear thickness.

Advanced Structures in Abstract Algebra: Exploring the Connections Among Groups, Rings, and Fields

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Abstract:

Abstract algebra is based on group, ring and field Theory which offers significant understanding of the mathematical structures. Group theory examines the roles of groups in symmetry analysis and how objects behave under various operations and transformations. Ring Theory expands the concept of arithmetic operations by providing two operations—addition and multiplication—that meet under some specified axioms and examines the role of rings in algebraic topology and computational mathematics. Field theory expands ring Theory by requiring every non-zero element to have a multiplicative inverse and examines the role of fields in number theory and cryptography. This paper explores their definitions, properties, interrelations and connection between them.

Keywords: Set, Group, Subgroup, Homomorphism, Ring, Subring, Field. [1]

INVESTIGATION OF NOVEL QUINOLINE DERIVATIVES AS C-KIT KINASE INHIBITORS: IN SILICO STUDIES

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Abstract:

The type II-C-KIT signaling network has been extensively studied for the investigation of quinoline derivatives as compounds with inhibitory effects on c-Kit kinase. In this study, a multistage approach was employed, including the creation of pharmacophore models, 3D QSAR analysis, virtual screening, docking investigations. The pharmacophore evaluation included a data set of 29 ligands, which resulted in the generation of the ADDHR_1 pharmacophore model as the most promising, with a survival score of 5.6812. The main objective was to utilize the atom-based 3D-QSAR approach for generating robust 3D-QSAR models aimed at identifying new Type II-C-kit kinase inhibitors. The evaluations of these models have convincingly demonstrated their high predictive power ($Q^2 = 0.6547$, $R^2 = 0.9947$). Using atom-based 3D-QSAR data, a total of 7564 novel compounds were generated from R-group enumeration. Molecular docking and MM-GBSA study revealed that compound A1 exhibited the highest binding score of -9.30 kcal/mol and ΔG_{Bind} value of -90.56 kcal/mol. The ZINC compounds were then screened using the pharmacophore model, followed by virtual screening, which identified ZINC65798256, ZINC09317958, ZINC73187176, and ZINC76176670 as potential candidates with promising docking scores. Among these, ZINC65798256 demonstrated the best binding interactions with amino acid residues, ASP810, LYS623, CYS673, and THR670 (PDB ID: 1T46). These compounds may be used for the synthetic purpose or in development of potent compounds as C-KIT inhibitors.

Keywords: cKIT kinase inhibitors; pharmacophore model; 3DQSAR model; virtual screening; quinoline derivatives; R-group enumeration

NON-PHYSICAL BUILT ENVIRONMENT (*BLUE LIGHT & EMF*)
As circadian biology disrupters affecting sleep quality in bedroom environments
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Abstract:

Humans spend about one-third of their lives sleeping, primarily in bedrooms. However, modern lifestyles have reduced sleep duration by 15% as compared to the last century. The widespread use of LED lighting and wireless EMF technologies has transformed indoor environments offering convenience but raising concerns about their impact on Circadian Biology and sleep quality. Emerging evidence highlights that exposure to artificial EMF and Blue light, particularly in bedrooms, may disrupt Circadian Rhythms, with delayed sleep onset, and reduced sleep quality, adversely effecting overall health and well-being.

This study explores the relationship between non-physical built environments (LED lighting and EMF), Circadian Rhythms, and sleep quality through a systematic review of existing literature and a survey of 556 participants. Self-reported questionnaires are assessed for sleeping habits, light exposure, EMF levels, bedroom design, and demographic factors. The findings identify significant correlations between these factors and sleep disruption, emphasizing how evening exposure to electronic devices, irregular light patterns, and poor lighting design contribute to diminished sleep quality.

Keywords: Sleep, Circadian Biology, Bedroom environment, LED, EMF, Health, Non-physical Built Environment.

PUBLIC SPACE INFRASTRUCTURE IN INDIAN CITIES – STUDY OF STREET SPACES OF HYDERABAD
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Abstract:

Public spaces play a very crucial role in determining the quality of life in cities. They provide opportunities for economic growth, community engagement, leisure and cultural exchanges. They promote physical activity and mental wellbeing while also reducing the negative impacts of urbanisation like air pollution and urban heat island.

The most visible and democratic form of public spaces are the street spaces. Street spaces have physical, economic as well as perceptual impact on the quality of life in any given context. Indian cities are unique in terms of the challenges to achieving well designed public spaces. The growth rate, population density, diversity of users, diversity of uses in terms of informal and formal activities all contribute to vibrancy as well as the chaos that are Indian streets. Therefore, it is very important to understand the morphology of the street spaces to develop guidelines & regulations that take these realities into consideration. This pilot study documents streets of one such dynamic and historical neighbourhood in Hyderabad i.e. Mallepally to understand the morphological elements of the built environment namely land use, urban tissue, street patterns, plot patterns, building structure, physical & social infrastructure, green/open spaces and street vendors. The study explores the impact of settlement morphology on the street public spaces. The preliminary findings give insights into the behavioural pattern of users of the street spaces and the morphological elements that shape this behaviour.

Keywords: Local economic growth, Indian streets, Infrastructure development, Morphology, Public spaces.

In-silico studies for the development of novel RET inhibitors for cancer treatment

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Abstract:

The RET (Rearranged during transfection) is a viable target for thyroid cancer and non-small cell lung cancer. For RET inhibition, a variety of heterocyclic fused ring systems have been evaluated. In this context, pyrrolo [2, 3-d] pyrimidine analogues have been proven to be a potential inhibitor of the target in the treatment of various cancers. In the present study, we have taken an initiative to model a data set of compounds from the literature and performed in-silico studies. As essential features required for the activity, the pharmacophore modeling generated a five-point pharmacophore hypothesis (DDRRR). The AB-QSAR wizard was utilized for 3D-QSAR analysis and generated significant parameters for the high predictive ability of the model ($Q^2 = 0.9093$, $R^2 = 0.9621$) with minimum errors ($SD = 0.3043$, $RMSE = 0.18$). The virtual screening studies have been performed through the ZINC database using DDRRR_1 as a template and developed 4800 drug like molecules. These molecules further proceeded through different docking methodologies and screened four hit compounds: ZINC00198134, ZINC32124485, ZINC11856422 and ZINC41121323 showed the best docked poses with docking scores. The ADME parameters showed an excellent pharmacokinetic profile for the selected compounds that may be used further for optimization. The study results may be useful to the researchers for the development of novel RET inhibitors with improved therapeutic efficacy towards cancer treatment.

A comparative study for quantification of vitamin A in tablet dosage form through microfluidic thread-based analytical device and RP-HPLC

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Abstract:

This work describes analytical approaches based on simple colorimetric reactions leading to the color change of a novel microfluidic thread-based analytical device (μ TAD). The device was fabricated using the wax dipping method of cotton thread. Then the cotton thread was treated with a reagent solution, providing an easy-to-use platform for rapid measurement of analyte concentration in an aqueous solution. Interaction between the deposited reagents and analytes in the samples then occurred within a few minutes. This resulted in zones of color change with different color intensities depending on the analyte concentration. The interaction zones can be analyzed by ImageJ software based on a comparison of the color intensity with the printed scales which are correlated with the analyte concentrations. The colorimetric reaction using μ TADs was used for the quantification of vitamin A in tablet dosage. The device was pretreated with trifluoroacetic acid. A pH of 3.5 was maintained throughout the reactions for better color intensity. Then load the sample on the thread which results in a Prussian blue color which is directly proportional to the concentration of vitamin A in tablet dosage form. The working concentrations were 20ppm-100ppm. Further, the LOD and LOQ of the device were found to be 4.22 ppm and 12.79 ppm respectively. The developed method was applied in analysis with tablet dosage which showed results agreeing with those obtained in RP-HPLC.

Neuropotective potential of moringa oleifera

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Abstract:

Moringa Known as drumstick in some parts of the world, is a well-known cultivated plant in the genus Moringa (family Moringaceae). It is known for its many health advantages, which are due to the abundance of flavonoids, phenolic chemicals, and thiocynates it contains. This review is centered about. phytochemical properties. Absorption, Metabolism and Excretion, Phytochemistry, Parkinson's Disease Potential, and Various Medical Applications of Moringa oleifera. Its bioactive compounds Improve the anti-oxidant defense activities of the brain, showing potential therapeutic application for neurodegenerative disease This study aims to present current and clear information about the biological traits, traditional applications, and prospective medicinal benefits of Moringa oleifera. This review emphasize especially clinical trial, to fully understand and utilize. In the future Phytoconstituent could be evaluated against specific signaling pathways.

Combined computational and synthetic strategies for the development of potent pyrazolo-pyridine derivatives as anticancer agents

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Abstract:

PI3K comprise a group of lipid kinases mainly made up of three classes and have a particular role in signal transduction. The aberration of class IA PI3K is most frequently shown in cancer. The computation techniques have been applied for the identification of potent compounds. This involved the generation of a library of novel compounds (2700) through R-group enumeration study. The screening process utilized a combination of pharmacophore-based virtual screening and various docking algorithms, leading to the discovery of ten novel compounds. The docking studies against PI3K kinase highlighted MSA6 and MSA7 as the most promising compounds, with docking scores of -9.03 and -9.0 kcal/mol, respectively. Results of docking studies of all derivatives confirmed satisfactory binding mode of the compounds within the active site of the target protein PI3K kinase. The screened pyrazolo-pyridine derivatives (MSA1-MSA10) were synthesized and evaluated as anticancer agents against NSCLC using A549 cell line. MSA6 showed the dose dependent enhancement in ROS production at concentration of 10 and 20 μ M in A549 cells. MSA6 triggered caspase 3 cleavage in lung cancer cells in a dose-dependent manner. MSA6 treatment at 10 and 20 μ M levels boosted NF- κ B expression in the cytoplasm while decreasing it in the nucleus, as demonstrated by flow cytometry with an anti-NF- κ B antibody. The modulation of PI3K activity have been observed at 10 μ M and 20 μ M concentration of MSA6. A549 cells treated with MSA6 with 20 μ M showed significant reduction in wound healing in cancerous cell. A549 cells treated with 20 μ M showed significantly reduction in number of colonies compared to control group. Compound MSA6 having a methyl group at the para position of phenyl ring at imine carbon and phenyl ring substitution at nitrogen of pyrazole ring exhibited remarkable growth inhibitory activity with IC₅₀ value of 49.23 μ M. Based on the above results, pyrazolo-pyridine derivatives can be used for the further development of novel PI3K kinase inhibitors as anticancer agents.

Overcoming Barriers: Nanomedicine-Enhanced Drug Delivery for Cataract Therapy

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Abstract:

Cataract is a leading cause of blindness globally, and its surgical treatment poses a significant burden on global healthcare. Pharmacologic therapies, including antioxidants and protein aggregation reversal agents, have attracted considerable attention in the treatment of cataracts in recent years. The anatomical and physiological barriers of the eye hinder the effectiveness of traditional eye drops in delivering drugs topically to the lens. New developments in nanomedicine offer creative and likely ways to solve problems with getting drugs to the lens. For example, nanoparticle formulations can help drugs get deeper into the anterior segment and allow for long-lasting medication release. This review talks about the physicochemical properties and surface engineering of delivery systems for treating cataracts. It encourages more creative research and possible clinical uses of drugs that treat cataracts.

