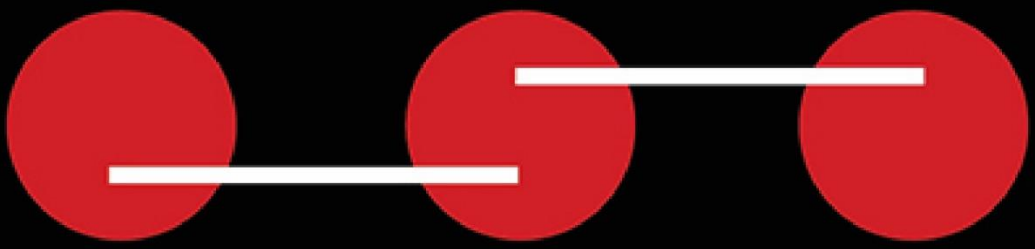
#SPARC2022



Moving Forward

Book of Abstracts 2022

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SPARC 2022 Book of Abstracts

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Preface

Welcome to the Book of Abstracts for the 2022 SPARC conference. Our conference is called "Moving Forwards" reflecting our re-emergence from the pandemic and our desire to reconnect our PGR community, in celebration of their research. PGRs have continued with their research endeavours despite many challenges, and their ongoing successes are underpinned by the support and guidance of dedicated supervisors and the Doctoral School Team. To recognise supervision excellence we will be awarding our annual Supervisor of the Year prizes, based on the wonderful nominations received from their PGR students.

Once again, we have received a tremendous contribution from our postgraduate research community; with over 60 presenters, 12 Three-Minute Thesis finalists, and 20 poster presentations, the conference showcases our extraordinarily vibrant, inclusive, and resilient PGR community at Salford. This year there will be prizes to be won for 'best in conference' presentations, in addition to the winners from each parallel session. Audience members too could be in for a treat, with judges handing out spot prizes for the best questions asked, so don't miss the opportunity to put your hand up.

These abstracts provide a taster of the diverse and impactful research in progress and provide delegates with a reference point for networking and initiating critical debate. Take advantage of the hybrid format: in online sessions by posting a comment or by messaging an author to say "Hello", or by initiating break time discussions about the amazing research you've seen if you are with us in person. Who knows what might result from your conversation? With such wide-ranging topics being showcased, we encourage you to take up this great opportunity to engage with researchers working in different subject areas from your own. As recent events have shown, researchers need to collaborate to meet global challenges. Interdisciplinary and international working is increasingly recognised and rewarded by all major research funders. We do hope, therefore, that you will take this opportunity to initiate interdisciplinary conversations with other researchers. A question or comment from a different perspective can shed new light on a project and could lead to exciting collaborations, and that is what SPARC is all about.

SPARC is part of a programme of personal and professional development opportunities offered to all postgraduate researchers at Salford. More information about this programme is available on our website: Doctoral School | University of Salford. Registered Salford students can access full details on the Doctoral School hub: Doctoral School Hub - Home (sharepoint.com) You can follow us on Twitter @SalfordPGRs and please use the #SPARC2022 to share your conference experience.

We particularly welcome taught students from our undergraduate and master's programmes as audience members. We hope you enjoy the presentations on offer and that they inspire you to pursue your own research career. If you would like more information about studying for a PhD here at the University of Salford, your lecturers can advise, or you can contact the relevant PGR Support Officer; their details can be found at Doctoral School | University of Salford.

We wish you a rich and rewarding conference experience.

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Contents

Secure Agile Software Development Process

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Abstract

Agile methodologies are well established paradigm in software development field. Agile adoption has contributed to improving software quality. However, agile software products are confronted with security challenges. Regardless of company size, agile software products are susceptible to cyberattacks. This study aims to build and evaluate a novel model of security practices in an agile software development process. A multi-methods qualitative research approach was adopted in this study. First, we conducted semi-structured interviews with 23 agile practitioners having varied years of cybersecurity experiences. Data analysis was collected using a method informed by grounded theory. Second, we developed a novel practice-based agile software development process model derived from the results of the data analysis conducted. Third, we validated the model through a focus group interview by presenting it to five senior agile cybersecurity professionals to evaluate its relevancy and novelty. The study has identified 26 security practices, organized into the six - software development life cycle (SDLC) stages: planning, requirements gathering, software design, implementation, test and integration, and deployment. We have mapped the identified security practices onto four swim lanes each representing an agile role. The self-organizing team is exclusively involved in three security practices, the security specialist in ten, penetration tester in one and the DevOps team (developers, operations, security & quality assurance) collaborates on one with the security specialist. There are also seven practices that are collaboratively performed by the self-organizing team and the security specialist. Each of the practices on the model was examined during the validation phase of the study. There are two contributions in this study. First, the paper proposed a novel practice-based model comprising of 26 security practices which have been mapped onto four swim lanes each representing an agile role. Second, we proposed a new practice for ensuring adherence to security compliance standards due to lack of collaborative ceremonies.

