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Editorial

We are delighted to extend a warm welcome to all participants attending the International Conference 2024 on 26th – 27th December 2024. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in multidisciplinary fields. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for International Conference 2024 contain the most up-to-date, comprehensive, and globally relevant knowledge across various disciplines. All submitted papers underwent rigorous peer-reviewing by 2-4 expert referees, and the papers included in these proceedings were selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results but also serve as a valuable summary and reference for further studies.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also appreciate the efforts of the technical program committee, reviewers, and authors for their dedication.

Since October 2024, the Organizing Committee has received more than 55 manuscript papers, covering various aspects of multidisciplinary research. After review, approximately 29 papers were selected for inclusion in the proceedings of International Conference 2024.

We thank all participants for their significant contribution to the success of the conference. Our gratitude extends to the keynote speakers, individual speakers, technical program committee, reviewers, and the organizing committee for their efforts in making this conference a reality.

Acknowledgement

The International Conference 2024, was successfully held in 26th – 27th December 2024. We extend our heartfelt gratitude to our colleagues, staff, professors, reviewers, and members of the organizing committee for their unwavering support in making this conference a success.

We would also like to thank all the participants who traveled far and wide to attend this conference and those who attended the event virtually, making it a truly global event. This conference provided a platform for students, professionals, researchers, and scientists to share their latest research and developments in various disciplines.

The aim of the conference was to promote research and development activities and to encourage scientific information exchange between researchers, developers, professionals, students, and practitioners from all around the world. Once again, we thank everyone who contributed to making this conference a resounding success.

Dr. Albert Munroe
President
Institute for Technical and Academic Research (ITAR)

Contents:

Abstract

Empowering Patients and Communities in Neurosurgical Care: The Northwest General Hospital's Community Engagement and Involvement Program at Peshawar, Pakistan

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Abstract:

Introduction: The Community Engagement & Involvement (CEI) Program at Northwest General Hospital (NWGH), Peshawar, Pakistan, in collaboration with NIHR Cambridge, is aimed at empowering neurosurgical patients and their families/carers to actively participate in their care, contribute to research activities, receive emotional support, and advocate for improved healthcare services and resources. Through this initiative, NWGH has established two groups: the Patient Advocacy Group, comprising patients with neurosurgical conditions, and the Community Group, composed of family members and primary caregivers.

Methodology: Acknowledging the unique challenges encountered by neurosurgical patients and their family members, NWGH's CEI Program targets and recruit patients and families from diverse backgrounds, age groups, socioeconomic statuses. Regular meetings are arranged at NWGH where patients and their families are provided free medical consultations by expert neurosurgeons, travel expenses and refreshments while they participate in the scheduled activities.

Results: The Patient Advocacy Group entails activities such as open discussions, support, and information sessions to address their non-medical needs. The Community Group employs activities such as educational workshops and caregiver support sessions. Patients and their families provide valuable insights to improve healthcare services and research initiatives at NWGH through regular feedback sessions. They also act as collaborators in research projects and provide their input in research designs and dissemination of findings to their respective communities. Patients and their family members regularly participate in NWGH's public awareness seminars as keynote speakers on prevention of neurosurgical conditions particularly prevention of neurotrauma and spina bifida.

Conclusion: NWGH ensures to successfully integrate patient and community perspectives into decision-making processes through Community Advisory Board, stakeholder mapping, participatory methods, priority setting exercises and deliberative decision-making processes to improve outcomes for neurosurgical patients and their families.

Investigation of Pupil Diameter Changes in Elite and Novice Badminton Players During Rest and Fatigue States

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Abstract:

A critical review of the literature revealed no study examining the perceptual-cognitive skills of elite and novice male badminton players under sport-specific physiological load based on pupil diameter.

Aim: The aim of the present study is to examine the changes in pupil diameter as a variable in the prediction skills of badminton players when subjected to video stimuli under physiological load induced by a test designed to suit the nature of the sport.

Method: A total of 14 novice and 17 elite male athletes participated in the study. The changes in pupil diameter during the prediction tasks were examined while the badminton players watched a video clip of the 2015 Japan Open men's singles final. This was done in both resting conditions and after the athletes underwent physiological load (heart rate) created by the Abian Intermittent Recovery Badminton Test (AIR-BT), which is specific to badminton.

Findings: When examining the research findings, it was observed that elite athletes performed significantly more repetitions (level, distance, and time) than novice athletes during the AIR-BT test, which applied physiological load ($p<0.05$). In terms of heart rate, novice athletes exhibited higher heart rates in fatigue conditions compared to elite athletes ($p<0.05$). While no significant differences were found between the left and right eyes of both elite and novice athletes in terms of pupil diameter, an increase in pupil size was observed in both groups compared to baseline ($p<0.05$). Regarding correct and incorrect responses to the video stimuli, no significant difference was found for the novice athletes in either rest or fatigue conditions, while a significant difference was found for the elite athletes between correct/incorrect responses in both rest and fatigue conditions ($p<0.05$).

Discussion And Conclusion: In general, the findings indicate that novice athletes under high physiological load have very low ability to anticipate their opponent's shots, while elite athletes demonstrate a high level of prediction ability. According to the pupil diameter results, both elite and novice athletes exhibited an enlargement of pupil diameter compared to baseline when exposed to stimuli.

Keywords:

Badminton, Pupil Diameter, AIR-BT, Acute Fatigue.