Keywords: cataract, drug delivery system, nanomedicine, ocular barrier.

THE RICH AND VIBRANT TRADITIONS OF FOLK ART OF PUNJAB: CREATIVE PROCESS AND PRESERVATION'

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Abstract:

Since ancient times, art has been the only an essential and significant means of psychological and artistic contentment for mankind. The evidence of ancient art is found in the seals, statues, coins, vessels, toys and ornaments found in the excavations of the Indus Valley Civilization located in the cities of Harappa and Mohenjo-Daro which were part of ancient Punjab. The fertile land of Punjab has been touched by the feet of Gurus, Pirs and Rishis-Muni, and its soil also has the honour of being a land of martyrs and brave warriors. From the womb of this fertile land, many arts and folk arts have been born such as Phulkari, Guddiyan Patole, Nala, Paranda bunnan, Pakhiyan, Peedhi, Chikku Bunaai, Innu, Rope weaving, Basket making etc. which are singing the tune of the glorious and rich cultural heritage of Punjab. The training or knowledge of these folk arts is not given at any school or college but is automatically transfer by one generation to the next. In Punjab, the creation of folk arts was initiated by the village women themselves. The group of women and girls from the streets and neighborhood would sit and make Phulkari, Pakhi, Chaadran, as well as do weaving and make Parande to express their innermost feelings and emotions through these arts. They would share the whirlwinds of their mind- their happiness and sorrow through these folk art objects. They would create unique forms of art by embellishing their limitless desires, ambitions and aspirations. Women enjoyed their childhood by playing with Guddiyan Patole. While, when they grew up, they would play the role of mothers in a good way. The main objective of this research paper is to promote the traditional folk art forms of Punjab, as well as to preserve and revive them, and to make the current generation aware of the feelings and values embodied in them which is becoming increasingly ignorant of these art forms.

Keywords: Indus Valley Civilization, Harappa, Mohenjo-Daro, Punjab, Phulkari, Guddiyan Patole, Nala, Paranda Bunai, Pakhiyan etc.

Role of CAAD in Drug Discovery and Development

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Abstract:

Computer aided drug design tools are now a vital part of the drug discovery, that have made key contributions to the development of drugs. The process takes many years to complete and needs human resources. These difficulties have been overcome by introducing computer programmes in drug discovery (CADD) which includes target identification, hit identification and molecular modification of a lead compounds. Various CADD techniques including structure based drug design (SBDD) based drug, ligand based drug design (LBDD), pharmacophore mapping and fragment Based drug Design (FBDD), ADMET docking pose, visualization forces field calculation, homology modelling 3-D structure generator computational crystallography, protein database and calculation software. CADD use uses computational tools and algorithms to study compounds virtually before they are tested in the lab. The analysis can involve the modeling of the interaction between drugs and their biological targets and predictions of their properties included the binding affinity the design of the structures modification. By reducing time, cost and resource utilisation CAAD has significantly contributed to the advancement of drug development pipeline in academic and industrial settings, ensuring the discovery of safer and more effective therapeutic agent.

IMPACT OF PUBLIC TRANSPORT SUBSIDIES –

A CASE STUDY OF HYDERABAD

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Abstract:

Free bus travel schemes for women, like those introduced in Telangana and Karnataka, are designed to break barriers, improve mobility, and promote equality. These initiatives aim to make public transport more accessible, particularly for women who often face financial, safety, and logistical challenges in their daily commutes. This research delves into how such schemes impact women working in Hyderabad's informal retail sector, exploring whether these policies truly make a difference in their lives and livelihoods. The study takes a closer look at how free transport programs help women overcome obstacles like long commutes, safety concerns, and limited access to affordable transit options. By gathering insights directly from women commuters, transit workers, and policymakers, this study paints a detailed picture of the everyday realities of free bus travel. It looks at key aspects like travel time, service reliability and safety of women commuters. Ultimately, this research highlights the dual impact of free transport schemes—how they empower women and what they mean for public transport sustainability. It offers practical recommendations to make these programs more effective, ensuring they continue to support women's participation in the workforce while maintaining strong, reliable transit systems for everyone.

Keywords: Gender-sensitive transport planning, Governance, Inclusive transport policies Indian cities Informal workers Labour market dynamics Socio-economic barriers Spatial mismatch Urban transport equity Women and Transport accessibility Women's workforce participation.

Role of CADD in Drug Design and Development

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Abstract:

Computer aided drug design tools are now an vital part of the drug discovery, that have made key contributions to the development of drugs. The process takes many years to complete and needs human resources. These difficulties have been overcome by introducing computer programmes in drug discovery (CADD) which includes target identification, hit identification and molecular modification of a lead compounds. Various CADD techniques including structure based drug design (SBDD) based drug, ligand based drug design (LBDD), pharmacophore mapping and fragment Based drug Design (FBDD), ADMET docking pose, visualization forces field calculation, homology modelling 3-D structure generator computational crystallography, protein database and calculation software. CADD use uses computational tools and algorithms to study compounds virtually before they are tested in the lab. The analysis can involve the modeling of the interaction between drugs and their biological targets and predictions of their properties included the binding affinity the design of the structures modification. By reducing time, cost and resource utilisation CADD has significantly contributed to the advancement of drug development pipeline in academic and industrial settings, ensuring the discovery of safer and more effective therapeutic agent.

Novel drug delivery techniques to counteract antibiotic resistance

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Abstract:

Antimicrobial resistance (AMR) is a growing global health concern, making it more difficult to treat infections and leading to increased morbidity and mortality. Innovative drug delivery systems have emerged as a potential solution to address this issue, improving the effectiveness of existing antibiotics and helping to develop new treatments. One of the key strategies involves targeted drug delivery systems, which direct antibiotics specifically to the infection site. This approach minimizes side effects and ensures higher drug concentrations where they are most needed. Nanotechnology plays a crucial role here, enabling the design of nanoparticles that can precisely deliver drugs to the targeted area. Another promising approach combines antibiotics with substances that can overcome bacterial resistance mechanisms. For example, drug delivery systems can pair antibiotics with agents that block bacterial efflux pumps or inhibit biofilm formation, making the antibiotics more effective.

Additionally, smart drug delivery systems that respond to environmental changes, like shifts in pH or the presence of bacterial enzymes, can release antibiotics only when resistant bacteria are detected, further reducing the chance of resistance development. Long-acting formulations are also innovative, gradually releasing antibiotics to treat chronic infections. These systems reduce the need for frequent dosing, improve patient adherence, and ensure consistent antibiotic levels. Overall, innovative drug delivery methods hold great potential in combating AMR by improving drug targeting, combining therapies, and managing release, making continued research in this field is essential for managing infectious diseases effectively.

Keywords: Drug Delivery Methods, Combating, Antimicrobial, resistance.

हिमाचल की राजनीति में महिलाओं का बहुत योगदान
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Abstract:

हिमाचल की राजनीति में महिलाओं का बहुत योगदान है पिछले कुछ वर्षों में ये देखा गया है की महिलाओं ने राजनीति में महत्वपूर्ण योगदान दिया है। यह अभी भी उस मुकाम तक नहीं पहुँच पाई है यहाँ तक महिलाओं को जाना चाहिए। उनके सामने कई कठिनियों का सामना करती है जिस प्रकार सामाजिक, आर्थिक और सांस्कृतिक बाधाएँ तथा उन बाधों का दूर करनेका परियास किया है। शोध से यह पता चलता है कि पंचायति चुनाव में महिलाओं के आरक्षण ने महिलाओं को राजनीति में भाग लेने के लिए अत्यधिक प्रोत्साहित किया है। इससे उनका राजनीति में भाग लेने की रूचि को कई गुना बढ़ाया है। लेकिन राज्य और राष्ट्रीय चुनावों में अभी भी महिलाएँ का योगदान कम है। शिक्षा के द्वारा महिलाओं की रूचि राजनीति में बढ़ाई जा सकती हैं।

ARTIFICIAL INTELLIGENCE IN CANCER DETECTION: A COMPREHENSIVE REVIEW

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Abstract:

Cancer is a leading cause of world-wide and early detection is crucial for effective treatment and improved survival rates. Artificial intelligence has emerged as a promising tool in Cancer detection, with the potential to improve accuracy, speed, and cost-effectiveness. This review aims to provide a comprehensive overview of the current state of AI in Cancer detection, including its applications, techniques, and future directions.

Free Vibration Analysis of Viscoelastic Parallelogram Plates under Bi-Linear Temperature Distribution and Bi-Parabolic Thickness Variation

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Abstract:

A mathematical framework is developed in this study to analyze the effect of non-homogeneity on vibration of parallelogram plate with bi-parabolic thickness variation. Thermal Induced vibration of these plates has been taken as linear temperature distributions in both directions. Poisson ratio is assumed to vary linearly for non-homogeneity of the plate material. The governing differential equation has been solved by using separation of variables method. The time period corresponding to the first two modes of vibration has been calculated for a parallelogram plate under mixed boundary conditions (C-S-C-S) for various values of aspect ratio, thermal constant, taper constant and skew angle.

Keywords- Vibration, visco-elastic, isotropic, parallelogram plate, linear temperature, thermal gradient.

Aptamer functionalized magnetic metal–organic framework MIL-101 (Cr)-NH₂ for specific extraction of acetamiprid from fruit juice and water samples

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Abstract:

An aptamer-functionalized magnetic metal–organic framework (MMIL-Apt) was prepared and used for selective magnetic solid phase extraction (MSPE) of acetamiprid. To examine the morphology of the adsorbent, different techniques such as FT-IR spectrometry, vibrating sample magnetometry, TEM, FE-SEM and EDS were employed. The MMIL-Apt combines the advantages of aptamers and magnetic MMIL-101(Cr)–NH₂ such as specific recognition of analyte, good stability and fast separation. To reach high MSPE recovery, various extraction parameters were examined and optimized. The limit of detection (LOD) was reached 0.0018μ perfect linearity (0.006–1800μ g/L) with a good correlation coefficient (R² g/L. This method showed = 0.9993). The relative standard deviations for intra- and inter-day analyses were 3.61% and 8.10%. The extraction recoveries in water samples and fruit juices were obtained from 80.20% to 101.81 %. The results indicated the modified sorbent is practically applicable for the specific extraction of trace amounts of acetamiprid from different matrices.

Liver cirrhosis: Emerging trends, challenges and opportunities in treatment and management.

