NCCMCS 2026

Proceedings of the Third National Conference on Commerce, Management and Computer Science for Interdisciplinary Insights

TERF'S Campus

7th February, 2026

TERF'S ACADEMY
COLLEGE OF ARTS AND SCIENCE
திருப்பூர் கல்வி ஆராய்ச்சி கலை மற்றும் அறிவியல் கல்லூரி

(Affiliated to Bharathiar University, Coimbatore & 2f, 12B status Accredited by UGC, Delhi)
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3rd National Conference

07th February, 2026

Schedule

Time	Session Details	Venue
10.00	Inaugural	Seminar Hall
11.00	Tea Break	Dining Hall
11.15	**Session-I** **Session Chair** Dr.P.Pavithra, Head of the Department, Dept. of Commerce Mr.P.Maheswaran, Head of the Department, Dept. of Management Mrs.M.Jayanthi, Head of the Department, Dept. of Computer Science	Seminar Hall G8 G7
01.00	Lunch	Dining Hall
02.00	**Session – II** **Session Chair** Dr.K.Karuppusamy, Research Head, Dept. of Commerce Dr.R.Ravikumar, Assistant Professor, Dept. of Computer Science	Seminar Hall G7
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03.30	Tea Break	Dining Hall

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ROBO ADVISORS AND THEIR IMPACT ON INVESTMENT DECISIONS

Dr.G.Jothi, Associate Professor in Commerce, Park's College (Autonomous), Tirupur
Mr.B.Muthukumar, Assistant professor Department of Commerce,
TERF's Academy College of Arts and Science, Tirupur

This study robo advisors include emerged as a transformative force in the investment management business, leveraging algorithms, artificial intelligence, and big data to deliver automated, low-cost financial advice. This study examines the impact of robo advisors on investment decisions, focusing on their influence on portfolio construction, risk assessment, investor behavior, and financial inclusion. The paper places of interest how hybrid models combining automated systems with human oversight are increasingly adopted to address these challenges. In general, robo advisors significantly reshape investment decision-making by enhancing efficiency and democratizing access to financial advice, while also prompting regulatory and ethical considerations for the future of digital wealth management. The findings propose that robo advisory services really affect investment decisions by reducing behavioral biases, improving diversification, and attractive ease of access to professional investment management.

BRANDING AND BRAND LOYALTY IN THE DIGITAL AGE

Dr.A.Thenmozhiselvi, Assistant professor, Department of B.Com (BA),
Kangeyam Institute of Commerce, Kangayam

In the digital age, branding has evolved from one-way communication to an interactive, data-driven process shaped by social media, mobile technologies, and online communities. Consumers now engage with brands across multiple digital touchpoints, including social platforms, websites, influencer content, and personalized advertising. This abstract examines how digital branding strategies—such as social media storytelling, personalization through data analytics, influencer marketing, and customer relationship management—impact consumer trust and long-term loyalty. The study concludes that successful branding in the digital age depends on building strong relationships, fostering community, and maintaining credibility across digital channels, making brand loyalty a dynamic and continuously evolving outcome rather than a static consumer behaviour.

GLOBAL TRADE AND GEOPOLITICS

Dr.S.Pounsamy, Associate Professor and Head, Department of Commerce
Mr.M.Senthil, Assistant Professor, Department of Commerce,
Ms.M.Dharani, Assistant Professor, Department of Commerce
Nandha Arts and Science College(Autonomous), Erode

Global trade has evolved beyond a purely economic exchange to become a central instrument of geopolitical strategy. In an era marked by strategic rivalry, economic nationalism, and shifting power balances, states increasingly leverage trade policies to advance security and political objectives. This paper examines the complex relationship between global trade and geopolitics by integrating theoretical perspectives with contemporary developments. It analyzes how trade interdependence interacts with power politics, explores the geopolitical use of tariffs, sanctions, and supply chains, and assesses the implications for the global trading system. The paper argues that the liberal vision of trade as a force for cooperation is being reshaped by realist and neo-mercantilist practices, leading to a more fragmented and strategically driven global economy.

ROLE OF AI IN STARTUP INNOVATION AND ENTREPRENEURSHIP

Dr.P.Parimaladevi , Assistant Professor in Commerce,
Gobi Arts & Science College (Autonomous), Gobichettipalayam.

Artificial Intelligence has emerged as a transformative force reshaping the landscape of startup innovation and entrepreneurship. In contemporary business environments, AI technologies such as machine learning, natural language processing, and predictive analytics are empowering startups to accelerate product development, enhance customer experiences, optimize operations, and make data-driven decisions. For small businesses, AI adoption presents significant opportunities, including automation of routine tasks, improved market insights through data analysis, personalized marketing at scale, and enhanced competitive differentiation. These capabilities allow small enterprises to operate with greater efficiency and innovate without proportionally increasing resources. In the current global context marked by rapid digital transformation accelerated by post-pandemic economic recovery startups and small businesses that strategically leverage AI stand to achieve sustainable growth and competitive advantage.

A STUDY ON STUDENTS' SATISFACTION AND ARTIFICIAL INTELLIGENCE (AI) ADOPTION IN PRIVATE SCHOOLS OF COIMBATORE CITY

Dr.C.Naveena Jasmine, Associate Professor, Department of B.Com (E.Com)
KPR College of Arts, Science and Research, Coimbatore
Mr.M.Manikandan, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

The integration of Artificial Intelligence (AI) into school education has significantly transformed teaching–learning processes through personalized learning systems, intelligent tutoring platforms, automated assessment tools, and learning analytics. Despite the increasing adoption of AI-enabled technologies in private schools, empirical evidence on their influence on students' satisfaction remains limited, particularly in the Indian school education context. The findings reveal a significant positive relationship between AI adoption and students' satisfaction, with perceived usefulness and perceived ease of use emerging as the most influential determinants. It also explains a substantial proportion of variance in students' satisfaction, highlighting the role of effective AI integration in enhancing learning experiences and student engagement. The study offers valuable implications for school administrators, educators, and policymakers to promote student-centric and ethically responsible AI adoption in school education.