The Motivation of Stakeholders Providing Recreation Services and Sponsoring in Municipalities

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Abstract:

“It has been revealed that, at the suggestion of Churchill, a Conservative cabinet discussed the possibility of using ‘Keep Britain White’ as an electoral slogan as early as 1955 (MacMillan, 1973)”

I have conducted many interviews with my family, about a diasporic upbringing, about their varying views of growing up in a big family, about the love shared between children and parents and especially about the huge love we collectively share for a woman who no longer has the opportunity to hear it. Whilst conducting one of these interviews, it struck me that talking about culture and diaspora cleanly linked to notions of race and (especially) the impact Britain has had on one member of my family. It didn’t mean that we were not all affected, but it was the lengths in which he had tried to hold onto his culture, hold onto his race which juxtaposed the deep pain he had been carrying and the fact he believed the only way he could heal was to be white. He wanted to be white so he could stop standing out, so he could stop being taunted, so he could stop being ridiculed for something that he had no control over. Dabiri expresses as a reflection of her own childhood, that we as black people, “are the manifestation of all the fantasies, fears and desires that have been absorbed by a population fed a steady diet of racist discourse. You are constantly under surveillance. You become achingly aware of your every gesture; your movements, your very posture, are at all times under analysis.” Listening to my favourite Uncle, who is handsome, strong, intelligent, kind, athletic, musically talented and who I always will looked up to, hurt me deeply.

Psychophysiological Evaluation of the Shooting Performance of Air Pistol Shooters

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Abstract:

The present study aimed to investigate the relationship between the physiological parameters exhibited by air pistol shooters of different skill levels in pressure condition (PC) and the control condition (CC). Twenty-eight (n=14 novice and n=14 elite) shooters volunteered to participate in the study. The shooters' shooting score, pupil diameter, skin conductance (SC) and heart rate (HR) during the aiming phase were recorded for a total of 20 shots (10 CC and 10 PC). There was a moderate positive correlation between pupil diameter and HR in both CC and PC shots of the elite group ($p<.05$). In the novice group, there was a negative and moderate relationship between pupil diameter and score in the CC and a moderate positive relationship between pupil diameter and HR in the PC ($p<.05$). When all shooters were evaluated together, it was observed that there was a high level of negative correlation between score and HR and a moderate level of negative correlation between score and pupil diameter in the CC ($p<.01$). Also, a moderate negative correlation was found between score and HR and pupil diameter in the PC ($p<.01$). There was a positive correlation between HR and pupil diameter and a negative correlation between HR and score. It is recommended that athletes perform long-term cardio exercises to lower their HR and learn to control their HR with breathing exercises to improve their performance.

Keywords:

pupil diameter, heart rate, skin conductance, shooting sport.

Unlocking Wallets in the Digital Age: A Dive into E-Wallet Usage and Spontaneous Spending Habits among Saudi Gen Y and Gen Z

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Abstract:

In the era of digital transformation, this research delves into the factors influencing the perceptions of Generation Y and Generation Z regarding their use of electronic wallets (e-wallets) and their corresponding levels of satisfaction. The study investigates whether users' reported satisfaction and delight with e-wallets have a significant impact on their inclination towards impulsive spending. Employing Partial Least Squares Structural Equation Modeling (PLS-SEM), data collected from 416 valid responses of current e-wallet users through an online questionnaire was analyzed. The findings reveal that perceived interaction and social norms have a positive influence on users' reported satisfaction and delight in using e-wallets. Furthermore, visual appeal strongly influences reported delight, although it does not significantly impact satisfaction. On the other hand, perceived riskiness demonstrates negligible effects on both satisfaction and delight. Additionally, the study uncovers that while overall contentment with an e-wallet does not significantly correlate with impulsive spending tendencies, the perceived Enjoyment derived from using an e-wallet does show a noteworthy association with such behavior.This research contributes to understanding the intricate dynamics of e-wallet usage and impulsive spending habits among the tech-savvy Saudi Generation Y and Generation Z. The implications of these findings open avenues for further exploration and offer valuable insights for industries operating within the digital payment ecosystem.

Keywords:

Mobile wallet usage User satisfaction Impulsive spending · Smart Shopping Savings Target, Cashless Transactions

The Big Data a nalysis of the Chinese Medicine Tongue Characteristics and Ryodoraku in the Chronic Illness Patients

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Abstract:

As Taiwan transitions into an aging society, the number of patients with multiple chronic diseases is increasing. According to the National Health Insurance Administration, these patients are the primary users of healthcare resources, which leads to challenges in medical efficiency and resource allocation within a highly specialized healthcare environment. Given the complexity of care for the elderly and their multiple comorbidities, an integrated care model is necessary to address these issues effectively. Chronic kidney disease (CKD) and diabetes mellitus (DM) rank among the leading causes of death in Taiwan [1]. Traditional Chinese Medicine (TCM) uses tongue diagnosis as a key diagnostic method to assess physiological and pathological changes. This study employs a computerized TCM tongue diagnosis system [2][3][4][5] to objectively capture tongue features of CKD and DM patients. Non-invasive imaging techniques analyze tongue characteristics and compare them to those of healthy individuals to identify significant differences. Additionally, this research utilizes a Ryodoraku measuring device [6][7][8][9] to assess the electrical conductivity of acupuncture points and meridian activity. Combined with clinical blood test data, this study integrates tongue diagnosis, autonomic nervous system balance, and meridian analysis to establish a comprehensive database for chronic diseases in Taiwan. The methodology involves data preprocessing, addressing class imbalance with SMOTE [10], and feature extraction using the XGBoost[11] model. Significant tongue and meridian features are identified for CKD and DM patients. Key findings reveal correlations between tongue features, meridian activity, and Western medical indicators such as blood calcium and kidney function. The results demonstrate that TCM features offer valuable insights for predicting disease stages and outcomes, achieving a high R^2 value [12] of 0.99. This research contributes to the development of a scientifically grounded, TCM-based chronic disease diagnostic system, enhancing integrated care for chronic disease patients.

Keywords:

Big-Data of Chinese Medicine, Ryodoraku Analysis, Precision Medicine, Smart Healthcare.

Business Model Innovations in a Post-COVID World

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Abstract:

The COVID-19 pandemic has transformed businesses and economies in significant ways. This paper provides an overview of some of the key business model innovations that have happened as a result of the pandemic. In particular, it provides insights into how U.S. businesses are innovating their practices, either through a pull or a push strategy, in order to stay globally competitive. The paper also highlights some lessons and opportunities that other countries could tap into in a post-pandemic world.