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Abstract:

Liver cirrhosis is a severe and debilitating disease marked by the ongoing destruction of liver tissue, which leads to fibrosis, cirrhosis, and eventually liver failure. Despite advancements in medical treatments, liver cirrhosis continues to be a significant global health issue, contributing to high levels of morbidity and mortality. Recent developments in understanding the pathophysiology of liver cirrhosis have paved the way for novel therapeutic strategies, including anti-fibrotic agents, immunomodulators, and stem cell therapies. Additionally, there is a growing recognition of the critical role that lifestyle interventions, such as diet and exercise, play in the prevention and management of liver cirrhosis, leading to the creation of personalized treatment approaches. However, significant challenges persist in the management of liver cirrhosis. These include the lack of effective diagnostic and staging tools, the presence of treatment-resistant forms of the disease, and the need for improved access to care, especially in resource-limited settings. Moreover, the increasing prevalence of liver cirrhosis amid the global obesity and diabetes epidemics underscores the urgency for effective prevention and treatment strategies. Overall, while advancements in therapeutic options and lifestyle interventions offer hope, addressing the remaining challenges is crucial to improving outcomes for individuals with liver cirrhosis. This review aims to provide a comprehensive overview of the current treatment landscape, shedding light on emerging trends, challenges, and opportunities in the management of liver cirrhosis.

Keywords: - Liver Cirrhosis, Pathophysiology, Therapeutic strategies, Lifestyle interventions, Personalized medicine.

Toxicity of Silver and Gold as Food Materials

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Abstract:

Use of silver and gold in culinary practices has historical as well as contemporary values. While gold is primarily inert and regarded as safe for consumption, the safety of silver as a food material has raised concerns. As gold is chemically inert it easily passes through the human body without causing any significant harm. The usage in the forms like leaf or layers in food and drinks is safe if consumed in controlled manner. On the other hand apart from the historical background of use as antimicrobial, it might be toxic. Toxicity is more prevalent in nanoparticle form. Scientific studies show that excessive use of silver nanoparticles in food may lead to absurd health conditions. Argyria is a rare disorder. It is characterized by bluish-gray discoloration of the skin. Argyria is one of the diseases caused by silver toxicity. Silver nanoparticles can also impact cellular processes. There is a need for regulations to maintain the purity of silver. The contaminants can enhance the toxicity. Adulteration or contamination of edible metals can increase the likelihood of toxicity, making it imperative to adhere strictly to food safety guidelines.

Review of Natural Language Processing, Computational Linguistics, and Speech

Recognition: Trends, Challenges, and Future Directions

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Abstract:

This research investigates three important aspects of artificial intelligence: natural language processing, computational linguistics and speech recognition. Advanced technologies such as AI-driven assistants, digital assistants and automated translation systems are considerably improved by these key areas of research in human language processing. Natural language processing (NLP) handles many tasks, including analyzing large amounts of text, recognizing patterns and generating meaningful responses. Computational linguistics uses some principles from linguistics and several concepts from computer science to develop models that imitate human language processing. In contrast to other methods, SR considerably transforms spoken words into written text, enabling computers to comprehensively understand voice instructions and produce detailed transcripts. This paper examines the evolution of these fields, starting from their rule-based origins and progressing to today's advanced deep learning methods such as transformers and neural networks. This thorough overview covers core natural language processing (NLP) tasks like tokenization (splitting text into parts) and named entity recognition and it fully explores deep learning's meaningful effect on these tasks. This paper precisely examines how deeply advanced formal grammar models considerably contribute to the detailed structural details of language and their large relationship with meaning within the context of CL. Large improvements in the accuracy and efficiency of speech recognition are demonstrably achieved for SR through important enhancements in both acoustic and language modeling. These technologies have already improved healthcare, customer service, as well as entertainment; this has led to increased business efficiency along with heightened customer satisfaction. Progress has been made; however, meaningful hurdles remain, including the large difficulty of handling language ambiguity, reducing bias substantially and achieving efficient real-time processing.

Keywords: Computational Linguistics, Deep Learning, Natural Language Processing, Speech Recognition, Technology.

Diabetes

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Abstract:

Diabetes mellitus is a group of physiological dysfunctions characterized by hyperglycemia resulting directly from insulin resistance, inadequate insulin secretion, or excessive glucagon secretion. Type 1 diabetes (T1D) is an autoimmune disorder leading to the destruction of pancreatic beta-cells. Type 2 diabetes (T2D), which is much more common, is primarily a problem of progressively impaired glucose regulation due to a combination of dysfunctional pancreatic beta cells and insulin resistance. The purpose of this article is to review the basic science of type 2 diabetes and its complications, and to discuss the most recent treatment guideline.

Artificial Intelligence in Pharmaceutical and Healthcare Research

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Abstract:

Artificial intelligence (AI) is a branch of computer science that allows machines to work efficiently, can analyze complex data. The research focused on AI has increased tremendously, and its role in healthcare service and research is emerging at a greater pace. This review elaborates on the opportunities and challenges of AI in healthcare and pharmaceutical research.

Catalytic activity of copper oxide nanoparticles for an efficient synthesis of 1, 4-dihydropyridine derivatives

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The 1, 4-dihydropyridines (1, 4- DHPs) are a well-known group of physiologically active nitrogen heterocycles. It is six membered aromatic ring containing nitrogen at 1st position and two double bonds. The Abstract:

Hantzsch reaction is one of the most widely used procedures among the many devised for the synthesis of 1, 4-dihydropyridines and significant work has been done to alter this procedure. 1, 4-dihydropyridines are adaptable substances because their derivatives are crucial to medical chemistry. Due to their antihypertensive, antianginal, vasodilators and cardiac depressing properties they are primarily used in medicines. Many of the described methods for the synthesis of these compounds have minor limitations, such as a time-consuming setup procedure, extended reaction periods, the production of unwanted washes and inadequate yields. The catalytic nanoparticles process improves catalytic properties due to their large surface area and considerable number of surface atom leading to an improved amount on action site. In this study, firstly metal-oxide nanoparticles (CuO-NPs) were synthesized and characterized by XRD, TEM and FT-IR, then these nanoparticles were used for their catalytic activity in the synthesis of 1, 4-dihydropyridines by Conventional, Microwave and Solvent free techniques.

Keywords: Antihypertensive, Antianginal, Vasodilators, Nanoparticles.

Hypertension

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Abstract:

Hypertension, also known as high blood pressure, is a condition in which the blood vessels have persistently raised pressure.. High blood pressure causes damage to the heart by hardening arteries and decreasing the flow of blood and oxygen to the heart. This article explores the prevalence, causes, symptoms, and treatment options for hypertension. It discusses the importance of early detection and lifestyle modifications, regular exercise, and stress management, in preventing and managing hypertension.

A Deep Dive into Transportation Models through Operation Research

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Abstract:

The main intent of this article is to find the bestest transportation model of Operation Research which minimize the cost of moving goods from a set of sources to a set of destinations. Operation Research is a field of applied mathematics in which we can apply mathematical techniques to find the optimize solutions & make better decisions. Transportations method is technique which is widely used to help industries or businesses in their management system. This article briefly discuss transportation problems, its types& how to solve them by various types of transportations models, namely: Vogel Approximations Method ,North -West Corner Method and Least Cost Method, which are used to minimize the cost of transportation and enhance the profit of business. Keywords: Operation research, optimization, transportation models, suppliers, consumers, transportations costs, supply and demand, constraints.

Hepatic injury

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Abstract:

Hepatic trauma accounts for around 5% of emergency room admissions. Due to its anatomical location and large size, the liver is particularly vulnerable to trauma, especially from penetrating injuries. The American Association for the Surgery of Trauma has developed a comprehensive classification system to ensure consistent comparisons of hepatic injuries. Diagnosing hepatic injury can sometimes be straightforward; however, using diagnostic methods such as diagnostic peritoneal lavage, ultrasound, and computed tomography enables faster and more accurate diagnoses. Nonoperative management for hemodynamically stable patients with blunt injuries has become the standard of care in most trauma centers. Conservative management is rarely suitable for penetrating abdominal lesions, with exceptions being some wounds in the right upper abdominal quadrant. Minor liver injuries may not require fixation and can often be managed with electrocautery or small sutures. Despite technical advancements, major liver injuries remain challenging for surgeons. Procedures for major injuries can include direct repair, debridement with resections, or in severe cases, packing. This approach facilitates damage control, allowing patients time to recover and reducing mortality shortly after trauma.

Clinical Pharmacy and Patient Care
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Abstract:

The evolving role of clinical pharmacists in healthcare has significantly contributed to improving patient outcomes and optimizing medication therapy. This study investigates the impact of pharmacist-led interventions, including medication therapy management (MTM), patient counseling, and adherence monitoring, on the clinical outcomes of patients with chronic diseases such as diabetes, hypertension, and cardiovascular disorders. A prospective observational study was conducted in a tertiary care hospital, involving 300 patients divided into intervention and control groups. The intervention group received comprehensive pharmacist-led care, including medication reviews, drug-drug interaction checks, and personalized counseling, while the control group received standard care. Results indicated a significant improvement in medication adherence ($p < 0.01$), reduced hospitalization rates (by 25%), and enhanced disease control in the intervention group compared to the control group. This study underscores the importance of integrating clinical pharmacists into multidisciplinary healthcare teams to enhance patient care and reduce the burden of chronic diseases. Future research should focus on expanding the role of clinical pharmacy services in rural and underserved areas.

A review of In Depth study on software testing and quality assurance:Principles,practices and innovations
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Abstract:

Software testing and quality assurance (QA) is fundamental practices in ensuring the reliability, functionality, and performance of software systems. This review paper explores the evolution of software testing techniques, comparing manual testing with automated testing, and assessing the advantages and challenges associated with each approach. The paper also delves into modern testing methodologies, such as test-driven development (TDD) and behaviour-driven development (BDD), and the role of continuous integration (CI) in enabling frequent, automated testing cycles. Furthermore, the paper examines the latest tools and frameworks used in the industry, such as Selenium, JUnit, and Jenkins, which have significantly transformed the way software is tested. Additionally, the importance of quality assurance practices, including code reviews, static analysis, and performance testing, is discussed in terms of preventing defects and ensuring the quality of software products throughout their lifecycle. Finally, emerging trends in testing, such as artificial intelligence and machine learning in software testing, are explored, highlighting their potential to further enhance the efficiency and effectiveness of the testing process.

Keywords: Software Testing, Quality Assurance, Manual Testing, Automated Testing, Test-Driven Development (TDD), Behaviour-Driven Development (BDD), Continuous Integration (CI), Testing Frameworks, Selenium, JUnit, Code Reviews, Static Analysis, Performance Testing, AI.

Moving Object Detection Survey Utilizing Background Subtraction Methods

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Abstract:

In computer vision based application recognizing moving items is critical task and important. For various PC vision application Background subtraction is quick approach to identify moving object. Background subtraction isolates the closer view from foundation. Background subtraction strategies are generally changed for moving object detection in videos in many applications, for example, video surveillance, human motion capture and traffic monitoring. A standout amongst the most direct procedure for recognizing moving article from a video game plans is the background subtraction estimation where the present edge is subtracted from the reference picture or background show.