FINTECH & AI: SHAPING THE FUTURE OF DIGITAL FINANCE

Ms.Dhanya K, Assistant Professor,School of Commerce
A.V.P. College of Arts and Science (Autonomous), Tirupur

The rapid advancement of Financial Technology (FinTech) combined with Artificial Intelligence (AI) has significantly transformed the digital finance landscape worldwide. This research paper examines the role of FinTech and AI in shaping the future of digital finance by enhancing operational efficiency, improving customer experience, enabling financial inclusion, and strengthening risk management mechanisms.The study adopts a conceptual and analytical research methodology based on secondary data sourced from peer-reviewed journals, industry reports, policy documents, and global financial studies. The paper also highlights the benefits of AI-driven digital finance while critically examining challenges such as data privacy, cybersecurity risks, algorithmic bias, ethical concerns, and regulatory complexities. The paper concludes that the future of digital finance will be shaped by the balanced integration of technological innovation, human oversight, and ethical accountability.

MACRO ECONOMIC STABILITY & BUSINESS CYCLE DYNAMICS

Mr.S.Arunkumar, Assistant Professor in Commerce,
Gobi Arts & Science College (Autonomous), Gobichettipalayam.

Macroeconomic stability and business cycle dynamics have gained renewed relevance amid recent global disruptions following the COVID-19 pandemic. Economies worldwide have been exposed to overlapping demand, supply, and financial shocks, including supply-chain disruptions, energy and commodity price volatility, tightening global financial conditions, and heightened geopolitical uncertainty, leading to pronounced fluctuations in output, employment, and inflation. It highlights the challenges of policymakers face in balancing price stability and economic stabilization, while accounting for constraints related to policy credibility, expectations management, and debt sustainability. The analysis further explores how structural factors—such as financial market development, labor market conditions, demographic trends, and the digital and green transitions—affect the amplitude and persistence of business cycles across advanced and emerging economies. By integrating recent empirical evidence with contemporary macroeconomic theory, the study sheds light on the trade-offs between short-term stabilization and long-term growth and resilience in an increasingly uncertain global economy.

FINTECH & AI: SHAPING THE FUTURE OF DIGITAL FINANCE

Mr.S. Mohammed Umar Kathaf, Assistant Professor, Department of Commerce with CA,
Tiruppur Kumaran College For Women, Tirupur.

The rapid convergence of Artificial Intelligence (AI) and Financial Technology (FinTech) is fundamentally reshaping the future of digital finance by transitioning traditional processes into intelligent, data-driven ecosystems. This study examines the transformative role of AI in three key areas: algorithmic trading, robo-advisors, and predictive analytics, alongside its impact on digital banking and payment systems. Current research indicates that specialized AI-driven models can achieve market prediction accuracies exceeding 98.20%, significantly outperforming conventional forecasting methodologies. Despite these advancements, integration presents critical hurdles, including documented data privacy concerns affecting 24% of users, inherent algorithmic bias, and the "black box" complexity of deep learning models. This study argues that while AI serves as a strategic engine for "smart finance," its success depends on responsible innovation and robust regulatory frameworks (RegTech) to ensure secure and inclusive growth.

OPPORTUNITIES AND CHALLENGES OF AI ADOPTION IN SMALL BUSINESS

Mrs.V.Saraswathi, Assistant Professor, Department of Commerce with Computer Applications, Tiruppur Kumaran College for Women, Tirupur.

Artificial Intelligence (AI) is increasingly influencing modern business practices by enhancing efficiency, driving innovation, and boosting competitiveness across various industries. This study examines the current level of AI adoption among Indian MSMEs and analyses the opportunities, challenges, and impact of AI on business performance. The findings indicate that although AI offers substantial benefits such as cost reduction, process automation, improved service quality, and enhanced innovation capacity, its adoption among MSMEs remains at a nascent stage. Major barriers include high implementation and maintenance cost, a shortage of skilled human resources, limited digital infrastructure, difficulties in system integration, concerns related to data privacy and cyber security, regulatory compliance issues, and low awareness among small business owners. The paper concludes that targeted policy interventions, capacity-building programs, and enhanced digital infrastructure are crucial for accelerating AI adoption among Indian MSMEs.

BRAND MANAGEMENT IN A GLOBALIZED WORLD

Mrs.M.Shruthi Sowdeshwari, Assistant Professor, A.V.P College of Arts and Science, Tirupur

Globalization has significantly transformed the way organizations create, manage, and sustain brands.. The growing influence of digital technologies, social media, and international trade has intensified global competition, making effective brand management a critical source of competitive advantage.This paper examines the concept of brand management within the context of globalization and analyzes how global integration has reshaped branding strategies. It explores key components of brand management such as brand equity, brand positioning, and brand architecture, and discusses how multinational corporations balance global standardization with local adaptation. The study also highlights the role of digital media, data analytics, and customer engagement in building and sustaining global brands. The paper concludes that successful brand management in a globalized world requires strategic alignment, cultural sensitivity, technological integration, and a strong customer-centric approach. As globalization continues to evolve, brands that effectively manage these dimensions are more likely to achieve long-term growth and global relevance.

BRANDING AND BRAND LOYALTY IN THE DIGITAL AGE

Mrs. A. Anupriya, Assistant Professor , Department of Commerce
Ms. K. Pavithra, I M.Com (IB), Park's College (Autonomous), Tirupur

Brand loyalty in the digital age refers to how customers choose and stick with brands based on shared values, emotional connections, and engaging online or offline experiences, rather than just traditional perks or discounts. This study helps us to understand the nature of consumer behaviour and the potential influence of technological advertisement on brand loyalty and engagement, Consumers have emotional connection and social influence in shaping band loyalty. In this heavy competitor's era, continuing to purchase from the same brand over and over again means they have positive feelings towards the brand. So, the marketers concentrate more on loyalty programmes such as returning back to customers, rewards, they take feedback, they maintain the trust of customers and build meaningful relationships. All this helps for the growth of the company. This study aims to understand what factors are affecting the increase in the brand loyalty of the customers through digital media and also the strategies involved in making the connection.