Keywords

Agile Software Development, Secure Process Model, Multi-methods, Grounded theory, Cybersecurity

Format

Oral Presentation

6G-Enabled Intelligent Transportation System, Security Challenges and Prospects: A Systematic Literature Review

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Abstract

Today's automobiles are no longer separate mechanical devices, thanks to the growth of digitalisation across industries and machines and wireless capabilities. They form part of a hyper-connected system known as Intelligent Transportation Systems (ITS), which has the potential to support many degrees of automation and intelligence, enhancing the safety, efficiency, and sustainability of transportation networks significantly. When vehicular networks become highly complex, with stringent requirements on processing high volume of data with little delay, strong reliability, and large volume of connectivity, 6G will be a key proponent for the evolution towards a truly Intelligent Transportation System and the realisation of the Smart City concept by overcoming the limitations of 5G such as upload speed and low transmission distance. However, this poses new cyber security concerns, making the entire system vulnerable to cyber-attacks, endangering both the safety and privacy of all road users. This research provides an overview of the main security challenges and the many attacks that impede Intelligent Transportation Systems. This research provides a complete review of existing systems, highlighting their strengths and limitations, recent advances and its associated risk in order to enable secure and safe ITS applications. Finally, this analysis identifies significant difficulties in the sector and highlights recent developments that academics, implementers, and automobile manufacturers must consider in order to build a secure ITS system to safe lives, prevent cybercrime, and satisfy the requirements of integrating with 6G network technology.

Keywords

Intelligent transportation System (ITS), 6G mobile network, Smart city

Format

Oral presentation

Religion on the Battlefield: The British Army in Iraq and Afghanistan

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Abstract

Often described as the wars of the 9/11 era, the British Army deployed to both Iraq and Afghanistan between the years 2001 and 2020. In those 19 years, an army which had historically considered itself culturally Christian found itself on Muslim majority territory. In an era where social secularism has diminished the role of formal religion in British society, the wars of the 9/11 era brought religion to the forefront of global identities. British soldiers, generally white and male, religiously 'nones', were given basic courses to understand Islam. On the battlefields, British Army chaplains provided religious ministries to soldiers who in the UK would have rarely articulated a faith in public. Chapels provided sacred space and sacred time where soldiers could explore ultimate questions. Religious ceremonies such as Remembrance and the repatriation of service men and women killed in action acted as the formal and also personal rites of marking the sacrifice of lives.

Research through interviews of both British Army Chaplains and serving personnel has drawn some conclusions about the enduring character of religion on the battlefield. In an aggressively secular culture, does the British Army keeps the last vestiges of a 'Christendom' alive: whilst adapting to the needs of a religiously plural society, does the soft 'Christian' nature of the British Army provide a foundation for the very pluralism it is required to embrace, and have the wars of the 9/11 era cemented the role of religion as a component of moral fighting power?

Keywords

Religion, Army, British, Afghanistan, Iraq

Format

Oral presentation

An Exploration of the Current State of the Art BIM Evolving to the Digital Twin

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Abstract

Building Information Management (BIM) is provided as a process, standard, and technology that enables the generation, visualisation, sharing, verification, and the subsequent use and re-use of information, including data, to establish a trustworthy basis for decision-making to the advantage of all those engaged in any aspect of a built asset's lifecycle. Digital twins are progressively being exploited as an extension of BIM for the built environment. A digital twin is a live version of the project or asset, which is designed to generate, evolve, and alter, utilising real-time data in the project lifecycle. The global value of the digital twin market in 2020 was USD 5.1 billion, and this growth rate is anticipated to increase by 42.7% CAGR from 2021 to 2028. The global digital twin market is fuelled by the growing need to build systems and solutions for a whole product lifecycle in providing environmental, economic, business, and societal value in business model operations and processes. The built environment has yet to catch up with other sectors in terms of digital twin adoption; too far, only 5% of the built environment has begun to deploy digital twins, and fewer than 1% of assets have one. The proposed paper looks to present the current state of the art and a future state of the art of BIM evolving to the digital twin.