NON-HOMOGENEOUS ORTHOTROPIC RECTANGULAR PLATE WITH PARABOLIC TEMPERATURE AND THICKNESS VARYING CIRCULARLY IN ONE DIMENSION

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Abstract:

The main study of this paper is to find the effect in parabolic temperature behaviour of orthotropic rectangular plate with thickness varies circular in one dimension. Rayleigh Ritz Method is used to solve the fundamental frequencies for the first two modes. For non-homogeneity of the plate material density vary linear in one dimension. Various parameter such as thermal gradient, taper constant, non-homogeneity and aspect ratio with clamped boundary conditions have been taken. Numerical result is obtained with the help of the graphs and table by using the Matlab software. A comparison is also given to justify our paper study.

Keyword: Parabolic temperature, circular thickness, clamped boundary condition, aspect ratio, taper constant, rectangular plate, thermal gradient, linear density.

Artificial intelligence and machine learning in pharmaceuticals

Sujal ,Jatinder Kaur, Jasleen Kaur

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Abstract:

A revolutionary possibility exist in medication, research formulation, and testing of pharmaceutical dosage forms, thanks to artificial intelligence. By using AI algorithms that analyse extensive biological data, including genetics and Proteomics, researches can identify the targets linked to disease and predict their interactions. Machine, learning algorithm forecast, pharmacokinetics, and toxicity of potential drugs and help in the design of experiments. this feature makes it possible to prioritise and optimise lead compound, which decreases the need for expensive and time consuming animal testing. The incorporation of artificial intelligence in the pharmaceutical industry has transformed many elements of Drug discovery, development, manufacturing, clinical trials, and marketing. This comprehensive review explores the wide-ranging application of AI in drug discovery, drug delivery, dosage form, designs, process, optimisation, testing, and pharmacokinetic pharmacodynamic studies. Hence, highlighting the benefits and drawbacks.

RECENT ADVANCEMENT IN THE FIELD OF BIOSENSOR

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Abstract:

The latest developments in the area of biosensor technology focuses on the creation of nanomaterials based biosensors. These include biosensing devices that are wearable and portable, the use of integration with microfluids for sample handling, the development of aptamer based detection, biosensors that utilize label free detection techniques such as surface plasmon resonance, and the application of biosensors for continual monitoring in multiple areas such as medicine, environmental science, and food items. All these biosensors focus on providing a quicker, more accurate, and less invasive means of detecting analytes. To this day, diagnostic tests remain an enormous problem for most people and those working in the field, particularly for the early detection and tracking of cancer and anticancer chemotherapy drugs used to treat it, even being quite straightforward. In the past monitors for cancer markers have undergone significant biosensors development that has greatly increased their detection capabilities. This opened up new opportunities for researchers to further refine biosensing components. These developments literally depended on the constant improvement of ligands for the markers and the preparation techniques, as well as the development of multi-channel biosensors capable of simultaneously detecting several markers. The future of biosensors is certainly optimistic, but to bring biosensor systems from the research and development stage to the market, there has to be a cohesive, inexpensive, and multi-faceted effort.

Advancing oncology: The transformative potential of mRNA cancer vaccines

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Abstract:

The efficacy of messenger RNA (mRNA) vaccines against COVID-19 has piqued interest in their possible use against cancer. mRNA cancer vaccines are a novel form of cancer immunotherapy that displays high specificity and efficacy, while decreasing side effects associated with traditional therapies. Several mRNA-based therapeutic cancer vaccines are in active preclinical and clinical development with some early-phase results being really encouraging. Their development, however, is hampered by several issues, including tumor heterogeneity, the immunosuppressive nature of the tumor microenvironment, and logistical issues such as the mode of vaccine delivery and evaluation.

Recent developments in preclinical models and clinical study designs shed light on some of these challenges. Potential solutions to these problems include vaccine design optimization, combination chemotherapy, and targeting more effective delivery systems. While progress is being made in this area, it is important to proceed with caution and care. Understanding the landscape of challenges and opportunities mRNA cancer vaccines present will determine how scientists work to realize their potential. So, enchanting these hurdles will give them capability to enable mRNA cancer vaccines to meet the need.

Patient care and safety
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Abstract:

Patient falls remain a significant concern in acute care settings, leading to increased morbidity, prolonged hospital stays, and higher healthcare costs. This study evaluates the effectiveness of evidence-based fall prevention strategies, including bedside rounding, patient education, mobility assessments, and the use of assistive devices. A mixed-methods approach was employed, involving a quantitative analysis of fall rates before and after implementing a fall prevention program across five hospitals, as well as qualitative interviews with nursing staff and patients. Results revealed a 40% reduction in fall incidents over a six-month period, with nursing compliance and patient engagement being key contributors to success. Challenges such as staff workload and resource availability were also identified. These findings highlight the critical role of nursing in fostering a culture of safety and underscore the need for ongoing staff training and institutional support. Future research should explore the long-term sustainability of fall prevention programs and their integration into broader patient safety initiatives.

Challenges In Antibiotics Development

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Abstract:

Antibiotic resistance is a global health issue that affects both humans and animals. It occurs when bacteria, viruses, fungi and parasites develop the ability to withstand antibiotics and other antibiotics. Antibiotic resistance makes infection harder to treat, increasing the risk of disease, severe illness, disability and death. It threatens the ability to perform life saving procedures like cancer chemotherapy and organ transplantation. The epidemiology of antimicrobial resistance microorganisms at human animal interface involves complex and largely unpredictable system that includes transmission routes of resistant bacteria as well as resistance genes and the impact of antimicrobials. Selective pressures in several reservoirs (animals, human and environment). The amount and patterns of antimicrobials used in food animals is major determined for the propagation of resistant bacteria in the animal reservoir. Thus, the levels of patterns of resistance observed in food animals to a wide extent reflects the pattern of drug usage. Transmission of resistance from animals to humans can place through a variety of routes where the food barn route probably is the most important such as Salmonella, Enterica, Yersinia Enterocolitis use of antibiotics resistance genes as marker genes in generally modified plants, which may serve as feed for animals or food for humans has raised concerns in this context. Recently the European food safety Authority [EFSA] conducted as a risk assessment based on the current state of science. Increase overlap between humans and wildlife population may increase the risk for the novel disease emergence in wildlife in a recent study by Wheeler ETD.

Analyse the connection between pure and applied mathematics

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Abstract:

This article's fundamental objective is to convey the most straightforward description of mathematics and its categories. Mathematics is a crucial tool for understanding and solving a variety of issues. Pure mathematics and applied mathematics are the two subcategories of mathematics. Pure mathematics focuses on studying abstract ideas and concepts without actually considering the real life applications. On the other hand, applied mathematics is used to solve the real – world problems in area including science, engineering, economics and medical sciences etc. while they have different objectives, they are closely connected. Investigations in pure mathematics often lead to practical uses and real world problems can inspire new mathematical thoughts. The main objective of this review article is to explore the main difference between these two subcategories of mathematics.

Keywords: Mathematics, pure mathematics, applied mathematics, science, engineering, economics, real – world applications.

Human computer interaction

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Abstract:

Human-Computer Interaction (HCI) is a multidisciplinary field focusing on the design, evaluation, and implementation of interactive computing systems for human use. This paper explores the key concepts, principles, and current trends in HCI, emphasizing usability, user experience (UX), and emerging technologies. A detailed review of HCI principles, methodologies, and applications in various domains is presented, supported by recent research findings.

Review on prehistoric era

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Abstract:

When earth was passed through a new ice age it causes human to evolved. Iceage means distrustion right? Then hor human born, when earths temperature drop then Africa region heat and full of humidity forests also went to cold and dry it causes big trees groth much lesser on the other hand grass and small plantation grown at a good scale .As a result of it monkeys who lived on trees had to touch the grass for resources or leving some of the monkey start to walk with their two legs and other seems to be on four. Now you call it natural selection or other thing but this is the time when human ancestor “hominins” being different form the other monkey species and today’s “homosapiens” are born, but this splitting was accour on 7 million years ago but homosapiens are came only 3 lacks years ago then what was accour in between 6.7 million year we call this period “PREHESTORIC ERA”.

Complex Analysis in Modern Mathematics: A Theoretical Perspective

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Abstract:

In modern mathematics, complex analysis is essential, influencing many fields and encouraging creative applications. Researchers clarify significant relationships between algebraic geometry, number theory, and differential geometry by exploiting the complex characteristics of complex functions. Furthermore, complex analysis inspires advances in complex networks, machine learning, and quantum computing while influencing signal processing, control theory, and quantum physics. Complex analysis, a fundamental component of mathematical research, keeps opening up new avenues, fostering interdisciplinary collaborations, and changing our perception of the complex harmonies that govern the natural world.

Keywords: Complex analysis, modern mathematics, algebraic geometry, number theory, differential geometry, complex functions.

The natural of employment

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Abstract:

Employment, as a fundamental component of economic and social systems, has evolved significantly throughout history. From agrarian economies to industrialized societies and, most recently, digital economies, the concept and structure of employment have been transformed by technological advancements, global trends, and shifts in societal values. This paper explores the changing nature of employment, examining its evolution, the factors influencing its current form, and its implications for workers, employers, and economies. By assessing historical trends, modern-day challenges, and emerging models of work, this paper offers a comprehensive understanding of the nature of employment and its future trajectory.

Artificial intelligence and machine learning in pharmaceuticals

Jatinder kaur , Jasleen Kaur , Sujal

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Abstract:

A revolutionary possibility exist in medication, research formulation, and testing of pharmaceutical dosage forms, thanks to artificial intelligence. By using AI algorithms that analyse extensive biological data, including genetics and Proteomics, researches can identify the targets linked to disease and predict their interactions. Machine, learning algorithm forecast, pharmacokinetics, and toxicity of potential drugs and help in the design of experiments. this feature makes it possible to prioritise and optimise lead compound, which decreases the need for expensive and time consuming animal testing. The incorporation of artificial intelligence in the pharmaceutical. industry has transformed many elements of Douglas discovery, development, manufacturing, clinical trials, and marketing. This comprehensive review explores the wide-ranging application of AI in drug discovery, drug delivery, dosage form, designs, process, optimisation, testing, and pharmacokinetic pharmacodynamic studies. Hence, highlighting the benefits and drawbacks.

The Impact of Technology on Human Health: A Comprehensive Review

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Abstract:

The rapid evolution of technology has brought about significant advancements in various fields, including healthcare. While these innovations have led to improvements in diagnosis, treatment, and overall healthcare delivery, there are growing concerns about the impact of technology on human health. This paper aims to explore both the positive and negative effects of technology on human health, highlighting areas such as digital health, social media influence, sedentary lifestyles, and mental health. A critical examination of both the benefits and risks of technology can inform future healthcare strategies and contribute to a healthier society.

The Evolution and Impact of Online Cybercrime: Challenges and Solutions

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Abstract:

Online cybercrime has emerged as one of the most pressing threats in the digital age, significantly impacting individuals, organizations, and governments. This paper explores the evolution of online cybercrime, its various forms, and the challenges it poses. Additionally, it evaluates current solutions and strategies to combat cybercrime, emphasizing the importance of global collaboration, advanced cybersecurity technologies, and public awareness.