REDEFINING RETAIL PERSONALIZATION: THE STRATEGIC ROLE OF AI IN OMNICHANNEL CUSTOMER EXPERIENCE

Dr.P.Pavithra, Associate Professor & Head, Department of Commrece,
TERF's Academy College of Arts and Science, Tirupur

Artificial Intelligence (AI) has progressively reshaped the retail ecosystem. The rapid advancement of Artificial Intelligence has fundamentally transformed omnichannel retail by enabling advanced personalization beyond traditional physical and digital boundaries. Modern consumers expect seamless, consistent, and personalized interactions across online platforms, mobile applications, social media, and brick-and-mortar stores. This paper critically examines how AI technologies integrate across digital and physical channels to deliver highly tailored experiences, the operational and ethical challenges involved, and emerging trends shaping future research and practice. The findings reveal a strong positive association between AI-enabled personalization and customer experience outcomes, emphasizing the strategic significance of AI for omnichannel retail competitiveness.

HARNESSING SOLAR ENERGY FOR SUSTAINABLE DEVELOPMENT: A CRITICAL REVIEW OF TECHNOLOGICAL ADVANCEMENTS AND POLICY FRAMEWORKS

Dr. K. Karuppusamy, Assistant Professor & Head (Research), Department of Commerce

Mrs.K.V.Jisha Anoop, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

Solar energy has emerged as one of the most promising renewable energy sources for achieving sustainable development goals. With growing concerns over climate change, fossil fuel depletion, and environmental degradation, solar energy offers a clean, abundant, and increasingly cost-effective alternative. This review critically examines recent technological advancements in solar energy systems and evaluates the policy frameworks that support solar energy deployment across different regions. The study highlights key innovations in photovoltaic technologies, energy storage, and grid integration, while also assessing challenges related to policy implementation, financing, and institutional support. The paper concludes with recommendations to strengthen the synergy between technology and policy to accelerate solar-led sustainable development.

FIN TECH & AI: SHAPING THE FUTURE OF DIGITAL FINANCE

Dr.T.Jaishree, Assistant Professor, Department of Commerce
TERF's Academy College of Arts and Science, Tirupur

The rapid evolution of digital finance is transforming the global financial landscape, with artificial intelligence (AI) and fintech innovations playing a central role in enhancing banking efficiency, data security, and financial inclusion. AI-driven banking solutions are streamlining financial processes, improving fraud detection, and ensuring regulatory compliance, making financial services more accessible and secure. Fintech companies are leveraging machine learning algorithms, blockchain technology, and real-time data analytics to create seamless, customer-centric digital experiences while minimizing cyber threats and operational risks. AI-powered fraud detection systems analyze vast amounts of transactional data in real-time, identifying suspicious patterns and preventing cyber threats before they materialize. These innovations provide individuals and small businesses with access to essential financial services, fostering economic empowerment and reducing global financial disparities. The integration of AI-driven cyber security measures, biometric authentication, and decentralized finance solutions is essential to safeguarding sensitive financial data and ensuring compliance with global financial regulations.

BRANDING AND BRAND LOYALTY IN THE DIGITAL AGE

Dr. Jaishree.T, Assistant Professor, Department of Commerce
Mr.Safvan V, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

The digital revolution has fundamentally restructured the relationship between corporations and consumers, shifting the locus of power from brand-led messaging to consumer-led experiences This paper explores the transition from transactional branding to experiential ecosystems, where brand equity is built through the "personalization paradox." As consumers navigate a landscape defined by low switching costs and constant information flow, brands must move beyond static identity markers. Instead, they must leverage big data and artificial intelligence to create anticipatory value, ensuring that the brand remains relevant within the fragmented digital journey of the modern user. This presentation examines how "digital-native" brands cultivate hyper-loyalty by fostering sense-of-belonging through social niches and transparent, purpose-driven communication. By analyzing current trends in social commerce and sensory digital branding, this study concludes that sustained loyalty in the digital age is predicated on a brand's ability to humanize technology, transforming every digital touchpoint into a meaningful, trust-building interaction.

A STUDY ON CONSUMER BEHAVIOUR TOWARDS MOBILE APP PAYMENTS IN THRISSUR DISTRICT

Dr.Pavithra P, Associate Professor & Head, Department of Commerce
Mrs.Asha P, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

Digital transformation has brought a massive shift in payment behaviour which makes mobile app payment systems the leading choice for consumers to handle their financial transactions. The research examines how users decide to pay for mobile applications by studying what drives their adoption and usage patterns and their continued payment motivation for mobile applications. The research focuses on six elements which include perceived ease of use and usefulness and security and trust and convenience and promotional offers to understand their impact on marketing.The research demonstrates that customer attitudes depend on convenience and fast transactions and promotional deals yet system security remains vital for adoption decisions.The research findings about consumer payment behavior through mobile applications and financial services show practical value for marketing professionals and app developers and financial service providers.

OPPORTUNITIES & CHALLENGES OF AI ADOPTION IN SMALL BUSINESSES

Dr. Jaishree.T, Assistant Professor, Department of Commerce

Mr.Mohammed Niyaf.C, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

Artificial Intelligence (AI) is increasingly becoming a powerful tool for enhancing business performance, and its adoption by small businesses presents both significant opportunities and notable challenges. AI technologies enable small enterprises to streamline operations, automate repetitive tasks, improve customer service through chatbots and virtual assistants, and gain valuable insights from data analytics. By leveraging AI, small businesses can enhance productivity, reduce operational costs, personalize customer interactions, and compete more effectively with larger organizations.. Additionally, concerns related to data security, privacy,and ethical use of AI pose serious challenges. This paper examines the key opportunities and challenges associated with AI adoption in smallbusinesses. It emphasizes the importance of strategic planning, employee training, affordable AI solutions, and supportive government policies to facilitate adoption. The study concludes that while AI has the potential to drive innovation and sustainable growth in small businesses, addressing the existing challenges is essential for realizing its full benefits.