Keywords

Digital Twin, BIM

Format

Oral presentation

Effect of Post-Diagnosis Exercise on Depression Symptoms, Physical Functioning and Mortality in Breast Cancer Survivors: A Systematic Review

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Abstract

Women with breast cancer at stages I to III often experience the long-term physical and psychosocial effects of cancer and its treatment, including pain, fatigue, lymphedema, psychological disorders, anxiety, and depression after treatment. The objective of the current systematic review was to evaluate the effects of post-diagnosis exercises on depression, physical functioning, and mortality in breast cancer survivors. The search for eligible articles was conducted through scientific databases from 1974 to 2020. Following the exclusion procedure, 26 articles yielded for final analysis. Findings of research showed statistically significant improvements on levels of depression, following the exercise intervention, suggesting that post-diagnosis physical activity leads to a decrease in depression scores. Overall, post-diagnosis exercise led to a 37% reduction in the rate of breast cancer-specific mortality. The all-cause mortality rate was decreased by 39% with the inclusion of moderate physical activity as the part of daily routine. The overall effect of physical activity was also statistically significant. There was a considerable degree of clinical heterogeneity between studies regarding the mode, intensity, frequency, and duration of exercise, and the length of the intervention period with high statistical heterogeneity present for depression. There was a strong consensus among patients and clinicians that physical activity has a positive effect on the quality of life of patients after diagnosis. This meta-analysis also included studies looking into dietary intervention in addition to exercise, as the combination of these interventions showed a different effect from exercise alone. This holistic research approach recognised the need to raise awareness of the benefits, quality of life assessment, and inclusive programmes to ensure sustained increases in physical activity, healthy eating, and community engagement among people with cancer and cancer survivors.

Keywords

Breast cancer, quality of life, depression, physical activity, breast cancer-specific mortality

Format

Poster

How do Anticancer Drugs Cause Heart Failure?

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Abstract

Anthracyclines are drugs used to treat cancers but can lead to the development of heart failure later in life. The heart acts as a pump because during each heartbeat, and in each heart cell, calcium rises then falls causing the cell to contract then relax. A calcium pump called SERCA regulates how much calcium is stored in each heart cell. If anything reduces this, calcium will rise to a lesser extent during each heartbeat and the cell will contract less forcefully. By measuring how anthracyclines alter heart cell function, we hoped to reveal how they cause heart failure.

To do this, we exposed single sheep heart cells to the anthracycline doxorubicin (DOX). We used an electrical pulse to mimic the events in a normal heartbeat and so cause the cell to contract. Using specialist equipment, we measured the effect of DOX on the calcium stores, the rise and fall of calcium in each cell and power of cell contraction.

DOX reduced the activity of SERCA and so the amount of calcium stored in each heart cell. This reduced the degree to which calcium rose during a heartbeat thereby decreasing the power of contraction.

Our findings show that anthracyclines cause heart failure by altering the function of single heart cells. If we can prevent or correct this, we may be able to improve survival during cancer treatment.

Keywords

Heart, Cancer, Calcium, Anthracyclines

Format

Oral Presentation

Moving Through: Tracking PhD students' experiences of COVID

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Abstract

The World Health Organisation (WHO) warned that COVID-19 could negatively affect mental health. This was mainly due to governmental mandated safety measures of self-isolation, quarantine and social distancing. Current trends from 2020-2021 show an increase in loneliness, stress, anxiety, depression, sleep disturbances, domestic violence, alcohol, and substance abuse. This research intended to investigate mental health experiences of PhD students, however interview findings of the first year suggested that COVID-19 affected the daily life and mental health of PhD students at two Manchester universities; University of Salford and University of Manchester. Students reported experiencing feeling disconnected from others, feelings of isolation, lower mental health, decreased well-being, and challenges to work life balance. Work was transferred from university offices during office hours to the endless day of working at home and well into the night. The same students were interviewed a year later. These students found the second year much easier as restrictions, including social isolation and working from home were lifted. These students felt more positive and happier as they were reunited with family and friends. It seems like the COVID situation is starting to wane and social contact is returning to pre-COVID levels. These students will be interviewed a final time to gather further experiences and themes. The PhD journey itself is being highlighted, as the focus is not solely on the pandemic. Resilience, renewed coping strategies and the "hybrid lifestyle" of using a combination of home, office and online platforms has been reflected as emerging themes.