Keywords:

COVID, Pandemic, Business Model Innovation, Economic Impact.

Revisiting Intra-industry Trade and Revealed Comparative Advantage on the Thai Gem and Jewelry Industry

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Abstract:

Thai Gem and Jewelry Industry has a prominent role in domestic trade development due to being the source of export income and an important source of employment in the market sector. This research reviews and analyzes Comparative and Competitive Advantages in the Thai Gem and Jewelry Industry by using the Intra-Industry Trade (IIT) Index, Marginal Intra-Industry Trade (MIIT) Index Revealed Comparative Advantage (RCA) Index, and Relative Trade Advantage (RTA) Index in recent data from 2004 to 2024. Gems and Jewelry export values were accumulated and presented by analyzing data from Thailand and foreign data which used the same industry trade index model and the Revealed Comparative Advantage model. It was found that IIT was taking place at a high level. Higher quality trade was taking place between 2004 and 2023. Low-quality products were exported in some years. The gem and Jewelry industry had a comparative disadvantage throughout the reference period.

Keywords:

Intra-Industry Trade, Grubel-Lloyd Approach, Gem and Jewelry Industry, Helpman and Krugman's general equilibrium model.

The Spirit of God and Spirits in African Adventism: Seventh-day Adventists within the Rupture and Continuity of Ancestors' Beliefs

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Abstract:

The intersection of traditional African beliefs in ancestral spirits and the Christian concept of the Spirit of God has been a subject of ongoing exploration within African Seventh-day Adventism. This paper examines the dynamics of rupture and continuity between ancestral beliefs and the Christian framework of the Spirit of God. It delves into the theological and cultural tensions that emerge as traditional beliefs intersect with Christian ideology. The author uses the doctrine of the Great Controversy as a framework to evaluate the struggles of Adventist mission in Africa, where ancestral veneration remains a deeply rooted practice.

The Role of Modified Shaker Exercises in Dysphagia and Nasogastric Feeding in an Individual with Triple X Syndrome: A Case Study

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Abstract:

Introduction: Triple X syndrome is the most prevalent chromosomal abnormality affecting females, characterized by features such as tall stature, microcephaly, hypertelorism, congenital anomalies, and delays in motor and language development.1 Remarkably, due to the patients' completely typical appearance at birth, only approximately 10% of these cases are clinically recognized.1 While distinct phenotypic characteristics are not evident in the neonatal period, congenital anomalies, particularly those involving the urogenital system, are noteworthy.This case study examines an individual with Triple X syndrome who developed swallowing difficulties, necessitating the use of a nasogastric tube and percutaneous endoscopic gastrostomy for feeding. However, the implementation of swallowing therapy enabled the individual to transition to oral feeding. The function and significance of swallowing therapy in an individual diagnosed with Triple X syndrome is emphasized.

Case Study: At the age of three, the female patient required a nasogastric tube for nutritional support due to an inability to swallow, which manifested at one year of age. Based on the patient's medical history, a diagnosis of Triple X syndrome was established at 3 months of age, with no reported consanguinity between the parents and an uneventful first pregnancy for the mother, resulting in a 3200g cesarean delivery. Swallowing difficulties emerged at 5 months, accompanied by frequent upper respiratory infections, postural instability, speech, swallowing, and voice problems, as well as developmental delays. The patient has relied on nasogastric tube feeding for the past 3 years. Evaluation revealed weaknesses in swallowing, chewing, and feeding, with radiographic evidence of silent aspiration, difficulty swallowing water with associated coughing and facial flushing. Additionally, limited tongue rotation, buccal weakness, normal palatal structure, impaired chewing function, reduced gag reflex, and diminished voice intensity were observed.

Conclusion: The patient underwent a systematic two-session-per-week swallowing and feeding therapy regimen lasting 12 weeks. Dysphagia and feeding difficulties, coupled with weak chewing postures, represent a significant challenge for individuals with Triple X syndrome. This adversely

affects the child's ability to eat comfortably and contributes to gastrointestinal problems, necessitating swallowing and feeding rehabilitation.

The study findings indicate that the modified Shaker exercise stimulated the infrahyoid and suprahyoid muscle groups, leading to increased anterior movement of the hyoid bone and elevated hyolaryngeal structures. This, in turn, widened the upper esophageal sphincter. The modified Shaker exercise was shown to have a positive impact on the progression of swallowing and feeding in the patient with Triple X syndrome.

Spatial Analysis Framework for Transport Infrastructure Planning

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Abstract:

This study presents a comprehensive spatial analysis framework for transport infrastructure planning and evaluation. The research integrates multiple analytical layers, including infrastructure mapping, policy interventions, and economic assessments, with a strong emphasis on geospatial components. The spatial analysis framework incorporates INSPIRE Metadata Implementing Rules and utilizes GIS-based approaches to process and analyze transport infrastructure data. The methodology includes the development of .shp files for various spatial components, including TEN-T core network corridors, multimodal terminals, and transport flow patterns.

The research employs an advanced hierarchical data structure integrating historical investments, planned developments, and modelled transport flows.

The resulting analysis facilitates investment planning and resource allocation strategies, providing a robust foundation for evidence-based decision-making in transport infrastructure development. The study develops an integrated economic-mathematical model that combines spatial data with econometric input-output analysis to evaluate policy interventions and infrastructure investments. The analysis discovered significant geographical and seasonal fluctuations in infrastructure utilization, demonstrating the importance of location-specific planning approaches.

The developed analytical tool allows for scenario analysis through spatial calibration and can be enhanced with additional geographical criteria.

Keywords:

spatial analysis, transport infrastructure planning, GIS mapping, policy evaluation.