FINTECH AND ARTIFICIAL INTELLIGENCE: AN EMPIRICAL ANALYSIS OF THEIR IMPACT ON DIGITAL FINANCE

Dr.Pavithra P, Associate Professor & Head, Department of Commerce

Mr.Uneez B, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

The rapid advancement of Financial Technology (FinTech) and Artificial Intelligence (AI) has fundamentally transformed the structure and functioning of digital finance. This study empirically examines the impact of FinTech adoption and AI-driven technologies on the efficiency, accessibility, and performance of digital financial services. Using primary and secondary data collected from financial institutions,. The findings reveal that AI-enabled FinTech solutions significantly enhance operational efficiency, improve decision-making accuracy, and reduce transaction costs in digital financial platforms. However, the study also identifies challenges related to data privacy, cyber security risks, regulatory uncertainty, and ethical concerns, which may hinder the sustainable adoption of AI-driven FinTech. The study provides empirical insights to support the responsible and sustainable adoption of AI-enabled FinTech in digital finance.

OPPORTUNITIES & CHALLENGES OF AI ADOPTION IN SMALL BUSINESSES

Dr. K. Karuppusamy, Assistant Professor & Head (Research), Department of Commerce
Mrs.YugaPriya.G, Research Scholar & Assistant Professor in Commerce
TERF'S Academy College of Arts and Science, Tirupur

Artificial Intelligence (AI) has emerged as a transformative force in startup innovation and entrepreneurship, reshaping how new ventures are conceived, developed, and scaled. This study examines the strategic role of AI in enabling startups to enhance innovation capabilities, optimize decision-making, and achieve sustainable competitive advantage in dynamic markets. The research further explores how AI facilitates business model innovation by enabling automation, platform-based ecosystems, and data-centric value creation. Startups leverage AI to streamline operations, reduce costs, and scale efficiently with limited resources, which is particularly critical in early-stage ventures. However, the adoption of AI also presents significant challenges, including high implementation costs, data privacy concerns, ethical considerations, skill shortages.This study adopts a conceptual and analytical approach, integrating insights from entrepreneurship theory, innovation management, and digital transformation literature. The study concludes that strategic and ethical integration of AI is essential for fostering inclusive, resilient, and innovation-led startup growth in the digital economy.

ROLE OF AI IN STARTUP INNOVATION & ENTREPRENEURSHIP

Dr. Jaishree.T, Assistant Professor, Department of Commerce
Mr.Irshad P, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

Artificial Intelligence (AI) is transforming the startup ecosystem by enabling innovative business models, data-driven decision-making, and rapid scalability. Startups leverage AI to automate operations, personalize customer experiences, optimize product development, and gain competitive advantages with limited resources. From predictive analytics to intelligent automation, AI empowers entrepreneurs to identify market opportunities, reduce costs, and accelerate growth. However, challenges such as data availability, ethical concerns, and skill gaps remain. This study explores the role of AI in fostering startup innovation and highlights its impact on entrepreneurial success in a dynamic digital economy.

ASSESSING THE RELATIONSHIP BETWEEN GREEN BANKING INDICATORS ON PROFITABILITY: A ROA-BASED ANALYSIS

Dr. K. Karuppusamy, Assistant Professor & Head (Research), Department of Commerce
Mrs.Vidhya Krishna. T, Research Scholar, TERF'S Academy College of Arts and Science, Tirupur

Green banking practices affects on the several area of the banking sectors, such as financial performances, operational performances, regulatory compliances, environment etc…, This study focus on one such area of the banking sectors which is on the financial performances based on ROA analysis, there are two variables involves in this study, green banking practices an independent variable and ROA as dependent variables, under the Independent variables there involves three attributes or measured items that are, Green Banking Policy, Green Banking Daliy Operation and Green Banking Disclosure Index, the relationship are tested using multiple Regression method in SPSS software 26, using the secondary data available on the banking site, The banks are selected through purposive sampling techquines and the finding of the study relives that the three attribute has an effects on the ROA.

BRANDING AND BRAND LOYALTY IN THE DIGITAL AGE

Ms.R.D.Manimekalai, Research Scholar & Assistant Professor in Commerce
Dr.P.Pavithra Associate Professor & Head, Department of Commerce
TERF'S Academy College of Arts and Science, Tirupur

Branding and brand loyalty have undergone significant transformation in the digital age, driven by rapid technological advancements and the widespread adoption of digital platforms. Traditional branding, which relied heavily on one-way communication through mass media, has shifted toward an interactive, consumer-centric approach where customers actively participate in shaping brand identity and meaning. The presentation explores the evolving concept of brand loyalty in a digital environment characterized by increased competition, transparency, and reduced switching costs. Unlike conventional loyalty based primarily on repeat purchases, digital-era brand loyalty is increasingly influenced by emotional connection, personalized experiences, trust, online engagement, and community building. Through real-world examples and contemporary digital branding practices, it provides insights into effective strategies organizations can adopt to strengthen brand equity and sustain customer loyalty in the digital age.

MACRO ECONOMIC STABILITY AND BUSINESS CYCLE DYNAMICS

Mrs.G.Nivethithaa, Assistant Professor in Department of Commerce
TERF'S Academy College of Arts and Science, Tirupur

Macroeconomic stability is a central objective of economic policy, as persistent instability can undermine growth, employment, and social welfare.. This paper examines the concept of macroeconomic stability and analysis the dynamics of business cycles, focusing on their causes, theoretical explanations, and policy responses. The analysis underscores that macroeconomic stability does not imply the elimination of cycles, but rather the ability of an economy to absorb shocks, limit volatility, and prevent systemic crises. Macroeconomic stability is a balanced national economy with low, stable inflation, sustainable growth, full employment, stable exchange rates, and manageable debt, minimizing vulnerability to shocks. Business cycle dynamics refer to the recurring, non-periodic fluctuations in economic activity specifically real GDP, employment, and income around a long-term growth trend. Comprising four main phases - expansion, peak, contraction and trough, these cycles reflect alternating periods of boom and slowdown. That achieving stability requires a coordinated policy framework that integrates monetary, fiscal tools, supported by credible institutions and sound economic governance.

BRAND MANAGEMENT IN A GLOBALIZED WORLD

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Globalization has significantly transformed the way brands are created, managed, and communicated across international markets. Brand management in a globalized world requires maintaining a consistent brand identity while adapting to diverse cultural and consumer expectations. It highlights how successful global brands balance global consistency with local relevance to achieve long-term competitive advantage. Any aspects of brand management have drawn attention to brand management these years. No company can neglect the great advantage of brand management anymore. The purpose of this study is on the basis of theoretical issues, through case study to discover the relationship between brand management and value - how they connect with each other. Motivations when firms use brand management also includes the process which combine internal and external brand management. It highlights how successful global brands balance global consistency with local relevance to achieve long-term competitive advantage.