Keywords

PhD student experiences, COVID-19, mental health, well-being, resilience

Format

Oral presentation, Poster

Analysis of Municipal Solid Waste Management in Nigeria

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Abstract

This study aims to explore the current situation of municipal solid waste management in Nigeria. It investigates the status, achievements, challenges, and opportunities affecting municipal solid waste management in Nigeria. Due to the rising concerns of health and environmental impacts, in the absence of proper waste management strategies, the topic has become critical. An efficient solid waste management system is of urgent need based on the rapid increase in population and rise in economic growth. Considering the country's poor economic climate and low priority of the environmental sector, the population keeps rising, thus constant increase in waste generation. Therefore, this study conducts research to identify the factors that hinder waste management operations in Nigeria. Thereby exploring opportunities that can be utilised in resolving them in the Nigerian context. The study conducts online interviews and a focus group discussion with experts in the field, detailing their opinions and experiences in Nigeria's solid waste management. Also, a general survey was conducted with the public online, to confirm previous responses by the experts. It was discovered that the factors mentioned created a pattern of interrelationships, meaning one challenge may influence the occurrence of another. Hence, the research identifies influential factors challenging municipal solid waste management in Nigeria. The outcome of this study will help direct decision makers into understanding and tackling key influential challenges affecting municipal solid waste management in Nigeria, thereby reducing health and environmental impact and aid utilisation of limited resources.

Keywords

Solid waste, management stakeholders, experts, public

Format

Oral presentation

Dog Welfare and Dog Bite Prevention Education for Children: Moving Forward from Indicators of Knowledge Acquisition to Indicators of Human Behaviour Change as Measures of Success

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Abstract

Dog bite hospital admissions rose by 17% between 2014 and 2018 in the UK with children under 9 disproportionately affected (Jakeman et al., 2020). Consequently, a core objective of many dog welfare organisations is to achieve improvements in child dog interactions via school education programmes (Dogs Trust ND). But the impact relating to the improved child behaviours it is anticipated may result from such programmes remains under explored.

A study by this author (Baatz et al 2020) found one such large-scale dog welfare education programme improved 7-11 year old children's responses to ten statements assessing their knowledge of dog interaction, e.g., "Dogs will forgive us for everything and never react badly."

Knowledge however has frequently been found not to be a reliable predictor of human behaviour (Borland, 2014; Michie et al., 2014; Sarafino, 1996). Therefore, animal welfare organisations must move their evaluation forward to account for success by measuring changes in children's behaviour, not just measuring their knowledge.

This presentation lays out first year insights into a PhD at the University. Given that dogs experiencing stress and fear are at a higher likelihood of biting (Jakeman et al., 2022; Stellato et al., 2021) it seeks to investigate the effects of a child education programme on the welfare of dogs living with children and the behaviour change impact of a school intervention. Measures will include measurements of the dog's DNA that can indicate their general welfare, and observational analysis of child dog interactions via both video footage and self-reported surveys from care givers.

Findings will inform how interventions aiming to influence child-animal interactions are placed within wider dog welfare and dog bite prevention seeking activity.

Keywords

Lab-in-the-field, elasmobranchs, DNA barcoding, trade monitoring, Indonesia

Format

Oral Presentation

Breaking Newt Ground: Detecting amphibians in a *Batrachochytrium salamandrivorans* infected area using environmental DNA

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Abstract

Amphibians worldwide are in decline with one of the main culprits being the fungal disease chytridiomycosis. The recently discovered *Batrachochytrium salamandrivorans* (Bsal) fungus, which only affects salamanders and newts, has currently only spread to a few European countries past its native range in Asia. However, Bsal can cause high mortality rates in some European newts and salamanders and has the potential to spread much further across the continent. For this reason, monitoring the spread of the disease and the species threatened with infection is essential in mitigating the damage Bsal may cause. This study identifies the amphibian communities at risk at a site of infection in the Netherlands using environmental DNA (eDNA) metabarcoding. Six amphibian species were detected including two protected by the European Habitats Directive. The relationship between amphibian community composition and Bsal presence was explored but no significant trend was found.

This study also compares commonly used methods for detecting amphibians using eDNA. Optimal metabarcoding primer selection is essential with vertebrate and amphibian primer sets often used. These were compared, with the vertebrate primers proving more suitable. The vertebrate primers were then compared to single-species qPCR approaches (a common alternative method to metabarcoding) for two protected amphibian species: great crested newt (*Triturus cristatus*) and spadefoot toad (*Pelobates fuscus*). The single-species approach outperformed the metabarcoding approach, detecting both species more often.

This research provides the foundation for future studies on Bsal and its relationship with amphibian communities and helps researchers select optimal primers for work with amphibians in Europe.