WELLCAST - Welfare Empowered Multi-Agent Learning and Bidding System for Corporate Transformation – An Initial Outlook

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Abstract:

The WELLCAST project aims to develop a middleware solution that integrates a chatbot system with a web portal to offer corporate welfare services. This system leverages artificial intelligence and machine learning to profile users based on demographic, psychographic, and behavioral data. By matching these profiles with welfare service offerings, WELLCAST provides personalized recommendations, enhancing the relevance of services while minimizing false suggestions. The architecture incorporates both structured and semi-structured data, enabling dynamic profiling and adapting to users' evolving needs. During testing, WELLCAST will be trained on a set of offers from a welfare provider, and its performance will be evaluated on five distinct customer profiles. The goal is to create a user-friendly system capable of supporting organizations in offering intelligent, dynamic, and personalized welfare services while improving user satisfaction and engagement.

Keywords:

chatbot, artificial intelligence, welfare, profiling

Small State and International Politics: How Kuwait and Oman Hedge?

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Abstract:

The current international system is transforming, and polarity has been questioned since the US dominance has decreased. In contrast, non-Western powers like China and Russia have become more active in global politics. It is more likely to state uncertainty and ambiguity about the current international system and regional politics. This transformation in the international system directly affects Middle East politics and the small Gulf states in the region. In this regard, Kuwait and Oman have been trying to adapt themselves to these changes. To respond to the impacts of the international and regional political climate and to preserve their kingdom, Kuwait and Oman selected a hedging strategy to prepare themselves for challenges. The hedging allows flexibility and enables manoeuvrability in foreign policy.

Similarly, hedging allows Kuwait and Oman to diversify foreign policy actors. Therefore, this study argues that Kuwait and Oman follow a hedging strategy by considering the transformation in the international and regional systems. Seeking strategic autonomy and decreasing the dependency on the US, Kuwait, and Oman preferred hedging strategy towards new regional dynamics. In this vein, both small sheikhdoms increased their engagements with China and Russia. Their rapprochement with China and Russia is not based on ideology but pragmatism. For example, the Ukraine war proved that Kuwait and Oman do not obey the dictates of the US since they favour sanctioning Russia even though they define Russia as an invader. Therefore, the paper examines how Kuwait and Oman pursue hedging strategies

How Does Climate Change Challenge the Effectiveness of Environmental Policies? Evidence from Air Pollution in Canada

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Abstract:

This study examines the evolving dynamics between environmental policies and emerging climate-related challenges in Canadian air quality management. Although regulatory frameworks have effectively reduced anthropogenic air pollution across provinces, the accelerating climate change, which is measured in terms of wildfires in the study, presents significant counteracting effects. Employing extended STIRPAT model, we analyzed air pollution determinants across 10 Canadian provinces from 1995 to 2020, with particular attention to wildfire events and energy price fluctuations. Regression analyses demonstrate a significant negative correlation between environmental regulations and pollution levels ($p < 0.01$), while revealing strong positive correlations between wildfire occurrences and air pollution metrics ($R^2 = 0.92$). Our results indicate that traditional pollution control frameworks may require substantial modification to address climate-driven challenges. This research contributes to the growing body of literature on climate change adaptation in environmental policy, while demonstrating the utility of extended STIRPAT modeling for comprehensive environmental assessment.

Keywords:

Environmental Policy, Climate Change, Air Pollution, Canada, STIRPAT Model, Wildfire Impact

Covid-19 Vaccine Social Media Campaign and Port Harcourt Residents' Response Rate to Vaccine Uptake

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Abstract:

This study investigated the impact of social media campaigns on COVID-19 vaccine uptake rate among Port Harcourt residents. The study was predicated on two theories - The Health Belief Model and Uses and Gratification theories. The specific objectives of the study were to find out the extent to which Port Harcourt residents are exposed to social media campaigns about COVID-19 vaccine uptake, to ascertain the extent to which Port Harcourt residents participate in social media campaign about COVID-19 vaccine uptake, determine which social media platform gave prominence to issues relating to COVID-19 vaccine in Port Harcourt and the extent to which social media campaigns influenced COVID-19 vaccine uptake in Port Harcourt. Descriptive research survey was adopted and a sample size of 400 respondents was generated from the study area which comprised Port Harcourt City Local Government and Obio-Akpor Local Government Areas of Rivers State with a total population of 921,654 according to 2006 NPC records. Instruments for data collection included questionnaires and structured interview which were used to elicit information from the respondents and analysed using qualitative and quantitative method. Findings revealed low response rate of vaccine uptake from majority of respondents despite aggressive social media campaigns. The study further revealed that although Port Harcourt residents are highly exposed and are active users of social media platforms, they however preferred the use of traditional media especially radio for campaign on COVID-19 vaccine. The study suggested prioritizing social media and traditional media for vaccine campaigns by the government, health workers, and the Nigeria Centre for Disease Control and Prevention. It also recommends leveraging the online influence of community leaders, celebrities, and public servants to promote COVID-19 vaccination, aiming to increase uptake and combat the virus in Port Harcourt, Rivers State.

Keywords:

Social Media, Communication Platforms, Radio, COVID-19, Vaccine Uptake, Rivers State.

Green Hushing: A New Sustainability Paradigm

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Abstract:

The dissemination of green initiatives is become a subject of controversy. Since Greenwashing's negative effects on businesses' reputations and harsh criticism, Green-hushing appeared. Businesses have tended to communicate with greater caution. As a result, the desire to conceal green initiatives and the unwillingness to disclose them to the public are reflected in the new idea in the literature, "green hushing". This study examines how the idea of "green hushing" developed, its theoretical foundation, and its significance for strategies of communication and environmental performance. Based on this, research questions and recommendations are posed on strategies that businesses might use to combat the green-hushing trend. The study reveals that green hushing, a new concept, should be investigated with empirical studies as a result of sustainability efforts. Long-term, this unfavorable trend could lead to a lack of openness and an erosion of social trust. Therefore, it is necessary to carry out scientific research.

Keywords:

Green hushing, greenwashing, sustainability, green strategies, green silence.