ROLE OF ARTIFICIAL INTELLIGENCE IN STARTUP INNOVATION IN ENTREPRENEURSHIP

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AI has evolved to become one of the most potent enablers of innovation in entrepreneurship and startup ecosystems. Startups embracing AI technologies within the digital era enhance their creativity, operational efficiency, and market competitiveness. The part that AI has been able to play in empowering startups is by facilitating data-driven decision-making with advanced analytics, machine learning, and automation capabilities. In this way, these technologies provide entrepreneurs with the ability to pinpoint market trends, comprehend the behavior of their customers, and thereby devise business strategy optimizations more accurately. Despite these many advantages, the integration of AI in startups holds many challenges: high initial investment, data privacy concerns, ethical concerns, and a general shortage of skilled professionals. The evolution of AI will make it highly important in the generation of innovative startups in the entrepreneurial sector.

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON INNOVATION IN KARUR DISTRICT

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Artificial Intelligence (AI) is rapidly renovating how industries and services operate around the world. In Karur District, the adoption of AI technologies is at an early yet growing stage, particularly in textile manufacturing, agriculture, small-scale industries, healthcare, and education influencesation. Artificial Intelligence refers to computer systems capable of performing tasks that normally require human intelligence, such as learning, reasoning, and decision-making. AI innovations like machine learning, automation, robotics, and analytics are reshaping traditional practices, increasing efficiency, and generating new value. This paper examines how AI innovation in these sectors, using primary and secondary data sources to analyze adoption levels, outcomes, challenges, and opportunities.

BRANDING AND BRAND LOYALTY IN THE DIGITAL AGE

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In the modern digital era, branding and brand loyalty have evolved significantly due to the widespread use of digital platforms, social media, mobile technology, and data-driven marketing. Brands are no longer defined solely by logos, slogans, or traditional advertisements; instead, they are shaped by online presence, customer interactions, digital storytelling, and personalized experiences. This paper explores the concept of branding and brand loyalty in the digital age, examining how technology influences consumer perception, trust, and long-term commitment. It analyzes the role of digital marketing, customer experience, artificial intelligence, and social engagement in building sustainable brand loyalty. The study also highlights challenges faced by brands in maintaining authenticity, managing online reputation, and addressing data privacy concerns. The findings emphasize that successful brands combine technological innovation with emotional connection and consistent value delivery to achieve long-term competitive advantage.

BRANDING AND BRAND LOYALTY IN THE DIGITAL AGE

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In the digital era, branding has become a vital strategic function for organizations seeking a distinctive presence in competitive markets. The extensive use of digital platforms such as social media, websites, mobile applications, and e-commerce channels has transformed brand communication and customer interaction. Digital branding enables firms to connect with consumers through interactive and personalized engagement, influencing perceptions and purchase decisions. Brand loyalty, reflecting consumers' continued preference for a specific brand, is essential for long-term organizational success and sustainable growth.The study concludes that effective digital branding strategies contribute significantly to customer retention and competitive advantage. Organizations that efficiently utilize digital tools are better positioned to build lasting consumer relationships. The study offers useful insights for businesses to strengthen branding efforts and loyalty-oriented strategies in the digital marketplace.

COMPREHENSIVE BRAND STYLE: THE WHOLE BRAND LOOK

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With years of experience, talented marketing teams, and the ability to understand their audiences, made timeless brands certainly know how to keep consumers from getting bored. They're diligently aware of how their audiences are changing and modify their brand to meet those changes. If we take a closer look at a few of today's top brands that have remained consumer favorites over the years by consistently refreshing their brand identities (while staying true to themselves).The researchers brings out the concept clearly by describing the things taken into the topic for study, so the study adopted descriptive type of research. The sources of data taken for the study were secondary in nature. The marketing without branding mislead the organization in a difficult path. The nature and goodwill of the organization is judged based on the branding strategy adopted in its marketing. This article discusses about the branding and marketing themes to a great extent and its impact on the sale of a product is given in a complete picture, with needed information.

EMOTIONAL INTELLIGENCE AND EMPLOYEE ENGAGEMENT: EXAMINING THE ROLE OF AFFECTIVE COMPETENCIES IN THE CONTEMPORARY WORKPLACE

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Employee engagement has emerged as a critical determinant of organizational performance, sustainability, and competitive advantage. Simultaneously, emotional intelligence (EI) has gained increasing attention as a key individual capability influencing workplace attitudes and behaviors. This paper examines the relationship between emotional intelligence and employee engagement, proposing that emotionally intelligent employees are more likely to exhibit higher levels of engagement due to enhanced self-regulation, interpersonal effectiveness, and emotional awareness. Drawing on social exchange theory and affective events theory, the study develops a conceptual framework linking EI dimensions to cognitive, emotional, and behavioral engagement. The findings indicate a significant positive with self-awareness and relationship management emerging as the strongest predictors. It concludes with theoretical and managerial implications for organizations seeking to foster engagement through emotional intelligence development.

BUSINESS MODEL INNOVATION IN THE DIGITAL AGE: STRATEGIES, CHALLENGES, AND OPPORTUNITIES

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The rapid advancement of digital technologies has fundamentally transformed the way organizations create, deliver, and capture value, making business model innovation a critical strategic imperative in the digital age. Drawing on a comprehensive review of existing literature and contemporary industry practices, the study explores the role of digital technologies such as artificial intelligence, big data analytics, cloud computing, and digital platforms in reshaping traditional business models. The findings indicate that successful business model innovation is driven by strategic alignment between technology adoption and organizational capabilities, customer-centric value propositions, and agile decision-making processes. The study contributes to the growing body of research on digital transformation by providing insights into the strategic implications of business model innovation in the digital age.