Keywords

Amphibians, environmental DNA, Chytridiomycosis, metabarcoding

Format

Oral Presentation

Podiatrists' and Orthotists' Views and Experiences of Using Plantar Pressure Measurement Technology to Manage Diabetic Foot Syndrome

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Abstract

Background: The measurement of plantar pressure, the load applied to the weight bearing surface of the foot, is recommended as a clinical tool for risk assessment, prevention and treatment of diabetic foot ulceration. Therefore the purpose of this study is to determine the barriers and facilitators of clinical usage of plantar pressure measurement.

Method: 4 Podiatrists and 2 Orthotists with and without experience of using plantar pressure measurement were recruited. Six semi-structured online interviews were conducted; the audio was recorded and transcribed. Then, inductive thematic analysis was used to analyse transcribed texts.

Result: Six themes have been defined: 1. the importance of training and education in clinical implementation of plantar pressure, 2. providing evidence for the NHS to prove the benefits of PP, 3. Time and space, 4. Human resources 5. Specific triage, 6. Cost. Clinicians were overwhelmingly in support of plantar pressure measurement to demonstrate high areas of pressure in diabetic patients. However, lack of knowledge, time and space were considered as the main barriers in clinical implementation of plantar pressure.

Conclusion: Findings from this pilot study have provided a view of how to improve clinical implementation of plantar pressure according to Podiatrists and Orthotists' perspectives. Training in using plantar pressure and interpreting the data is a key factor. Besides, providing evidence for the NHS is an important thing to bring the effectiveness of plantar pressure measurement into consideration. The NHS can allocate specific clinics and time to facilitate the clinical use of plantar pressure.

Keywords

Diabetic foot, Orthotic, Plantar Pressure, Footwear, insole

Format

Oral presentation

Skin Microbiota Effect on Wound Healing in Diabetes Mellitus

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Abstract

Diabetes mellitus (DM) is a critical global health issue that is increasing rapidly worldwide. One main complication of DM is poor wound healing leading to ulcers, potentially progressing to limb amputations. It is predicted that every 30 seconds a lower limb is amputated because of poor wound healing due to DM worldwide. Skin microbiota is vital for skin function and repair. However, how these communities of bacteria affect wound healing in DM is not fully understood based on a performed meta-analysis and systematic review. This study focusses on understanding whether the skin commensal bacteria have any effect in treating diabetic wounds. This information will aid in finding new treatments, specifically probiotics, with the aim to increase wound healing in DM.

Lysing bacterial cells is considered one main methods of probiotic preparation. Different bacterial lysates were prepared initially from different species of skin commensal bacteria. Particularly focusing on *Staphylococcus epidermidis, Staphylococcus aureus, Corynebacterium jeikeium*, as those species are prominent species on skin the of diabetic patients. Different experiments will be designed to investigate whether the prepared bacterial lysates have any healing or pathogenic effects in diabetic wounds. This is initially done through studying the effect of the lysates on the proliferation and migration of both keratinocytes and fibroblasts cells grown in different sugar concentrations. Early results suggest that different species have different impact on proliferation and migration of cells in different sugar concentrations. This indicates that skin commensal bacteria might act as a therapeutic agent in healing wounds in DM.

Keywords

Diabetes mellitus, wound healing, skin microbiota, keratinocytes, fibroblasts

Format

Oral Presentation

Appraising The Criteria for Contractors' Prequalification Processes for Building Construction Projects In Malaysia

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Abstract

The construction industry is considered one of the most significant industries that contribute to the world's economy and comprises of many essential phases. One of it is the contractors' prequalification processes or also known as contractors' selection process which take place prior to the award of contract to the selected contractor. Basically, the contractor's role is to transform the design into reality therefore this prequalification stage is very crucial because wrongfully selecting a qualified contractor could result in failure of construction project. The prequalification activities include several background checking such as screening and investigating the candidate bidders' profile to determine whether they possess the required capacity before being accepted to formally tender for construction projects. This guideline should be able to assist the client to select the qualified contractors for the project which are used until today. However, clients may have different criteria and tend to predominantly undergo the contractor selection process by considering the "lowest-bid-wins" practice. The "lowest bidder" is the most popular practice used and commonly used criterion in the public and private sector for project procurement in Malaysia. This method is usually relevant in most cases however, it has also been proven as occasionally unsatisfactory and risky which leads to sub-standard work, delays, disputes, in some cases fatality due to accidents at construction sites and even bankruptcy. Hence, this research suggests that contractors should be evaluated from various angles and based on more reliable criteria, while not solely according to the price offer alone.

The aim of this study is to improve the current contractor prequalification process in Malaysia especially in terms of selection criteria and at the same time having greater transparency in conducting the process.