Utilizing Linear Classifiers for the Early Detection of Neoplastic Conditions in Canines and Felines

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Abstract:

Neoplasms are a significant health issue in both dogs and cats, with variations in prevalence and severity. Skin tumors are the most common in dogs, accounting for about one-third of all tumors, with female dogs experiencing cancer at three times the rate of males. Over 50% of neoplasms occur in dogs aged 6—14 years, with 20—30% being malignant [1]. In contrast, cats have a higher malignancy rate, with 78.7% of tumors being malignant, and among 685 feline cases, 56% were epithelial tumors [2]. Cancer leads to 15—30% of deaths in dogs and 26% in cats [3]. The disease type at diagnosis is critical for determining prognosis and treatment in companion animal neoplasms. It influences the tumor's growth, spread, stage, and the timing of diagnosis or treatment [4]. Early diagnosis is essential to reduce fatalities and high medical costs, enabling timely intervention and increasing the likelihood of successful, less invasive treatment.

Fine-Needle Aspiration Cytology (FNAC) is considered the gold standard for diagnosing skin tumors in veterinary medicine. This method uses a thin needle to extract cells from a mass, which are then examined microscopically for neoplastic cells [5]. Research by G. Pavel et al. (2016) Formatting... showed that in dogs, FNAC provided a definitive malignant diagnosis in 52.2% of cases, while 47.8% remained inconclusive. In cats, it accurately diagnosed only 40% of cases, requiring further tests in the remaining 60% [6]. Another study highlights the limitations of FNAC, with its sensitivity and specificity for detecting malignancy at 68.6% and 77.2%, respectively [7].

Machine learning can assist pathologists by automatically identifying features in microscopic images and classifying them by tumor type or as healthy versus cancerous tissue. While it has proven effective in diagnosing various cancers from histopathological images in human medicine [8-10], its application in veterinary medicine is still developing. Dank et al. (2023) demonstrated good accuracy, sensitivity, and specificity using a support vector machine classifier on tumor thermal images with leave-one-out cross-validation [11]. However, this study relied on optical imaging tools that are uncommon in veterinary clinics.

Recognizing the importance of early detection, our research focuses on using advanced techniques to diagnose neoplasms at their initial stages by modeling our method accordingly. We apply machine learning linear classifiers to analyze brightfield microscopy images of hematoxylin and eosin (H&E) stained histopathology slides. These classifiers - including linear discriminant analysis (LDA), support vector machine (SVM), Naive Bayes (NB), decision tree (DT), and nearest neighbors (NN)-are aimed

at distinguishing soft tissue sarcomas, mast cell tumorsand non-neoplastic tissues, offering a promising approach for early and accurate cancer diagnosis in veterinary medicine.

The results show that healthy tissue can be differentiated from early-stage mast cell formations with an accuracy of 71.0—91.0%, sensitivity of 68.0—89.0%, specificity of 74.0—95.0% and precision of 72.3—94.4%. Healthy tissue can be distinguished from early—stage sarcoma formations with an accuracy of 68.5—91.5%, sensitivity of 70.0—92.0%, specificity of 67.0—91.0%

and precision of 68.0—91.1%. Additionally, early-stage sarcomas can be differentiated from early-stage mast cell formations with an accuracy of 68.0—89.0%, sensitivity of 69.0—89.0%, specificity of 67.0—89.0% and precision of 67.6—89.0%.

Comparatively, some of our machine learning algorithms demonstrate higher performance than FNAC, highlighting the potential of machine learning classifiers in enhancing early-stage cancer detection in veterinary medicine. By differentiating between healthy and neoplastic tissues, these advanced techniques offer a promising approach to improving diagnostic accuracy and treatment outcomes in companion animals.

Evaluation of the Effect of La Addition to Mg-Sn Alloy on Microstructure and Mechanical Properties

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Abstract:

Biyobozunur malzemeler son 20 yıldır oldukça fazla ilgi görmektedir. Magnezyumun düşük mekanik ve korozyon özellikleri farklı teknikler kullanılarak geliştirilmektedir. Bu çalışmada, yüksek basınçlı döküm yöntemi kullanılarak magnezyum-kalay-Lantan esaslı alaşımların üretimi gerçekleştirilmiştir. Bu çalışmada döküm Mg-4Sn-xLa v (x=%1, 2 ve 4) magnezyum alaşımlarının mikroyapı ve mekanik özellikleri incelenmiştir. Alaşımların mikroyapı özellikleri alan emisyonlu taramalı elektron mikroskobu (FE-SEM), enerji dağınımlı element (EDS) analizi ve X-ışını difraksiyon (XRD) analizi kullanılarak incelenmiştir. Elde edilen alaşımların mekanik özelliklerinin belirlenmesi için nanoindentasyon, mikrosertlik ve çekme testleri yapılmıştır. Sonuçlar Mg-Sn alaşımına La ilavesi ile tane boyutunun azaldığını, yeni fazların oluştuğunu optimum mekanik özelliklere ise ağırlıkça %2 La ilavesi ile elde edildiğini göstermiştir.

Biodegradable materials have attracted considerable attention for the last 20 years. The low mechanical and corrosion properties of magnesium are being improved using different techniques. In this study, the production of magnesium-tin-lanthanum based alloys was carried out using the high-pressure casting method. In this study, the microstructure and mechanical properties of Mg-4Sn-xLa v (x=%1, 2 and 4) magnesium alloys were investigated. The microstructure properties of the alloys were examined using field emission scanning electron microscopy (FE-SEM), energy dispersive spectroscopy (EDS) and X-ray diffraction (XRD) analysis. Nanoindentation, microhardness and tensile tests were performed to determine the mechanical properties of the obtained alloys. The results showed that the grain size decreased with the addition of La to the Mg-Sn alloy, new phases were formed and optimum mechanical properties were obtained with the addition of 2% La by weight.