BRAND MANAGEMENT IN A GLOBALISED WORLD

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In today's globalised economy, brands operate across multiple countries, cultures, and consumer segments. Brand management has evolved from simple product identification to a strategic tool for achieving competitive advantage worldwide. Globalisation has increased market integration, technological connectivity, and consumer awareness, making brand consistency and adaptability crucial. Brand management plays a crucial role in this globalized environment. A brand is not merely a name or logo but represents the image, values, quality, and emotional connection that consumers associate with a product or service. Effective brand management helps organizations differentiate their offerings, build customer trust, and create long-term loyalty.In a globalised world, brand managers face new challenges such as cultural diversity, language differences, changing consumer preferences, and intense global competition. Therefore, companies must adopt strategic approaches to manage brands successfully across international markets.

EMOTIONAL INTELLIGENCE AND EMPLOYEE ENGAGEMENT: A PATHWAY TO ORGANIZATIONAL EXCELLENCE

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Employee engagement is recognized as one of the core drivers of organizational performance in the 21st century. Recent research highlights emotional intelligence (EI) as a significant psychological factor influencing employee attitudes, motivation, and workplace behavior. This paper explores the relationship between emotional intelligence and employee engagement, examining how leaders and employees with higher emotional intelligence contribute to improved engagement, job satisfaction, and organizational effectiveness. The study reviews theoretical frameworks of emotional intelligence, discusses empirical findings linking EI with engagement, and proposes strategies for integrating EI development into human resource practices. The findings suggest that organizations that emphasize emotional intelligence training and emotionally intelligent leadership tend to foster higher levels of employee engagement, resulting in improved productivity, reduced turnover, and a positive workplace climate.

DESIGN AND IMPLEMENTATION OF AES-GCM BASED FORMAT-PRESERVING ENCRYPTION FOR CLOUD DATA

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Format-Preserving Encryption (FPE) addresses these challenges by maintaining the original data type and format after encryption. This paper presents an AES-based FPE approach for securing structured data in cloud environments. AES-GCM (Advanced Encryption Standard–Galois/Counter Mode) is a widely adopted encryption scheme in cloud computing due to its strong security guarantees and computational efficiency. It ensures both data confidentiality and integrity by encrypting the data and generating an authentication tag to detect any unauthorized modifications. The parallelizable nature of AES-GCM enables high performance, while its use of unique initialization vectors (IVs) introduces non-determinism, providing robust protection against replay attacks. Owing to its optimal balance between security and speed, AES-GCM is extensively used in cloud storage and communication systems.

HARNESSING MACHINE LEARNING AND IMAGE PROCESSING FOR ACCURATE BRAIN CANCER DETECTION

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One of the most deadly conditions, brain tumours must be identified early and accurately to increase patient survival rates. Traditional diagnostic methods, such radiologists' MRI analysis, are subjective and time-consuming. methods for machine learning (ML), Deep learning in particular has become a potent tool for increasing accuracy, decreasing human error, and automating tumour identification. This study offers an ML-based method for MRI image-based brain tumour detection. The effectiveness of several classification models in tumour identification is examined, including Random Forest, Support Vector Machines (SVMs), and Convolutional Neural Networks (CNNs). With an accuracy of 98.5%, experimental data show that CNNs perform better than conventional ML models. The paper recommends future paths for enhancing AI-based diagnostic tools and emphasises the value of deep learning in medical imaging.

A MULTI-STAGE HYBRID BILSTM–ENHANCED VISION TRANSFORMER FRAMEWORK FOR HIGH-PRECISION GLAUCOMA DETECTION

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Glaucoma is one of the leading causes of irreversible vision loss worldwide, and its impact can be significantly reduced through early detection, making accurate and timely diagnosis essential for vision preservation. This paper proposes a hybrid deep learning framework that integrates Bidirectional Long Short-Term Memory (BiLSTM) with an Enhanced Vision Transformer (EViT) for automated glaucoma detection using fundus images. The BiLSTM component effectively models temporal dependencies, while the EViT captures rich spatial relationships, collectively enhancing predictive performance. The proposed methodology involves four main stages: (1) image acquisition; (2) image preprocessing with data augmentation; (3) hybrid BiLSTM with Enhanced Vision Transformer learning for glaucoma disease prediction; and (4) experimental evaluation and comparative analysis with conventional deep learning models to demonstrate the effectiveness of the proposed approach. Experimental results on the RIM-ONE DL dataset indicate state-of-the-art performance, achieving 97% precision, 96.7% recall, 97.8% accuracy, and a 96.62% F1-score, thereby outperforming existing CNN-based and attention-based glaucoma detection methods.

INTERNET OF THINGS (IoT)

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The Internet of Things (IoT) refers to the interconnected network of physical devices embedded with sensors, software, and communication technologies that enable them to collect, exchange, and analyze data over the internet. This paradigm has transformed how individuals, organizations, and industries interact with the physical world by enabling real-time monitoring, automation, and data-driven decision-making. IoT applications span multiple sectors, including healthcare, smart homes, transportation, agriculture, and industrial manufacturing, where they enhance efficiency, productivity, and service quality. The widespread adoption of IoT presents challenges related to data security, privacy, interoperability, and scalability. It concludes that IoT has the potential to drive innovation and sustainable development, provided that technical, ethical, and regulatory concerns are effectively addressed.

SMART WASTE MANAGEMENT USING ARTIFICIAL INTELLIGENCE AND IOT

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The Eco Innovation and green technology is changing various organisations and surroundings around the world, transforms more sustainable and eco-friendly nature. Innovative technological developments such as electronic vehicle are reducing the impact of environment background and conservation of vitality. The green innovation technologies are the critical factors that improve the effectiveness of the sustainability goals. AI-driven technology plays a major role in the implementation process of green technology and increasing the possibility of sustainable opportunities. Incorporating the AI technology into the process of waste management system improves the efficiency and minimises the ecological impact. It also provides the effectiveness in the analysis of data and allows innovative decision making to attain the sustainable outcome. Eventhough the innovations are critical but the aim is to reduce, recycle and reuse.This article focuses on Green Technology innovations and the role of IoT in the environmental issues by creating the sustainability future for the next generations.