Keywords

Prequalification Processes, Malaysian Construction Industry, Contractors

Format

Oral presentation

Post-Truth: Moving Forward by Looking Back in an Era Defined by Disinformation

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Abstract

The concept of Fake News gripped people across the globe from the moment former President Trump propelled the phrase into infamy in 2016. Of course, this is not the first version of what we would call Fake News today. Misinformation has been a continuing ailment on popular discourse throughout history, from the hysteria-inducing sensationalism surrounding the identity of Jack the Ripper in the 1800's, to the false claims of Werewolves plaguing a Bavarian town in the 1400's, resulting in the murder of multiple women. Multiple previous studies have discussed the history of misinformation within academia, specifically looking into why and how the phenomenon occurs. This paper, however, focuses on how Fake News is constructed from a linguistic perspective, and its relation to the earliest instances of misinformation. This research aims to evaluate the similarities in the structural makeup of the language used in both Ancient Myth and Fake News, and create a study assessing the influence these elements have on consumers. Through five films, the study explores the perception of validity in consumers, by presenting narratives that are entirely factual, or entirely fabricated. Ancient Myths, often used to present moral stories to the masses, have a distinct structure, and as such, parallels will be drawn between the structure of both the Ancient Myth and the contemporary concept of Fake News. In this presentation, I will discuss the methodology and context of the study, and the specific challenges the study faced in interdisciplinary cultural practice as research.

Keywords

Ancient Myth, Fake News, Structuralism, Post-Truth, Practice as Research

Format

Oral presentation

Comparing the Rheological Properties of Water-Based Mud Fluids Containing Nanoparticles Under High Pressure and High Temperature (HPHT) Conditions

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Abstract

The designing of good drilling fluid systems is highly required in oil and gas drilling operations. This paper intends to highlight the advantages that can be obtained if any, when nanoparticles are used in drilling fluids as additives. Choosing the right drilling fluid additives is a vital criterion in designing drilling fluids. This research intended aim is to investigate the optimum concentration of two nanoparticles, iron oxide nanoparticles of size 50-100 nm and multi-walled carbon nanotubes (MWCNTs) of size 8nm, that would produce good mud characteristics when used as additives in water-based muds (WBMs) under high pressure and high temperature (HPHT) conditions. The tests were conducted at temperatures from 75 o F, 212o F, 250o F and 300o F and at a constant pressure of 100 psi. The results showed that at a concentration of 0.3 g iron oxide and MWCNT nanoparticles in WBM, there was no noticeable effect on the mud's properties at low pressure and low temperature (LPLT). Well as at elevated temperature, the same concentration exhibited the least rheological improvements. WBMs with MWCNT exhibited the highest readings of gel strength, YP and PV, regardless of the temperature compared to WBM with iron oxide. The optimum concentration of nanoparticles in the mud sample was found to be 0.5g. Concentration below 0.5g resulted to no improvement and above 0.5g would be a waste of resources. The results confirmed nanoparticle's ability to enhance mud rheology which results in successful drilling operations, hence saving money and time.

Keywords

Drilling fluid, Rheological properties, Filtration loss, HPHT

Format

Oral presentation, Poster

Role of Mitochondria in Breast Cancer

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Abstract

Breast Cancer still represents the most common cancer, which affects women worldwide. Recently mitochondria, which are specialised structures within the cells, have been shown to be key players in breast cancer metabolism and have been considered more than just a “powerhouse”. Indeed, mitochondria are not only involved in the production of the energetic molecule ATP (adenosine triphosphate), necessary for vital cellular functions, but are also considered a central hub to support tumour growth, cancer spread, resistance to therapies and “stemness” characteristics. Cells within a tumour are not all the same but inside it, you can distinguish stronger and more malignant cells than others called "cancer stem cells" (CSCs), which are considered main drivers of drug resistance and cancer spread. Several studies demonstrated that mitochondrial metabolism represents the main energy source for CSCs. For this reason, acting on mitochondria could be a breakthrough in targeted therapies against these malignant cells. Moreover, it is becoming evident that specific alterations at mitochondrial DNA (mt-DNA) level led to breast cancer progression. The aim of the project is to assess the relative involvement of nuclear- DNA (n-DNA) and mitochondrial DNA (mt-DNA) and the cross-communication between them in the control of mitochondrial function. In this context, the mitochondrial DNA polymerase gamma protein, which is the only DNA polymerase that is able to replicate mt-DNA into mitochondria and whose subunits are encoded by nuclear DNA, it may represent a nodal protein to investigate the cross-talk between the nucleus and mitochondria and how its malfunction is related to breast cancer. In this way, mitochondrial DNA polymerase gamma could be characterized as a potential target for drugs, to halt the propagation of breast cancer stem cells.