Reducing Carbon Footprints Through Renewable Energy Adoption, Biodiversity Conservation and Waste Management

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Abstract:

Society needs to reduce its carbon footprint to develop sustainability because environmental problems keep emerging. This research examines how using renewable energy plus safeguarding natural habitats and boosting trash management will decrease carbon emissions. This study reviews Indian environmental progress from 2018 through 2024 by analyzing unique solutions and measuring their impact on protecting the planet. Through effective renewable energy use India tackles domestic environmental problems while advancing global carbon reduction targets by preserving nature and handling waste better. Using both tactics helps us build a program that makes our communities healthier while saving carbon and building social progress. This study highlights how important it is to implement these practices widely and how community involvement, technology advancement, and governmental frameworks all contribute to sustainable development. In the conclusion, this paper offers practical advice and ideas for creating a low-carbon future that supports both international environmental objectives and India's developmental ambitions.

Keywords: biodiversity, carbon, climate, conservation, emissions, energy, sustainability, waste.

The Societal Impact of Artificial Intelligence

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Abstract:

Artificial Intelligence (AI) is transforming society, offering significant opportunities for enhancing lives while also presenting notable challenges. This paper examines the influence of AI across various sectors, highlighting its advantages in boosting efficiency, productivity, and personalized services. It also discusses the ethical, social, and economic issues that arise from AI, emphasizing the need for governance and regulation to ensure its responsible development and application.

The Effects of Global Warming on Physical Geography

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Abstract:

Global warming, driven by human activities and the increasing concentrations of greenhouse gases, is significantly altering the Earth's physical geography. The physical landscape, ecosystems, and hydrological systems are experiencing profound changes as a result of rising temperatures, melting ice, sea level rise, and shifting weather patterns. This research paper examines the major impacts of global warming on physical geography, with a focus on glacial dynamics, landforms, hydrology, ecosystems, and extreme weather events. Through an evaluation of current scientific studies, the paper highlights both the immediate and long-term consequences for physical landscapes and human populations, and stresses the importance of sustainable adaptation and mitigation strategies.

Managing diabetes through nurse-led education programs

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Abstract:

Diabetes mellitus remains a global health challenge, requiring effective management to reduce complications and improve patient quality of life. This study explores the impact of nurse-led education programs on diabetes self-management and glycemic control in patients with type 2 diabetes. A quasi-experimental design was used, involving 150 patients enrolled in a structured 12-week nurse-led program that focused on lifestyle modifications, medication adherence, blood glucose monitoring, and nutrition education. Outcomes were assessed using changes in HbA1c levels, self-efficacy scores, and patient-reported satisfaction. Results showed a significant reduction in HbA1c levels by an average of 1.5% and a 30% improvement in self-efficacy scores among participants. Patients reported high satisfaction with the accessibility and personalized support provided by nurses. The study highlights the critical role of nurse educators in empowering patients to manage chronic conditions effectively. Future research should investigate long-term outcomes and scalability of nurse-led diabetes education programs in diverse healthcare settings.

Non alcoholic steatohepatitis (NASH)

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Abstract:

Non-alcoholic steatohepatitis (NASH) is a severe form of non-alcoholic fatty liver disease (NAFLD), in which most patients exhibit non-progressive, non-alcoholic fatty liver (NAFL) attributable to simple steatosis. Multiple hits, including genetic differences, fat accumulation, insulin resistance and intestinal microbiota changes, account for the progression of NASH. NAFLD is strongly associated with obesity, which induces adipokine secretion, endoplasmic reticulum (ER) and oxidative stress at the cellular level, which in turn induces hepatic steatosis, inflammation and fibrosis. Among these factors, gut microbiota are acknowledged as having an important role in initiating this multifactorial disease. Oxidative stress is considered to be a key contributor in the progression from NAFL to NASH. Macrophage infiltration is apparent in NAFL and NASH, while T-cell Infiltration is apparent in NASH. Although several clinical trials have shown that Antioxidative therapy with vitamin E can effectively control hepatitis pathology in the short Term, the long-term effects remain obscure and have often proved to be ineffective in many Other diseases. Several long-term antioxidant protocols have failed to reduce mortality. New treatment modalities that incorporate current understanding of NAFLD molecular Pathogenesis must be considered.

In-Silico Docking-Based Screening of Phytoconstituents as Potential Agonists of Free Fatty Acid Receptor 4 (GPR120): A Computational Perspective

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Abstract:

Free Fatty Acid Receptor 4 (GPR120) is a G-protein-coupled receptor (GPCR) that plays a vital role in maintaining metabolic balance, improving insulin sensitivity, regulating inflammation, and managing lipid metabolism. Because of these functions, GPR120 has become an attractive target for developing treatments for metabolic disorders like type 2 diabetes, obesity, and inflammatory diseases. While synthetic agonists have been widely studied, natural compounds, known as phytoconstituents, present an exciting alternative due to their structural diversity, natural origin, and potential safety advantages. This review explores how in-silico docking-based screening can help identify phytoconstituents that might act as GPR120 agonists. Various computational techniques, including molecular docking, molecular dynamics simulations, and ADME (Absorption, Distribution, Metabolism, and Excretion) analysis, are used to predict how well these compounds bind to GPR120, their stability, and their pharmacokinetic properties. Research has shown that certain plant-derived compounds, such as flavonoids, terpenoids, alkaloids, and polyphenols, interact strongly with critical sites on GPR120, suggesting their potential to activate the receptor. Beyond highlighting these promising findings, this review also discusses the challenges and limitations of using computational screening methods alone. Since in-silico studies provide predictions rather than definitive proof, further experimental validation through laboratory and clinical studies is necessary to confirm the therapeutic potential of these compounds. Ultimately, this study underscores the importance of computational techniques in modern drug discovery and how they can accelerate the identification of natural bioactive compounds that may lead to new, effective treatments for metabolic and inflammatory diseases.

A Review of Efficient Search and Sort Algorithms for Advanced Data Structures

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Abstract:

Efficient search and sort algorithms are fundamental to optimizing the performance of various computational tasks in modern applications. Advanced data structures, such as balanced binary search trees, B-trees, hash tables, and specialized structures like tries and heaps, play a pivotal role in enhancing the efficiency of these algorithms. This review paper explores the interplay between search and sort operations and their corresponding data structures, focusing on how advanced structures improve time and space complexity for both searching and sorting tasks. We provide an in-depth analysis of search algorithms applied to balanced trees, hash-based structures, and multi-level indexed trees, highlighting their advantages in various domains like databases, file systems, and distributed systems. Additionally, we examine sorting algorithms, including Heap Sort, Merge Sort, and non-comparative sorts like Radix and Bucket Sort, particularly in relation to advanced data structures that optimize them. We also address the challenges of dynamic data management, scalability, and real-time processing, while discussing emerging trends in parallelized and distributed algorithms. This review aims to provide a comprehensive understanding of the relationship between data structures and their associated algorithms, paving the way for future advancements in high-performance computing and largescale data systems.

Exploring Pyrazole Derivatives as Potential PDE7 Inhibitors: Insights from Molecular Docking and ADME Studies.

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Abstract:

Phosphodiesterase 7 (PDE7) has emerged as an important therapeutic target due to its role in immune regulation and neurological disorders. Selective inhibition of PDE7 has been linked to potential treatments for inflammatory diseases, neurodegenerative disorders, and autoimmune conditions. In this study, we computationally evaluated a series of pyrazole derivatives as potential PDE7 inhibitors using molecular docking and ADME (Absorption, Distribution, Metabolism, and Excretion) studies. Molecular docking was employed to analyze the binding affinity and interaction patterns of pyrazole derivatives within the active site of PDE7. Several derivatives exhibited high binding energy scores, comparable to known PDE7 inhibitors, indicating their promise as lead compounds. In addition to docking studies, ADME profiling was conducted to assess the pharmacokinetic properties of these compounds. The results revealed favourable drug-like characteristics, including high oral bioavailability, metabolic stability, and optimal absorption and distribution profiles. Importantly, none of the selected pyrazole derivatives showed significant toxicity risks, making them suitable candidates for further investigation. The combination of strong docking interactions and promising pharmacokinetic properties suggests that pyrazole derivatives could serve as potential PDE7 inhibitors with therapeutic relevance. However, further validation through in vitro enzyme inhibition assays and in vivo pharmacological studies is required to confirm their efficacy and safety. This study provides valuable computational insights that could aid in the rational design and development of novel PDE7 inhibitors for the treatment of inflammatory and neurodegenerative diseases.

Artificial intelligence and machine learning in Pharmaceutics

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Abstract:

A revolutionary possibility exist in medication, research formulation, and testing of pharmaceutical dosage forms, thanks to artificial intelligence. By using AI algorithms that analyse extensive biological data, including genetics and Proteomics, researches can identify the targets linked to disease and predict their interactions. Machine, learning algorithm forecast, pharmacokinetics, and toxicity of potential drugs and help in the design of experiments. this feature makes it possible to prioritise and optimise lead compound, which decreases the need for expensive and time consuming animal testing. The incorporation of artificial intelligence in the pharmaceutical industry has transformed many elements of Drug discovery, development, manufacturing, clinical trials, and marketing. This comprehensive review explores the wide-ranging application of AI in drug discovery, drug delivery, dosage form, designs, process, optimisation, testing, and pharmacokinetic pharmacodynamic studies. Hence, highlighting the benefits and drawbacks.

The Power of Multisensory Integration: Unlocking Learning Potential in Young Children

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Abstract:

This quasi-experimental study explores the impact of multisensory integration on learning outcomes and awareness in Lower Kindergarten (LKG) students. The findings reveal significant improvements in students' ability to recognize fruits, vegetables, and flowers names after participating in a 10-day multisensory program. The study highlights the importance of neuron connections and multisensory integration in enhancing learning outcomes in young children, with implications for teaching practices in early childhood education.

Neuroprotective natural compounds

Naresh Kumar, Mehakdeep kaur, Paryas rattan

Abstract:

Natural products are known for their neuroprotective effects through preventing neuro-degeneration and memory enhancement to improve brain functionality. The incidence of neurodegenerative are risen with decade of time. these may causes continuos loss of neurons that alter the brain system. Natural products has showed promising effects on these neuro-degenerative diseases. Neuro-degenerative diseases, including Alzheimer's disease, Huntington's disease, Parkinson's disease, and amyotrophic lateral sclerosis are characterized by the progressive dysfunction and loss of neuronal structure and function that resulted in the neuronal cell death. Thus natural products with potential biological activities are needed to inhibit these multifunctional neuro-degeneration mechanisms to provide neuro-protection. As from recent studies it has been observed that there are tremendous variety of natural remedies are available that can provide potent results. Furthermore, systemic studies and research approaches definitely provide more useful and effective strategies from these natural sources to cure these diseases. Keywords: Neurodegeneration, Natural products, Natural remedies, Mechanism, Biological activitie.

Towards Viksit Bharat: The Role of E-Governance in Strengthening Public Administration

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Abstract:

Viksit Bharat envisions a developed and digitally empowered India by 2047, emphasizing transparent, efficient, and citizen-centric governance. E-Governance plays a pivotal role in strengthening public administration by enhancing service delivery, reducing corruption, and promoting inclusive growth. This paper explores the impact of e-governance on public administration in India, the challenges faced, and potential solutions for ensuring effective implementation. Case studies of successful e-governance initiatives such as Aadhaar, Digital India, and the JAM Trinity (Jan Dhan, Aadhaar, Mobile) are analyzed to understand their role in shaping a modern, digital-first governance model.