AI-POWERED BEHAVIORAL ANALYTICS FOR IMPROVING STUDENT ENGAGEMENT AND LEARNING OUTCOMES IN SOFTWARE ENGINEERING EDUCATION

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AI-powered behavioural analytics offer significant potential to enhance student engagement andlearning outcomes, particularly within the field of software engineering education. By harnessingmachine learning and data-driven insights, educators can identify engagement patterns, personalizelearning experiences, and intervene early with at-risk students (Aequitas, 2024; MeeGLE, 2025). Thispaper explores the theoretical foundations, implementation strategies, and challenges associatedwith deploying AI-driven behavioral analytics in software engineering curricula. Empirical evidenceand case studies are used to demonstrate their effects on student motivation, participation, andacademic performance across diverse educational contexts (Frontiers in Artificial Intelligence, 2024;Learning Gate, n.d.; San Diego University, 2025).

QUANTUM COMPUTING AND BIG DATA

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The rapid growth of Big Data has introduced significant challenges in data storage, processing, and analytics using classical computing systems. Quantum Computing, based on the principles of quantum mechanics such as superposition and entanglement, offers a promising paradigm to address these challenges. This paper explores the integration of Quantum Computing with Big Data analytics, highlighting potential advantages, current limitations, and future research directions. The integration of quantum computing in Big Data optimization presents a promising avenue for advancing data analysis, processing speed, and the resolution of currently insurmountable computational challenges. It explores the potential of quantum computing in optimizing Big Data processes, discussing key quantum algorithms, their applications, and the challenges in transitioning from classical computing paradigms. Quantum computing represents a paradigm shift in the field of big data analytics.

DEEP LEARNING TECHNIQUES AND NATURAL LANGUAGE PROCESSING

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Natural Language Processing (NLP) is a rapidly evolving field with a wide range of applications, from machine translation to sentiment analysis and question answering. Deep learning techniques have played a crucial role in advancing the state-of-the-art in NLP tasks, allowing models to learn complex patterns and representations directly from data. In this paper, we review recent developments in deep learning techniques for NLP, focusing on key advancements in areas such as neural network architectures, pretraining methods, and fine-tuning strategies. We discuss the rise of transformer-based models, such as BERT, and GPT, and their variants, which have achieved remarkable performance across a range of NLP tasks. We also explore techniques for handling challenges such as data scarcity, domain adaptation, and multilingual processing. Finally, we highlight promising directions for future research in deep learning for NLP, including the integration of symbolic knowledge, the development of more efficient models, and the exploration of multimodal approaches.

AN INTELLIGENT IoT-POWERED PLATFORM FOR ENVIRONMENTAL MONITORING

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The increasing need for effective environmental governance and sustainable development has led to the development of advanced environmental monitoring systems. This research focuses on designing and implementing an IoT-based adaptive automated water and air quality prediction system that leverages machine learning for rapid model deployment. Traditional environmental monitoring systems often rely on laboratory-based methods that require significant human intervention, which can be inefficient and slow.This phase demonstrates significant improvements in prediction accuracy for classifiers like Boost and Random Forest, achieving accuracies of 96.15% and 97.35%, respectively. The second phase introduces a Modified Deep Learning Neural Network (MDLNN) classifier and an adaptive incremental learning framework, achieving an impressive accuracy of 99.34% for water quality classification. The third phase focuses on predicting water-related diseases, employing a novel Jay Bird Optimization Algorithm (JBO-SMOTE) to enhance classifier performance, resulting in a 96.86% accuracy for the Gradient Boosting classifier.

SMART MONITORING USING IoT AND AI FOR INTEGRATED WATER RESOURCE MANAGEMENT

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Water is one of the most vital resources on Earth; however, it is becoming increasingly scarce due to over exploitation, inefficient distribution, pollution, and the impacts of climate change. Consequently, ensuring the sustainable use of water has become essential for future generations. Water sustainability refers to the responsible and efficient utilization of water resources to meet present needs without compromising their availability for the future. In this context, advanced technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI) play a crucial role in improving the monitoring and management of water resources. The integration of IoT technology into urban water systems enables the deployment of interconnected sensors that continuously monitor key parameters such as pipeline leakages, water quality indicators (pH, turbidity, and temperature), and overall distribution efficiency.

ADVANCED TRANSFER LEARNING TECHNIQUES TO INCREASE THE ACCURACY AND EFFICIENCY OF DEEP LEARNING MODELS

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Supervised learning, which employs labeled data, is the main emphasis of machine learning, whereas unsupervised learning deals with data that lacks labels. Conversely, reinforcement learning creates agents that learn the best course of action based on prior experiences. In a unique way, transfer learning uses information from related source activities to improve learning in a target task. Many machine learning models have continued to be single-task oriented in recent years. Using feature selection, extraction, and building techniques, this study investigates situations where transfer learning can be successfully applied from a source domain to a target domain. By producing a refined subset of the initial features, these techniques allow transformation into a new feature space.

PRIVACY-PRESERVING METHODS AND TECHNIQUES IN DATA ANALYTICS

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Privacy-preserving methods and Techniques in data analytics safeguard sensitive data against re-identification, linkage, and inference risks amid surging big data volumes. These techniques enable meaningful insights while adhering to regulations like GDPR and CCPA, striking a critical privacy-utility balance. Privacy-preserving methods and techniques aim to address these challenges by enabling useful data analysis, while minimizing privacy risks such as re-identification, data linkage attacks, and unauthorized inference. This paper explores key privacy – preserving approaches, including differential privacy, k-anonymity and its extensions, homomorphic encryption, and secure multi-party computation. In addition, emerging techniques such as federated learning and synthetic data generation are discussed for their role in reducing data exposure while maintaining analytical accuracy. Although privacy-preserving techniques may introduce challenges related to computational overhead and data utility, combining multiple approaches can effectively mitigate these limitations.

LANGUAGE TRANSLATION USING NATURAL LANGUAGE PROCESSING

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Language translation is an indispensable tool in today's interconnected world, facilitating communication and understanding across diverse cultures and languages. However, ensuring the originality and integrity of translated content remains a major challenge, especially in the context of plagiarism. This brief presents a new approach to language translation that prioritizes both originality and the ability to avoid plagiarism. Traditional translation methods often rely on verbatim or direct translation techniques, which can unintentionally lead to plagiarism or lack of originality. In contrast, the approach we propose emphasizes semantic understanding and creative adaptability to produce translations that are not only accurate but also distinctive and plagiarism-free. Language translation is a critical area of natural language processing (NLP) that has seen significant advancements due to machine learning. This paper explores the evolution of machine learning techniques for language translation, with a focus on neural networks, attention mechanisms, and transformers. Key applications and challenges are discussed, along with emerging trends that promise to redefine multilingual communication.