Keywords

Breast Cancer, Mitochondria, Breast Cancer stem cells (BCSCs), Metabolism, Mitochondrial DNA Polymerase-γ (POLG)

Format

Oral presentation, Poster

Failure is an Option: Operation PITTING and the lessons of Afghanistan

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Abstract

In August-September 2021 the UK conducted its largest evacuation since the Second World War. This evacuation, titled Operation PITTING, saw 15,000 eligible persons evacuated from Afghanistan to the UK or third-party nations as the Taliban seized control of the country. Operation PITTING was only necessary due to defeat in Afghanistan, but in the months following the operation this necessity has consistently been omitted from the narrative. Instead, Operation PITTING is being presented as the final victory of a successful twenty-year campaign in Afghanistan. The aim of the paper is to highlight how the narrative surrounding Operation PITTING is masking the failure of the Afghanistan campaign, and because of this masking, is hindering efforts to secure a national inquiry that can identify the lessons of Afghanistan for future campaigns.

To achieve this aim, this paper will initially establish what the narrative surrounding Operation PITTING is by analysing statements made about the operation by the UK Government and the UK Armed Forces. This narrative is then compared to the situation in Afghanistan between the signing of the Doha Agreement in February 2020 and the withdrawal of NATO forces in August 2021. This comparison will establish how the narrative differs from the truth on the ground in Afghanistan and the failings it is masking. Finally, the effect this narrative is having on efforts to secure a national inquiry into the Afghanistan campaign will be determined by comparing parliamentary debates and statements on the Iraq Inquiry against those for a potential Afghanistan Inquiry.

Keywords

Afghanistan, Operation PITTING, Counterinsurgency

Format

Oral presentation

The Development of a Novel Health Promotion Intervention to Improve Parents' Knowledge, Understanding, and Attitudes Towards Antibiotic Use, Prescription Advice and Resistance in Greater Manchester

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Abstract

Objectives: To investigate parents' knowledge and understanding of ABR, and their behaviours around antibiotic use for themselves and their child(ren); and collaborate with parents to develop a citizen science resource to help improve knowledge, understanding, and behaviour regarding ABR and antibiotic use.

Methods: A mixed-methods study, of parents of children aged between 3 months and 6 years, involving a cross-sectional survey (n=120) followed by telephone interviews (n=12).

Results: Some parents held misconceptions, particularly regarding the consequences of misusing antibiotics and certain aspects of ABR. Participants were unaware that the improper use of these drugs can lead to worsening of an illness (36%). Almost half were unaware of their potential to contribute to the development of ABR whenever they consume antibiotics or skip antibiotic doses. Mistrust in diagnoses were reported by many parents, who felt uninformed and unheard after medical consultations. While many parents described losing faith in public health information/health promotion messages offered by the government during the COVID-19 pandemic, many reported being more aware of their health and more critical of the health information offered to them.

Discussion: Understanding parents' expectations, perspectives, and misconceptions is key to improving knowledge and raising awareness on antibiotics, their long-term effects, and potential problems caused by their misuse. The results from this study could inform local and national policies and practice with respect to antibiotic stewardship and future research.

Keywords

Antibiotic resistance, infectious disease, health promotion, participatory research, antibiotic stewardship

Format

Oral presentation

The Impact of Personality and Childhood Experiences of Nature on Attitudes to Nature Environments

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Abstract

The cognitive resources needed to navigate increasingly busy day-to-day living, including decision-making, problem-solving, social interactions, and performing tasks, are finite and become depleted, causing mental fatigue. These drained resources need to be replenished, a process known as cognitive restoration, and it has been shown that exposure to nature enhances this process, compared to other environments. However, past research assumes everyone gains the same benefit from a natural environment. The aim of this research was to consider how attitudes to nature may impact on nature's effect. As a starting point to investigating this, a study was designed to measure the influence of personality and past experience of nature on current preferences for certain types of nature. Participants undertook a personality questionnaire, a connectedness to nature (CNS) scale to establish their personal relationship with nature, and two scales determining their childhood and current experiences of nature. They were then asked to rate 40 contrasting images of nature for pleasantness and their wish to be in each environment. An element of mystery in nature has been shown to add to its restorative ability, as has a high level of greenery which is innately associated with nutrition and shelter. Four categories each with 10 images were used, varying from high to low mystery and high to low greenery. Individual preferences for these types of images were correlated with personality and experience scores, laying the foundation for further studies to see if the restorative power of nature varies depending on who is experiencing it.