Keywords: E-Governance, Viksit Bharat, Digital India, Public Administration, Smart Governance, Digital Transformation.

Urban Sanitation & Health: A Study of JNNRUM & AMRUT Mission

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Abstract:

In India, Increasing urban population poses many challenges for urban authorities in provision of facilities for citizens. For the sustainable development of city, to improve social, physical and institutional infrastructure, provision of basic needs of urban people need of urban reforms arises time to time. Public Health and provision of Sanitation facilities are important among basic needs. Several schemes and policies were launched by Government of India to reform the infrastructure and to provide basic needs to urban areas. There is JNNRUM, 2005 mission launched by government of India to reform urban fields. But due to some weak points JNNRUM converted in AMRUT Mission in 2015 for rejuvenation of Indian Cities. AMRUT is focused mainly on augmentation of 500 cities in the areas of water management, drainage, sewerage and urban mobility. Implementation of AMRUT is linked to promotion of Urban Reforms which will ultimately Cover way to those cities under AMRUT be made Smart Cities in the next phase of smart city project. Various reforms suggested running it on more productive way. In this paper, two objectives have been taken, firstly to know the urban issues related to need of urban reforms and secondly to study the Coverage and Components of AMRUT Mission by concentrating on Health and Sanitation. Different articles by scholars, government reports and newspaper articles are used to support the facts and to get data for this study.

Keywords: Urban, Public Health, Sanitation, JNNURM and AMRUT.

NUMERICAL INVESTIGATION OF FREE VIBRATION IN SQUARE PLATES WITH BI-LINEAR CIRCULAR THICKNESS VARIATION SUBJECTED TO THERMAL EFFECT

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Dr. Ashish Kumar Sharma (Assistant Professor, Arni University)
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Abstract:

The free vibration in square plates is the topic of this study. The study uses a bi-linear circle to examine homogenous square plates. The effect of bi-linear circular variable thickness and heat effect are studied using a basic model in this work. The free vibration behavior of a square plate with bi-linear circular changing thickness is investigated in this work while taking thermal effects into account. In engineering applications, plates with non-uniform thickness are frequently used to achieve material efficiency while preserving structural integrity. Thermal gradients that alter material characteristics and cause thermal stresses exacerbate the complexity of the dynamic response brought about by the thickness change. The bi-linear circular thickness variation and thermal effects are incorporated into the governing equations of motion through the development of a mathematical model. Realistic operational scenarios are simulated by using suitable boundary conditions.

Novel drug delivery techniques to counteract antibiotic resistance

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Abstract:

Antimicrobial resistance (AMR) is a growing global health concern, making it more difficult to treat infections and leading to increased morbidity and mortality. Innovative drug delivery systems have emerged as a potential solution to address this issue, improving the effectiveness of existing antibiotics and helping to develop new treatments. One of the key strategies involves targeted drug delivery systems, which direct antibiotics specifically to the infection site. This approach minimizes side effects and ensures higher drug concentrations where they are most needed. Nanotechnology plays a crucial role here, enabling the design of nanoparticles that can precisely deliver drugs to the targeted area. Another promising approach combines antibiotics with substances that can overcome bacterial resistance mechanisms. For example, drug delivery systems can pair antibiotics with agents that block bacterial efflux pumps or inhibit biofilm formation, making the antibiotics more effective. Additionally, smart drug delivery systems that respond to environmental changes, like shifts in pH or the presence of bacterial enzymes, can release antibiotics only when resistant bacteria are detected, further reducing the chance of resistance development. Long-acting formulations are also innovative, gradually releasing antibiotics to treat chronic infections. These systems reduce the need for frequent dosing, improve patient adherence, and ensure consistent antibiotic levels. Overall, innovative drug delivery methods hold great potential in combating AMR by improving drug targeting, combining therapies, and managing release, making continued research in this field is essential for managing infectious diseases effectively.

Keywords: Drug Delivery Methods, Combating, Antimicrobial, resistance.

Vibration Analysis of Non-Homogeneous Orthotropic Triangular Plates (SCSC) with Bi-Parabolic Thickness and Temperature Variations

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Abstract:

This paper proposes a simple model to investigate the impact of non-homogeneity on the vibration of triangular plates with bi-parabolic thickness variation. The study considers thermal-induced vibration with two- dimensional parabolic temperature distributions. The Poisson ratio varies bi- linearly to account for material non-homogeneity. The governing differential equation is solved using the separation of variables method. The time period corresponding to the first two modes of vibration is calculated for a simply supported triangular plate, considering various aspect ratios, thermal constants, taper constants, and skew angles.

Keywords- Vibration, non-homogeneous, triangular plate, bi-parabolic thickness, thermal gradient.

A REVIEW ARTICLE OF ISONIAZID AS ANTI-TB DRUG

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Abstract:

Isoniazid (INH) is an antibiotic indicated in the first-line treatment of active Mycobacterium tuberculosis (TB) infection. INH has been a significant drug in TB treatment regimens for decades. INH functions as a prodrug activated by the catalase-peroxidase KatG, generating various radicals and adducts that inhibit the production of mycolic acids, the essential components of the mycobacterium's cell wall. This mechanism of action makes INH a potent bactericidal agent. Moreover, INH exhibits synergistic effects with other species generated by KatG and other medications utilized in TB treatment. Mutations in the katG, inhA, kasA, and ahpC genes can lead to resistance against INH therapy. Resistance of M tuberculosis can occur more rapidly with INH monotherapy. This activity reviews the indications, mechanism of action, and contraindications of INH as a valuable agent in treating both active and latent TB infections. This activity also highlights the drug's adverse event profile, regimens and dosing, and other key factors pertinent to the interprofessional healthcare team when using INH for TB treatment. Tuberculosis and has a very narrow margin of safety.⁵⁶ The LD₅₀ is estimated to be about 50 mg/kg in dogs. Isoniazid is available as an elixir, injection, syrup, and tablets (in strengths of 50, 100, and 300 mg). INH causes a decreased level of gamma-aminobutyric acid in the brain, and it also depletes the CNS of pyridoxine, the precursor of the coenzyme pyridoxal phosphate, which is necessary for the activity of the enzyme glutamic acid decarboxylase.⁵⁶ Overdoses produce life-threatening signs, including seizures, acidosis, and coma. Pyridoxine (vitamin B6) is a direct agonist of INH.⁵⁶ thus causing variations in the concentration and half-life of the drug. Isoniazid causes toxicity by altering the metabolism of pyridoxine and can cause peripheral neuropathy, seizures, hepatotoxicity, and metabolic acidosis. Supportive care in addition to pyridoxine administration should be implemented if these clinical manifestations occur. It is metabolized by the liver, with the rate of metabolism determined genetically by acetylator phenotype. Peripheral neuropathy and hepatotoxicity are the most common adverse effects associated with isoniazid use. It is routinely administered with pyridoxine to prevent neurotoxicity

CUSTOMER SATISFACTION IN HOTEL INDUSTRY

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Abstract:

In this paper the customer satisfaction is very important in hotel industry. The Hotel industry is the main industry, Guest is very important in the hotel industry, and the guest satisfaction is very important for the hotel industry. The first impression is the last impression. Prior studies have shown that customer happiness and service quality work together to significantly influence customers' behavioural intentions. The current study assesses how customer satisfaction and service quality influence the behavioural intention of customers in the hotel sector, The main purpose of this study is to review customers' satisfaction. This mini-review provides a brief overview of the influence of culture on customer satisfaction and service quality in the hotel industry. Keywords: Customer Satisfaction, Hotel Industry, Hospitality.

The concept of Environment sustainability

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Abstract:

This paper reviews the current status of the debate about the concept of environmental sustainability and discusses related aspects of growth, limits, scale, and substitutability.

IMPACT OF TAXES ON INDIAN MANUFACTURING SECTORS

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Abstract:

Indirect taxes have always played a major role in India's tax system. Indirect taxes play a vital role in developing countries like India, helps the government to generate revenue and improve Infrastructure. Prior to the implementation of tax reforms in the 1990s, the primary source of tax revenue came from indirect taxes. The main defense of a high reliance on indirect taxes was that since the vast majority of Indians lived in poverty, expanding the base of direct taxes had intrinsic drawbacks but indirect taxes have a lot of cascading effect and tax evasion. Cascadin effects because of so many taxes are exists in the Indian economy due to which tax evasion is possible. However, the cascading, distorted tax on the production of goods and services that characterizes the Indian indirect taxation system hinders productivity and slows economic progress. Introduction of Good and Services Tax improves the taxation system in India. The main defense of a strong reliance on indirect taxes was that the majority of Indians were mediocre and that expanding the base of direct taxes had unavoidable drawbacks. The current system has an infinite number of taxes. Indirect taxes mainly affect the manufacturing industries, its increases the cost of product at every stage but after GST, cost reduce by availing benefit of Input tax credit. Using simple methodology try to correct this problem for betterment of manufacturing sector of India. Key words: Indirect tax, Reform, Revenue, GST

Servey report on Quantum cryptography

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Abstract:

Quantum cryptography has ushered in a new era for secure communication, utilizing the principles of quantum mechanics. This report analyzes the advancements in quantum cryptography from 2010 to 2025, including theoretical frameworks, experimental breakthroughs, and practical implementations.

Free Vibration Analysis of Viscoelastic Parallelogram Plates under Bi-Linear Temperature Distribution and Bi-Parabolic Thickness Variation

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Abstract:

A mathematical framework is developed in this study to analyze the effect of non-homogeneity on vibration of parallelogram plate with bi-parabolic thickness variation. Thermal Induced vibration of these plates has been taken as linear temperature distributions in both directions. Poisson ratio is assumed to vary linearly for non-homogeneity of the plate material. The governing differential equation has been solved by using separation of variables method. The time period corresponding to the first two modes of vibration has been calculated for a parallelogram plate under mixed boundary conditions(C-S-C-S) for various values of aspect ratio, thermal constant, taper constant and skew angle. Keywords- Vibration, visco-elastic, isotropic, parallelogram plate, linear temperature, thermal gradient.

Exploration of Nitrogen-Containing Heterocyclic Derivatives as Aldose Reductase Inhibitors: Insights into SAR and Molecular Docking Studies

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Abstract:

Diabetes mellitus (DM), a widespread metabolic disorder, leads to severe complications due to hyperglycemia-induced oxidative stress. Aldose reductase (AR), a key enzyme in the polyol pathway, plays a critical role in these complications, making it a prime target for therapeutic intervention. Nitrogen-containing heterocyclic compounds have emerged as promising aldose reductase inhibitors (ARIs) due to their structural diversity and potent bioactivity. This review explores the structure-activity relationships (SAR) of these compounds, emphasizing the functional groups and molecular modifications that enhance their efficacy, selectivity, and pharmacokinetics.

Furthermore, molecular docking studies provide insights into their binding mechanisms and interactions with AR, paving the way for the rational design of next-generation ARIs. The findings outlined here establish a robust foundation for developing novel ARIs, offering improved therapeutic outcomes for diabetes management.