Olive Pomace Supports the Production of Enzymes of Interest

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Abstract:

Olive oil production is one of the most important agricultural industries of the Mediterranean region like Algeria that has a very important olive sector. During the olive oil extraction process various by-products are generates in massive quantities, liquid such as wastewater and also solid such as olive pomace. These by-products have been considered as major environmental pollution that requires effective treatment due to its low pH, elevated salt and high organic acid concentration turns them into phytotoxic materials. The effective management of this by-products is necessary and quite often expensive. Actually, the phenolic compounds extracted from by-product of olive oil can be used as natural antioxidants and antimicrobial additives to improve the conservation and nutritional properties of food products. So, recovery and treatment procedures can support effective waste management which can increase the sustainability of the olive oil sector and result in worthwhile economic advantages. The objective of the present work is to study the valorization of this olive pomace through fermentation by the use of microorganisms and their application in enzyme production. The microorganisms extracted from the olive pomace was studied morphologically and its ability to produce extracellular enzymes was carried out. The solid fermentation gave rapid development of the microorganisms with a maximum production of lipase and cellulase during the second and the third day. This result opens the way for the valorization of olive pomace that has a microbiota profile that allows spontaneous fermentation and can be carried out in order to implement the production of metabolite of interest using it as the main substate.

Keywords:

Olive pomace, lipase enzymes., lignocellulolytic enzymes, fermentation media, optimization.

Development of a Savory Biscuit Made from Whole Flour Derived from Olive Pomace

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Abstract:

In Algeria, biscuit production holds a significant position in the agri-food sector. The increase in demand has led to intensified competition and consumer demands, not only regarding organoleptic quality but also nutritional quality. A wide variety of exhibited biscuits are based on refined wheat flour and white sugar. However, these compounds can lead to health issues due to their low content of minerals and fibers, consequently resulting in a high glycemic index. Substituting this flour with complete biosourced flour is of great interest. This work is carried out in this context with the aim of formulating a savory biscuit using olive pomace flour. The characterization of this flour is based on referenced methods. The main analyses performed include moisture, acidity, color, fat content, pigments, crude fibers, ashes, polyphenols, and their antioxidant activity. The formulation process has been optimized. Sensory analysis of the formulated biscuits was conducted with a panel of tasters. The flour was characterized by remarkable levels of crude fibers, carotenoids, polyphenols, and interesting antioxidant activity. The elaborated biscuits were appreciated by the panel as a healthy and natural product, particularly regarding taste and consistency.

Keywords:

biscuits, pomace, flour, formulation, characterization, sensory analysis.

Sleep Habits in Swedish Children and Adolescents - A Longitudinal Study

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Abstract:

Introduction: Sleep length recommendations for Swedish school-aged children and adolescents are 9-11 h for children aged 6-13 years and 8-10 h for adolescents aged 14-17 years. The aim was to investigate sleep length in school-aged children and adolescents from 6 to 16 years in a longitudinal study, and to investigate if shorter sleep length than recommended was associated with experience of being tired at school.

Methods: A survey was distributed to the students at 4 time points, at age 6 (n=560), 10 (n=1253), 14 (n=1489) and 16 (n=1449) in a municipality in southern Sweden. At the age of 6, the guardians responded to the survey, and at the other time points, the survey was completed by the students.

Results: The mean sleep duration decreased during the period. At age 6, the mean sleep duration was 10.2 h (SD .64), at age 10 the mean sleep duration was 9.5 h (SD .63), at age 14 the mean sleep duration was 8.1 h (SD .98) and at age 16 the mean sleep duration was 7.1 h (SD 1.0). Sleeping less than recommended was associated with being tired at school ($p < .05$).

Conclusion: The younger age group achieved the recommended sleep length, however, the oldest age group, at 16 years, they slept less than recommended. Sleeping shorter than recommended was associated with being tired at school.

Micromachining of Co-Cr-Mo Alloy Surface with Femtosecond Laser

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Abstract:

Micromachining with the femtosecond laser as a new technology for modifying the surface of various dental materials is attracting great interest and is constantly evolving. In this work, the material of interest was the Co-Cr-Mo casting alloy used in dentistry. This is because its use weakens the properties of dental appliances. They should therefore be improved. To this end, in this study, the surface of a cast Co-Cr-Mo dental alloy was micromachined with different parameters of the femtosecond laser, i.e. with three laser powers and three scanning speeds. The morphology was analyzed with a scanning electron microscope. The hardness was measured using the Vickers method. The results showed that the optimum morphology was achieved during micromachining with a laser power of 0.7 W and a scanning speed of 0.005 m/s.

Keywords:

dental alloy, femtosecond laser, hardness, micromachining, morphology.

Contextualizing the UCLA PEERS Program: A Culturally Adapted Model for Pakistani Parents and Teachers of Adolescents with Autism Spectrum Disorder

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Abstract:

Autism Spectrum Disorder (ASD) significantly affects social, linguistic, and behavioral development, posing challenges for adolescents in building peer relationships. The Program for the Education and Enrichment of Relational Skills (PEERS®), an evidence-based intervention, has demonstrated effectiveness globally but requires cultural adaptations for non-Western contexts. This study introduces a culturally adapted UCLA PEERS® model for Pakistani parents and teachers to enhance social skills in adolescents with ASD. A total of 98 adolescents (M age = 14.39, SD = 1.80), along with 98 parents (M age = 41.60, SD = 3.90) and 63 teachers (M age = 36.63, SD = 7.80), participated in a 14-week intervention conducted in Islamabad and Rawalpindi.

Statistical analyses revealed significant improvements in the experimental group's social skills knowledge post-intervention compared to pre-intervention, with $F(1, 93) = 41.23$, $p < .001$, $\eta^2 = .30$. No significant changes were observed in the control group. Parents and teachers in the experimental group reported enhanced understanding and application of social skills strategies, which positively influenced adolescents' peer interactions and adaptive behaviors.

This culturally adapted PEERS® model demonstrates its efficacy in improving the socialization outcomes of Pakistani adolescents with ASD. The findings highlight the importance of culturally sensitive interventions to meet the unique needs of diverse populations, offering implications for educators, clinicians, and policymakers.