A COMPREHENSIVE SURVEY OF AI-DRIVEN CONTROL, PERCEPTION, AND COLLABORATION IN MODERN ROBOTIC SYSTEMS

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Robotics has developed into a revolutionary domain that combines mechanical engineering, electronics, computer science, and artificial intelligence to create smart machines able to execute intricate tasks independently or semi-independently.This research explores recent developments in robotic technologies, concentrating on self-directed navigation, interaction between humans and robots, and control systems driven by machine learning.The study utilizes a qualitative analytical method by examining modern academic articles and experimental research released from 2019 to 2024.Results show that integrating deep learning algorithms with sensor fusion methods greatly improves robotic perception, adaptability, and the accuracy of decision-making.In addition, collaborative robots show enhanced safety and effectiveness in industrial and healthcare settings.The paper highlights the increasing influence of robotics in various fields and stresses the importance of future studies aimed at developing scalable, ethical, and human-centered robotic solutions.

SURVEY ON PERFORMANCE ANALYSIS OF 5G NETWORK IN DIFFERENT AREAS

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Fifth Generation (5G) networks, which offer improved speed, capacity, and connection above earlier generations, have been deployed as a result of the quick development of wireless communication. A thorough performance analysis of 5G networks is presented in this research, with an emphasis on important metrics including latency, throughput, bandwidth utilization, and energy economy. The study assesses the performance of 5G under different traffic loads and environmental circumstances, examination of urban and rural locations, and network dependability for emergency services using simulation and analytical techniques. The findings show that, while maintaining low latency appropriate for real-time applications like loT and autonomous systems, 5G networks considerably exceed 4G in terms of data rate and spectrum efficiency. The results demonstrate how 5G has the ability to transform communication infrastructure and enable new technologies that need extremely dependable and fast connections.

RULE BASED ACO FOR INTERNET OF THINGS (IOT)

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Internet of Things (IoT) is a concept which enables communication between internetworking devices and applications, whereby physical objects or 'things' communicate through the Internet. The concept of IoT began with things classified as identity communication devices. Radio Frequency Identification Device (RFID) is an example of an identity communication device. Things are tagged to these devices for their identification in future and can be tracked, controlled and monitored using remote computers connected through the Internet. The concept of IoT enables, for example, GPS-based tracking, controlling and monitoring of devices; machine-to-machine (M2M) communication; connected cars; communication between wearable and personal devices and Industry 4.0. 1 The IoT concept has made smart cities a reality and is also expected to make self-driving cars functional very soon. Ant colony optimization (ACO) takes inspiration from the foraging behavior of some ant species. Ant colony optimization exploits a similar mechanism for solving optimization problems.

A REVIEW ON SOIL QUALITY MONITORING SYSTEM USNG IoT TECHNIQUES

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An Internet of Things-based system with an integrated soil sensor was used in this study to investigate soil health in sustainable agriculture. Nitrogen (N), phosphorus (P), potassium (K), pH, moisture, temperature, and electrical conductivity—all essential for optimal soil management—are all recorded in real time by the device from four fields. The sensor employs Internet of Things technology to send data to a central platform for analysis and presentation so that farmers can make educated decisions about soil care and fertilizer.

IoT for agricultural soil testing focuses on integrated systems using sensors microcontrollers (Arduino, ESP8266), and cloud platforms (Blynk, MongoDB) for real-time monitoring, with AI/ML enhancing nutrient recommendations, predicting crop needs, and improving water management, showing high accuracy (around 90-96%) and significant water/cost savings, enabling precision farming for better yields. Key papers discuss optical sensors for nutrients, deep learning for crop advice, LoRa for long-distance data, and field trials demonstrating yield boosts (15-20%) and reduced input costs (18%).

MACHINE LEARNING-DRIVEN RESOURCE OPTIMIZATION IN IOT-BASED WIRELESS SENSOR NETWORKS

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IoT-based Wireless Sensor Networks (WSNs) face significant challenges due to limited energy resources, dynamic traffic conditions, and heterogeneous node capabilities. Traditional resource management schemes are often static or heuristic-based, leading to inefficient energy usage and reduced network lifetime. This paper proposes a machine learning-driven resource optimization framework for IoT-enabled WSNs that dynamically allocates network resources using reinforcement learning. The framework adapts transmission power, routing paths, and duty cycles based on real-time network conditions. Simulation results demonstrate that the proposed approach extends network lifetime by up to 30%, reduces energy consumption, and improves packet delivery ratio (PDR) and latency compared to conventional protocols such as LEACH.

TRISOMY 21 SCREENING USING NOISE OUTLIER SUPPRESSION NETWORK AND, MASK EXTRACTION AND EXPANSION NETWORK

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Down syndrome (DS) is a genetic defect, as a result of having an additional chromosome 21 that presents with characteristic physical features and developmental delay (DD). To correctly and reliably interpreted images for DS evaluations clean, noise-free images and reliable segmentation are needed to maintain correct emphasis on facial features. This work provides a pipeline which uses the Noise Outlier Suppression Network (NOSN) for noise suppression, and the Mask Extraction and eXpansion Network (MaskX-Net) segmentation for the denoised image to improve the overall quality and confidence of DS image analysis. The NOSN method is effective at noise reduction and image reproduction. Compared to available filtering, noise and content are learned which passes images with more clarity and less distortion; The PSNR, SSIM and RMSE performances achieved for the proposed denoising was 16.14 (PSNR), 0.86 (SSIM) and 0.15 (RMSE) respectively, supporting a strong noise reduction performance while retaining an important level of detail. Following the denoising process, MaskX-Net approach was then utilized in turn for facial area segmentation in a more precise manner. Encoder-decoder setup used in MaskX-Net is advantaged in that it can extract fine details and huge spatial relations with tremendous complexity. Overall, they created precise masks with sharp edges by elaborating on at least the interference of the background.