Biopharmaceuticals: The Future of Healthcare Trends and challenges in biologic drug development.

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Abstract:

Biopharmaceuticals are shaping the future of healthcare with advancements in personalized medicine, monoclonal antibodies, biosimilars, and gene therapies. Trends include the rise of mRNA therapeutics and AI-driven drug development. However, challenges such as high costs, complex manufacturing, regulatory hurdles, and accessibility remain significant barriers. Overcoming these issues will be crucial to ensuring the global impact of biologic innovations.

Keywords : Biopharmaceuticals, Gene therapies, Personalized medicine, High costs, Drug delivery systems.

Dead Pine Needles Assisted Hydrothermal Synthesis of Carbon@Ag-ZnO-CuO Nano Composite for Biomedical and Environmental Remediation"

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Abstract:

This study reports the synthesis of a Carbon@Ag-ZnO-CuO nanocomposite using dead pine needles as a sustainable carbon source through a hydrothermal method. Carbon derived from pine needles played a dual role as a reducing agent and stabilizer during synthesis, eliminating the need for additional chemical stabilizers or reducing agents. X-ray diffraction (XRD) analysis confirmed the formation of wurtzite ZnO, monoclinic CuO, and face-centered cubic (FCC) silver nanoparticles with an average particle size of approximately 20 nm. Energy-dispersive X-ray spectroscopy (EDS) and X-ray photoelectron spectroscopy (XPS) validated the presence of Ag, Cu, Zn, C, and O in the composite. Field-emission scanning electron microscopy (FESEM) and high-resolution transmission electron microscopy (HRTEM) revealed nearly spherical and grain-like morphologies. Fourier transform infrared (FTIR) spectroscopy identified functional groups such as OH and CO, along with characteristic metal oxide vibrational bands. The nanocomposite exhibited exceptional photocatalytic performance, achieving 96% degradation of Methyl Orange (MO) and 97% degradation of Crystal Violet (CV) under visible light irradiation, which can be attributed to the reduced bandgap and enhanced visible light absorption driven by the surface plasmon resonance (SPR) effect of silver nanoparticles. Additionally, the carbon matrix provided a synergistic effect, enhancing both photocatalytic and antimicrobial activities. The nanocomposite showed significant antimicrobial efficacy against *Bacillus subtilis*, *Pseudomonas aeruginosa*, and *Candida albicans*, highlighting its broad-spectrum antimicrobial potential. The study underscores the multifunctional role of carbon in the synthesis process and its synergistic contribution to the nanocomposite's photocatalytic and antimicrobial applications, demonstrating its promise for environmental remediation and microbial control.

Keywords: Carbon@Ag-ZnO-CuO nanocomposite, Dead pine needle-derived carbon, Surface plasmon resonance, Synergic photocatalytic degradation, Antimicrobial activity.

HEPATIC INJURY
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Abstract:

Hepatic trauma accounts for around 5% of emergency room admissions. Due to its anatomical location and large size, the liver is particularly vulnerable to trauma, especially from penetrating injuries. The American Association for the Surgery of Trauma has developed a comprehensive classification system to ensure consistent comparisons of hepatic injuries. Diagnosing hepatic injury can sometimes be straightforward; however, using diagnostic methods such as diagnostic peritoneal lavage, ultrasound, and computed tomography enables faster and more accurate diagnoses. Nonoperative management for hemodynamically stable patients with blunt injuries has become the standard of care in most trauma centres. Conservative management is rarely suitable for penetrating abdominal lesions, with exceptions being some wounds in the right upper abdominal quadrant. Minor liver injuries may not require fixation and can often be managed with electrocautery or small sutures. Despite technical advancements, major liver injuries remain challenging for surgeons. Procedures for major injuries can include direct repair, debridement with resections, or in severe cases, packing. This approach facilitates damage control, allowing patients time to recover and reducing mortality shortly after trauma.

Key words: Injury. Liver. Hepatic Trauma.

Exploring the Cultural Significance of Bhunda Mahayagya
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Abstract:

Residents of Shimla District Rohru celebrate the Bhunda Mahayagya as an extensive traditional festival that showcases their area's deep ancestral religious customs. The religious practice evolved centuries ago as an offering to appease divine powers and promote community prosperity through traditions that express community spiritual traditions. The Bhunda Mahayagya serves as a central cultural phenomenon which this research study thoroughly examines through its history alongside its major significance and detailed ritual processes. A combination of historical documentation, indigenous oral narratives and direct community involvement enables researchers to analyze the festival's dual function of conserving tribal culture and promoting social unity. This research demonstrates how the festival embodies ecological harmony through its symbolism regarding nature's intricate connection with spiritual traditions within the cultural traditions of the area. This paper explores the obstacles traditional practices encounter when modernization together with shifts in societal patterns threatens their survival. This cultural research draws its insights from interviews with community members serving as tradition protectors alongside festival participants and academic experts. The research results emphasize the need to protect this extraordinary heritage along with its enduring spiritual quality because it promises continued survival through future generations.

Keywords: Bhunda Mahayagya, Cultural Heritage, Religious Customs, Communal Harmony.

HEPATOTOXICITY

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Abstract:

Hepatotoxicity refers to liver damage caused by various hepatotoxins, which can come from chemicals, dietary supplements, pharmaceutical drugs, and medicinal plants. Many medicinal plants, especially those used in traditional systems of medicine like Ayurveda and Traditional Chinese Medicine, have been used for centuries to treat various ailments. While some of these plants act as hepato protectors, others can induce hepatotoxicity. Recent advancements in instrumentation and understanding of active components have enabled researchers to investigate the drug metabolic pathways of these phytopharmaceuticals. This research aims to establish a causal relationship between medicinal plants and their pharmacological effects on the human liver, whether as hepatoprotectors or causative agents of hepatotoxicity. The human liver metabolizes substances through processes such as oxidation, reduction, hydration, hydrolysis, condensation, conjugation, or isomerization. Disruption of these processes can lead to hepatotoxicity, which can cause liver cancer, cirrhosis, and Hepatitis C—diseases associated with high mortality rates globally. It also emphasizes agents (bioactives from medicinal plants, industrial toxins, and pharmaceutical compounds) reported to cause hepatotoxicity.

Keywords: Liver cancer. Hepatitis C.

Fast Disintegration Oral Films

Diksha Sharma, Amandeep Kaur

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Abstract:

Oral fast disintegration film (OFDF) is a new method that use to enhances consumer acceptability due to its quick disintegration and the ability to be self-administered without the need for water or chewing. The movie serves as an optimal method for delivering drugs that dissolve rapidly inside the mouth. Various medications, such as neuroleptics, cardiovascular pharmaceuticals, analgesics, antihistamines and treatments for erectile dysfunction, may be produced as mouth disintegration films. Several procedures were available for preparing oral films in the buccal cavity. The buccal cavity is a component of the mouth that has a mucosal layer which efficiently absorbs and distributes substances throughout the body. This review provides an overview of the many techniques used for preparing oral films, including the selection of suitable polymers for formulation. It also discusses the several technologies involved in the process, as well as the assessment criteria used to assess the quality of the films. Finally, the article explores the various uses of oral films. This method demonstrated for faster onset of action and enhanced therapeutic outcomes for patients.

Keyword: Oral fast disintegration film (OFDF), drug delivery, buccal cavity, polymer formulation, quality assessment, enhanced therapeutic outcomes.

A Comprehensive Review of RTOS and GPOS Performance for Real-Time Applications in Robotics

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Abstract:

This review paper investigates the performance of General Purpose Operating Systems (GPOS) and Real-Time Operating Systems (RTOS) with a focus on their application in real-time systems, specifically using mobile robots. The paper compares the key characteristics of GPOS and RTOS, particularly their ability to handle time-sensitive operations. By reviewing various studies, it highlights how RTOS demonstrates lower latency, faster response times, and more precise handling of tasks such as obstacle avoidance and minimum stopping distance compared to GPOS. The review also explores the challenges in RTOS development, including resource constraints and scheduling complexities, while emphasizing the role of dedicated timers and interrupts in real-time performance. Additionally, it compares the systems' performance in large-scale simulations, showing that RTOS excels in managing real-time tasks and meeting deadlines, especially in environments with high computational demands.

Keywords: GPOS, Operating System Performance, Response Time, RTOS.

Recruitment and Selection Process in “Indian 5 Star Category Hotels”

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Abstract:

Recruitment is the process of searching for prospective employees and stimulating them to apply for jobs in the organization. Selection may be defined as the process by which the organization chooses from among the applicants, those people whom they feel would best meet the job requirement, considering current environmental condition. In today's rapidly changing business environment, organizations have to respond quickly to requirements for people. Hence, it is important to have a well-defined recruitment policy in place, which can be executed effectively to get the best fits for the vacant positions. Selecting the wrong candidate or rejecting the right candidate could turn out to be costly mistakes for the organization. Recruitment and Selection is one of the most important factors for the efficient working of any Star category hotel. Efficient Recruitment and Selection helps in reducing cost, helps in maximum utilization of the available resources and gain efficient employees out of the recruitment process which ever is followed by the hotel. The present study, by focusing on 5* hotels, examines the current trends in the implementation and effectiveness of recruitment and selection practices adopted by various big hotel chains in India. Due to the increasing intensity of competition resulting from globalization, the employee selection and recruitment process is becoming increasingly important for hotel establishments to meet customers' needs and expectations.

This research paper is based on a comparative analysis of two hotel – The Oberoi Hotels and Resorts & Taj Group of Hotels. The human resource department plays a major role in helping plan the system and in developing job descriptions, job specifications and performance standards. The data has been collected from various websites and of past published papers.

The finding of the papers gives us information about the present career related programs offered by various hotel chains in India and information about standard recruitment policy followed by the hotels. Results show that the employee recruitment and selection process of both establishments reflects different characteristics rather than similar features.

Keyw ords: Recruitment, Selection, Process, Human Resource Department, Recruitment Policy

A study on Tourist's Preference of Homestays & hotels in Shimla

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Abstract:

Accommodation choices which have shifted between traditional hotels and homestays are in alignment with the new way coming into existence from basic service to intermediate. Factors influencing the choice of accommodation were cost, comfort, cultural engagement, and sustainability. Besides being cheaper and all-in-one decisions of having a personalized hospitality curve and experience of rich culture-expressing traditions, cuisine, and daily life, homestays, in particular, have gained significant popularity amongst middle-class travellers. Studies depict homestays are significantly benefiting rural development since employment and supplemental incomes have sprung up in the local economies. Categorically ecotourism and sustainable travel behaviour have gained importance; hence more tourists favourably tend to select a package, which is eco-friendly and revitalizes the local economy.

On the other hand, hotels are considered luxury units to live in among tourists with hospitality fittings including room service, central heating, entertainment facilities, and many more. As the research indicates, luxury travellers remain loyal to hotels since they are reliable, safe, and offer high-end options. Another growing trend that goes on, homestays still are plagued by a couple of challenges which makes hotels more convenient for some tourists. Homestays afford superior comfort and budget; whereas upper-class people choose hotels owing to efficient services.