Keywords:

Autism Spectrum Disorder, PEERS®, Social Skills Training, Adolescents, Cultural Adaptation, Evidence-Based Interventions, Pakistan.

Qualitative and Quantitative Analysis of DASH Diet for Hypertension Patients

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Abstract:

Numerous studies have confirmed that the adopting the DASH diet and adjusting healthy lifestyle can effectively control blood pressure (BP). However, maintaining and implementing healthy dietary and lifestyle practices over the long term poses challenges. Therefore, this study integrates analytic hierarchy process (AHP), fuzzy multi-choice goal programming (FMCGP) and non-linear multi-segment goal programming (NLMSGP) to be a novel personal healthy support model (PHSM) aimed at addressing the personalized issues related to dietary plans, exercise plans, and healthy lifestyle recommendations. Based on this model, a comprehensive recommendation for dietary planning and healthy lifestyles is provided to address hypertension. The model will be based on the thesis of DASH diet to establish an effective diet plan and healthy living habits program. The purpose of the study is to assist hypertension patients in designing daily personal dietary menus and healthy lifestyle recommendations to achieve their BP control goals. The model will have the following contributions: Based on the individual's gender, age, and activity level, the proposed model can be used to (1) calculate the daily calorie, nutrients recommendations and six food groups' needs; (2) provide an effective exercise plan; (3) FMCGP technology is used to provide individuals with dietary and healthy lifestyle advice solutions to achieve the goal of BP control. These advantages are of great benefit to both hypertensive and healthy individuals. The PHSM not only takes into account multiple qualitative and quantitative criteria for the diet and healthy living habits of hypertension patients, but also improves the country's health care services and health care expenditures. In addition, a novel NLMSGP method will be investigated.

Keywords:

DASH (dietary approaches to stop hypertension), fuzzy multi-choice goal programming, non-linear multi-segment goal programming, personal healthcare.

The Evolution and Strategic Importance of Project Finance in Large-Scale Infrastructure Projects: A Comprehensive Review

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Abstract:

Project finance (PF) has emerged as a pivotal tool for financing large-scale infrastructure and engineering projects, fostering economic development while addressing the complexities of high-risk environments. Unlike traditional corporate financing, PF leverages specialized project entities and non-recourse debt, focusing on the specific project's cash flows and assets. This paper conducts a detailed bibliometric analysis of PF literature, highlighting historical trends, key definitions, and research gaps. Additionally, it systematically reviews PF management strategies, its application in environmental projects, and resilience during crises such as the COVID-19 pandemic. Findings reveal that PF outperforms traditional financing under conditions of high uncertainty, with its structured approach promoting effective risk allocation and financial sustainability. The paper underscores PF's role in megaprojects, green infrastructure, and societal advancements while advocating for further research into its governance and innovation. Insights provided aim to strengthen PF frameworks, enhance stakeholder trust, and optimize resource utilization in future complex projects.

Keywords:

Project finance (PF), Infrastructure projects, Megaprojects, Risk allocation, financial engineering, Green infrastructure, Bibliometric analysis.

Impact of Free Carbon and Pyrolysis Temperature on Bandgap Reduction in Polymer-derived SICN Ceramics

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Abstract:

Polymer-derived silicon carbonitride (SiCN) ceramics have emerged as promising materials for various high-temperature applications owing to their exceptional thermal stability and electronic properties. This study investigates the correlation between the bandgap reduction in SiCN ceramics, the levels of free carbon incorporation, and pyrolysis temperature. The carbon-rich SiCN nanocomposites (SiCN/C) were developed via a single-source precursor (SSP) technique that involved a tailored combination of divinlybenzene (DVB) to the polysilazane preceramic precursor, where the amount of the free carbon corresponds to quantity of the DVB. This was done corresponding to pyrolysis temperatures of 1100 oC, 1400 oC, and 1600 oC in an argon atmosphere. The developed SiCN/C nanocomposites where characterized using SEM, XRD, TGA, Raman spectroscopy, carbon analyzer, EDX, and UV-vis spectroscopy. The interaction between SiCN and free carbon developed using 0 wt.%, 10 wt.%, 15 wt.%, 20 wt.%, 30 wt.% and 50 wt.% DVB respectively, showed progressively decreased bandgap energies of 5.04 eV, 4.98 eV, 4.96 eV, 4.93 eV, 4.91 eV, and 4.63 eV. Furthermore, as the pyrolysis temperature increased from 1100 °C to 1400 oC, and 1600 °C, the bandgap progressively decreased further, varying from 4.63 eV to 4.55 eV, and 4.46 eV. The quality and output of this study has implication on the bandgap engineering, design and development of semiconducting carbon-rich SiCN-based sensors for applications in high temperature environments.

Keywords:

Polymer-derived ceramics (PDCs), silicon carbonitride (SiCN), free carbon, semiconductor, bandgap.

Air Pollution and Its Relationship with Cough, Dyspnea and Sinusitis Outcomes in İstanbul

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Abstract:

İstanbul has air pollution problem primarily as a result of emissions from mobile sources, industrial processes, and urbanization and mining activities. Air pollution is a potential risk factor for cough, dyspnea (shortness of breath) and sinusitis in the city. In order to investigate the health effects of air pollutants (PM10, PM2.5, and NO2) for these diseases in İstanbul, a time-series analysis of number of daily hospital admissions and outdoor air pollutants was performed using single-pollutant Poisson generalized linear model (GLM) over a 5-year period (2013–2017) at different time lags (0–9 days). Significant associations between air pollution and hospital admissions for cough, dyspnea, and sinusitis were found. Particulate matter (PM10 and PM2.5) is the most significantly associated pollutant with the respiratory hospital admissions in the city. While PM10 has the highest risk effects for cough and dyspnea, PM2.5 was found to have the highest risk effects for sinusitis. This study demonstrates that air pollution is associated with increased respiratory hospital admissions for some of the most common respiratory system diseases in İstanbul.