These two kinds of accommodation co-exist for Shimla tourism catering for varying segments of the travelling classes. The future of Shimla carries an impressive balance in terms of catering to the difference in traveller preferences when it comes to both homestays and hotels that increase tourism sustainably.

Keywords: Accommodation choices, traditional hotels, homestays, cost-effectiveness, comfort, cultural engagement, middle-class travellers.

interfaces can reduce a driver's distraction compared with manual control situations.

Improving Communication Skills in Senior Classes

Shiva Jyoti

Abstract:

Communication is a fundamental skill that influences academic success, career readiness, and personal development. As students' progress into senior classes, effective communication becomes even more essential, preparing them for higher education, professional environments, and social interactions. The ability to articulate thoughts clearly, engage in meaningful conversations, and express ideas confidently is crucial in today's competitive world. This paper explores various strategies to enhance communication skills among senior students, focusing on verbal, non-verbal, and written communication. It also highlights the importance of active listening, digital communication, and emotional intelligence in fostering well-rounded communicators.

The Importance of Communication Skills in Senior Classes

Senior classes serve as a transition phase between school and higher education or employment. At this stage, students are expected to participate in discussions, deliver presentations, write research papers, and collaborate with peers effectively. Strong communication skills enable students to convey their ideas persuasively, engage in critical discussions, and adapt to different social and academic contexts. Additionally, effective communication fosters confidence, leadership qualities, and teamwork, which are essential for both academic and professional success.

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Nurturing Ethical Values in 21st-Century Students: Shaping Responsible Leaders

Neeraj Kumari Sandhu

Principal, Sarup Public School, Jalandhar

Abstract:

In the fast-paced and interconnected landscape of the 21st century, the importance of instilling ethical values in students cannot be overstated. As we navigate a world characterized by technological advancements, global interdependence, and diverse perspectives, the role of ethical values becomes paramount in shaping responsible leaders and contributing to the overall well-being of society.

Ethical values serve as the compass guiding students through the complexities of modern life. At the heart of this endeavor lies the cultivation of empathy. In a world where digital communication often overshadows face-to-face interactions, fostering empathy becomes crucial. Ethical values instill in students the ability to understand and share the feelings of others, promoting a sense of interconnectedness and compassion.

Integrity, another cornerstone of ethical values, stands as a bulwark against the erosion of trust. In an era where information flows rapidly and misinformation abounds, the importance of integrity in students cannot be overstated. Teaching them to uphold honesty and consistency in their actions not only builds their personal character but also contributes to the establishment of a trustworthy society.

Social responsibility emerges as a key theme in the context of ethical values. The 21st-century student is not merely a passive recipient of education; they are integral members of a global community. Instilling a sense of social responsibility empowers students to recognize their role in or advocating for social justice, ethical values inspire students to actively engage in shaping a better world.

Education should not merely focus on imparting knowledge but also on developing critical thinking skills. Ethical values provide a framework for evaluating information, discerning right from wrong, and making informed decisions. In an age where the ability to navigate a sea of information is crucial, cultivating ethical discernment equips students to be responsible digital citizens.

The interconnected nature of the world demands collaboration and cooperation. Ethical values teach students the importance of teamwork, respect for diverse perspectives, and effective communication. These skills not only prepare them for the workforce but also contribute to the creation of inclusive and harmonious communities.

Furthermore, ethical values act as a shield against the pitfalls of success at any cost. In a society that often values achievement over ethical considerations, students need a moral compass to guide them. The pressure to excel academically or professionally should not compromise their commitment to ethical principles. Education should emphasize that true success is not just about personal accomplishments but also about contributing positively to the collective welfare.

In conclusion, the nurturing of ethical values among 21st-century students is not a mere educational addendum but a foundational aspect of their development. Empathy, integrity, social responsibility, critical thinking, and collaboration are not just abstract concepts; they are the building blocks of responsible and conscientious leaders. As we strive to prepare students for the challenges and opportunities of the future, instilling ethical values remains an indispensable investment in creating a society that thrives on principles of justice, compassion, and mutual respect.

**Traditional ingredients & their culinary importance,
A case study on Himachal Pradesh**

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Abstract:

Himachal Pradesh, a state nestled in the Himalayas, boasts a rich culinary heritage shaped by its diverse topography, climatic variations, and agrarian traditions.

This study explores the traditional ingredients used in Himachali cuisine, emphasizing their culinary significance, climate-driven adaptations, and cultural importance. The region's food practices are deeply rooted in sustainability, utilizing locally available grains such as buckwheat (Ogal), barley (Jau), and red rice (Chholtu), along with protein-rich pulses like horse gram (Kulth) and black gram (Urad Dal). Dairy products, including Chhurpi (fermented yak cheese) and ghee, play a crucial role in nutrition and preservation.

Foraged ingredients like Lingdi (fiddlehead ferns), Kachnar (orchid buds), and wild mustard seeds (Jakhia) highlight the traditional reliance on forest resources. Distinctive mountain spices such as Timur (Himalayan peppercorn) and Ghandhrayan (wild cumin) contribute to the region's unique flavor profile. Furthermore, fermented foods like Siddu (steamed wheat bread), Seera (sun-dried buttermilk cakes), and Bhaturu (fermented flatbread) illustrate age-old food preservation techniques suited for harsh winters.

The study also examines how climate adaptation influences culinary choices, with high-altitude communities relying on preserved foods, while lower-altitude regions incorporate fresh vegetables and fruits such as apricots, chilgoza (pine nuts), and wild berries. These ingredients not only define the local diet but also hold medicinal and cultural significance, reflecting a deep connection between food, environment, and tradition. This research underscores the importance of preserving Himachal Pradesh's traditional food wisdom in the face of modernization, ensuring the continuity of its sustainable and climate-resilient culinary practices.

Keywords: Traditional Ingredients, Himachali Cuisine, Climate Adaptation, Culinary Heritage, Food Sustainability, Indigenous Food Practices.

A study of Psychological Hardiness as a Key Factor for Teaching Professional's Success

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Abstract:

The present study aims to examine the level of psychological hardiness among teaching professionals in Bangalore. Psychological hardiness refers to the ability of an individual to withstand and effectively cope with stress and adversity. This study aims to determine whether teaching professionals in this region possess varying levels of psychological hardiness, and if so, how these levels might differ among them.

To conduct this research, a sample of 200 teachers was selected from various educational institutions across Bangalore. These teachers were chosen to represent a broad range of

demographics including age, gender, years of experience, and educational background. The instrument used for data collection was the Psychological Hardiness Scale developed by Kobasa, S.C., and Maddi, S.R. In 1982, which is a well-established tool to measure psychological hardiness. The collected data was analysed using Statistical Package for the Social Sciences (SPSS). The findings suggest that not all teachers possess the same degree of psychological resilience which could potentially affect their effectiveness in handling stress and their overall well-being.

Keywords: Hardiness, Teaching Professionals, Well-being.

Healthy Sleep Habits: A Case Study Involving an Indian Family

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Abstract:

A culturally relevant intervention plan was developed, incorporating evidence-based sleep hygiene practices:

Consistent Sleep Schedule: The family agreed to set fixed bedtimes and wake-up times. This consistency would help regulate their circadian rhythms, a practice supported by traditional Indian values emphasizing rest.

Screen Time Limitation: The family committed to reducing screen time at least one hour before bed. Instead of screens, they engaged in family activities like reading Indian folktales, practicing yoga, or playing board games.

Creating a Conducive Sleep Environment: The Sharmas transformed their bedrooms into sleep-friendly spaces, ensuring they were dark, cool, and quiet. They used traditional blackout curtains and essential oils like lavender to create a calming atmosphere.

Relaxation Techniques: Bedtime rituals were introduced, including guided meditation and breathing exercises. These practices, often rooted in yoga, helped create a calming pre-sleep routine.

Nutrition and Stimulant Awareness: The family learned to avoid heavy meals and caffeinated beverages in the evening. They introduced warm milk or herbal teas as bedtime snacks, following traditional Indian practices.

Cultural Education: Ananya and Vikram educated Riya and Kabir about the importance of sleep, incorporating stories that emphasize rest and rejuvenation from Indian culture, fostering an appreciation for healthy sleep habits.

ARTIFICIAL PASSENGER: ENHANCED PROTOTYPE FOR PERFORMANCE

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Abstract:

An artificial passenger (AP) may be a device that may be employed in a motorized vehicle to create sure that the driving force stays awake. IBM has developed a prototype that holds a conversation with a driver, telling jokes and asking questions intended to work out whether the driving force can respond alertly enough. Assuming the IBM approach, a synthetic passenger would use a microphone for the motive force and a speech generator and therefore the vehicle's audio speakers to converse with the driving force. The conversation would be supported a customized profile of the driving force. A camera may be wont to evaluate the driving force's "facial state" and a voice analyzer to guage whether the driver was becoming drowsy. If a driver looked as if it would display an excessive amount of fatigue, the bogus passenger may be

programmed to open all the windows, sound a buzzer, increase background music volume, or perhaps spray the driving force with drinking water. One in all the ways to deal with driver safety concerns is to develop an efficient system that relies on voice rather than hands to regulate Telematics devices. It's been shown in various experiments that simple voice control.

The Effect of Coach-Athlete Relationship on Team Effectiveness and

Interpersonal Problems

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Abstract:

The coach-athlete relationship is key to team success, impacting motivation, performance, and cohesion. A strong, trust-based connection fosters communication, teamwork, and well-being, while poor interactions can lead to conflict and performance issues. This study examines the effect of coach-athlete dynamics on team success and interpersonal problems among 200 university athletes, using tools like the Coach-Athlete Relationship Questionnaire (CART-Q) and Team Effectiveness Scale. Findings will provide strategies for improving team dynamics and performance in competitive sports.

An overview of the synthesis, and medicinal uses of psyllium-related polymeric materials

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Abstract:

The viscous dietary fibers have positive effects on human health, both in the prevention and treatment of chronic diseases. Psyllium is a soluble dietary fiber with multifaceted health benefits. Psyllium, derived from *Plantago ovata* is a soluble dietary fiber with a rich history of traditional use. This review aims to summarize the current state of knowledge on psyllium health benefits, therapeutic applications, and food uses. Psyllium has been shown to have numerous health benefits, including lowering cholesterol levels, improving blood sugar control, aiding in weight management, and supporting healthy gut bacteria. Dietary fibers from psyllium have been used extensively both as pharmacological supplements, and food ingredients, in processed food to aid weight control, regulation of glucose control for diabetic patients, and lowering hyperlipidaemic serum cholesterol levels. This article addresses the therapeutic potential of psyllium for the treatment of constipation, diarrhea, irritable bowel syndrome, inflammatory bowel disease-ulcerative colitis, colon cancer, diabetes, and hypercholesterolemia while taking into account the pharmacological significance of psyllium polysaccharide and its gel-forming properties.

Key Point: Psyllium, Medicinal Properties, Constipation, Diarrhoea, Irritable Bowel Syndrome, Colon Cancer, etc.

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