Keywords:

Air pollution, Health effects, Cough, Dyspnea, Sinusitis, İstanbul.

MOOC in Health in Brazil: Descriptive Report of a MOOC in the Area of Care for People with Down Syndrome

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Abstract:

This work aims to describe the experience of a MOOC (Massive Open Online Course) titled "Care for People with Down Syndrome." The course was offered in Portuguese, in a distance learning format, and made available for free by a university in northeastern Brazil. It is a descriptive analysis of the students' performance in this course, with a workload of 30 hours, developed by the Open University of the Unified Health System of the Federal University of Maranhão (UNA-SUS/UFMA), as an innovative project of the Brazilian Ministry of Health in collaboration with Higher Education Institutions in the country. The course covered the following content: definition of Down Syndrome (DS), classification, clinical diagnosis, the moment of suspected or confirmed diagnosis of DS, health care for people with DS: from 0 to 2 years; from 2 to 10 years; from 10 to 19 years; adults and elderly, and rehabilitation. The course was available for over two years, with a total of 36,222 enrollments and 16,433 (45%) students completing the course and receiving certification. This educational experience demonstrated significant acceptance and completion by the target audience, aiming to provide more qualified and humanized care for People with Down Syndrome.

Keywords:

MOOC; Health Care; Down Syndrome.

The Clinician-Teacher 2.0: Integrating Technology and Distance Learning in Medicine

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Abstract:

Introduction: Medical education has undergone a significant transformation in recent decades, marked by the emergence of digital technologies and distance learning practices. The role of clinician-teachers is evolving accordingly, requiring them to redefine their teaching methods to meet contemporary challenges while ensuring quality training for future healthcare professionals. This article explores the evolution of this role, the challenges associated with clinical distance learning, emerging pedagogical innovations, and the need for ongoing development of pedagogical skills.

1. The Evolving Role of the Clinician-Teacher

1. Clinical and Pedagogical Competence

The clinician-teacher now needs to possess dual skills: clinical and pedagogical. According to Khalilet al. (2020), this dual expertise is essential for navigating a rapidly changing educational landscape. Clinician-teachers no longer simply impart knowledge; they must also implement learning strategies that encourage critical thinking and student engagement (Khalil et al., 2020).

2. From Transmitter to Facilitator

The transition from being a mere transmitter of knowledge to a facilitator of learning is crucial. Clinician-teachers must encourage active learning by using interactive teaching methods that encourage student involvement. This approach is supported by research showing that active learning improves knowledge retention and the development of practical skills (Freeman et al., 2014).

2. Challenges of Clinical Distance Learning

1. Reconciling care and education

One of the main challenges facing clinician-teachers in distance learning is reconciling their clinical and teaching responsibilities. The demands of clinical practice can make it difficult to engage in sufficient teaching activities. A study by M. R. F. Alshahrani et al. (2021) points out that time management and clinician-teacher coordination are key factors in the quality of distance learning. Teachers need to develop effective strategies for integrating these two aspects without compromising the quality of care or teaching.

2. Adapting to Care Contexts

Teaching methods also need to be adapted to different care settings, whether hospital, outpatient clinic or community care. A study by S.. M. G. Hafferty (2020) highlights the need for contextual teaching that meets the specific needs of each environment. Clinician-teachers need to be flexible and creative in adapting their teaching methods to the realities of different clinical settings, while maintaining student engagement.

3. Pedagogical innovations

1. Simulation and Virtual Reality

The use of simulation and virtual reality (VR) is a major innovation in medical distance learning. These tools offer students immersive learning environments where they can acquire practical skills in complete safety. According to a systematic review by X. Zhu et al (2022), online simulation and VR not only increase participation, but also improve the acquisition of clinical skills. Simulations enable students to experience realistic clinical situations and practice technical gestures without risk to patients.

2. Telemedicine in Education

Telemedicine is also emerging as an essential teaching tool. It enables real-life consultations to be integrated into the learning curriculum, offering students practical learning opportunities. According to a study by M. O. R. R. Sonnenberg et al. (2021), telemedicine teaching promotes interprofessional learning and enables students to observe clinical interactions in real time. This model helps prepare future doctors for practice in an increasingly digital world, while ensuring adequate supervision.

4. Developing teaching skills

1. Mastery of technological tools

To succeed in this new era of teaching, clinician-teachers need to master a variety of technological tools. According to a report by the World Health Organization (2021), ongoing training of clinician-educators in educational technologies is essential to ensure that they can use these tools effectively and design engaging learning experiences. E-learning platforms, simulation tools and telemedicine applications require appropriate training to maximize their educational potential.

2. Remote supervision strategies

Supervision strategies also need to be adapted to the virtual context. A study by K. A. D. G. C. de Lima et al. (2022) highlights the importance of active and engaging supervision for the development of student skills. Clinician-teachers need to establish clear and frequent feedback mechanisms to ensure that students receive constructive guidance on their performance in a virtual environment.

5. Assessment and Continuous Improvement

1. Assessment of pedagogical skills

Assessing the pedagogical skills of clinician-teachers in distance learning is crucial to ensuring the effectiveness of teaching methods. According to a study by J. R. B. S. de Almeida et al. (2023), a variety of evaluation methods, including formative assessments and student feedback, need to be integrated to measure the impact of clinician-teachers on student learning.

2. Continuous Professional Development

Continuing professional development is vital for clinician-teachers to keep up to date with new technologies and teaching methodologies. According to the American Association of Medical Colleges (2020), continuing education programs must include specific modules on digital technologies and distance learning approaches to help clinicians adapt to these new requirements.

Conclusion: The integration of technology and distance learning represents an unprecedented opportunity to redefine clinical teaching. By adopting innovative pedagogical approaches and developing adapted skills, clinician-teachers can turn challenges into opportunities for improvement. This ensures quality medical training that effectively prepares future healthcare professionals to evolve in an increasingly complex and digitized healthcare landscape.