Keywords

Cognitive restoration, personality, connectedness to nature, childhood, mystery

Format

Oral presentation

Aligning Capability in a Complex Health Care Setting

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Abstract

This presentation will be about the Aligning Capability (AC) model and approach that has been developed and used by the author over the past 6 years. AC is based upon and draws together a wide range of conceptual models, frameworks and theories but its focus is on real world application. It has been used successfully at individual, team, organisation and wider system level. Examples include coaching and mentoring, team development, diagnostics and problem solving, strategic planning and delivery. Conceptually speaking, AC enables anyone using the model to take account of the fact that healthcare is delivered within a complex adaptive human system. In other words, it helps people to produce solutions to their 'wicked problems' by addressing what it means to be a human being living a world that is complex, messy, intertwined and entangled; by paying attention to what matters most to us as people, why we do what we do and what happens when you bring us together. It then directs whoever is using the model to consider a group of common system factors that have been found to help and/or hinder people's individual and collective contributions to meet the needs of those they are trying to serve. In particular, the AC approach focuses on the level of alignment, flow and resonance between its human and environmental factors. In so doing, it brings insight and benefits to team working, decision-making and transformational change. The presentation will explain the theoretical and practical origins of the model and then set out how the author's research is further testing its validity and seeking a more robust evidence-base for its application. This includes a study into its use by local leadership teams to improve health and care outcomes in communities within Cheshire.

Keywords

Complexity, Human, System, Alignment, Flow

Format

Oral presentation

FASD and the Criminal Justice System: vulnerability & suggestibility

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Abstract

Background: International research suggests that individuals with fetal alcohol spectrum disorders (FASD) are nineteen times more likely to be arrested by the police. FASD is one outcome of drinking alcohol in pregnancy; the alcohol can affect the unborn baby's brain and other body parts. When alcohol affects the baby's brain during pregnancy, it can make the growing child unable to understand rules which can cause them to break the law and get in trouble with the police frequently. Despite this problem, research in the UK and worldwide is low about FASD and the police. My research will contribute to knowledge in this area.

Method: 15 parents/carers of individuals affected by alcohol in the womb (FASD) were interviewed; separately, 10 people affected by alcohol in the womb were also interviewed. The purpose of the interviews was to find out the opinion of these individuals and their parents/carers about what leads them to encounter the police frequently. After the interviews, 25 people affected by alcohol in the womb were tested. The tests were carried out to check their memory, intelligence, ability to control their behaviours and tendency to accept police suggestions during arrest or interviews.

Results: Results show that individuals affected by alcohol (FASD) may frequently encounter the police due to inability to control their behaviours, lack of understanding of outcomes of their action, effect of their childhood experiences and lack of understanding from teachers and other professionals. The analysis of the test results from individuals with FASD is currently ongoing.

Keywords

Criminal justice system, FASD, foetal alcohol spectrum, investigative interview, police interview

Format

Oral presentation

The Application of Artificial Intelligence in Remote Employee Management: The Hard and Soft HRM Approach

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Abstract

The future of work is heavily reliant on disruptive technologies such as artificial intelligence, but much remains unknown to human resource managers about how this will be designed and to what extent 'human-like-machines' interact with, and impact humans in the workplace. Nonetheless, artificial intelligence and related technologies have been consistently integrated into employee management practice as a tool for maintaining competitive advantage and driving the future of work; a situation that is inextricably linked to the use of machine learning and deep learning in replicating human cognitive abilities in roles previously filled by human managers. Through the lens of remote work, which is fast becoming the norm, this research attempts to contribute to the emerging field of human resource-technology by exploring the intersection between artificial intelligence and human resource management. This paper examines literatures on artificial intelligence in an exploratory manner, establishing key themes and linking them to human resource management practice, as well as discussing the correlating relationship between both fields and its potential and practical application. This paper also examines the intertwined relationship between artificial intelligence and employee management through the soft and hard approaches of human resource management, highlighting how this approach influences organisational stance in the strategic deployment of artificial intelligence in the workplace, as well as its impact and concerns. Finally, the paper examines the impact of an AI-enabled remote work environment on sustainability.

Keywords

Artificial Intelligence, Human resource management, Remote work, Ethics

Format

Oral presentation

The Application of Machine Learning and CADe to Identify Women at Risk of Cardiovascular Disease from Breast-Screening Mammography

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Abstract

Cardiovascular disease (CVD) is the leading cause of premature death in the United Kingdom, killing more than twice as many women as breast cancer. Conventional CVD risk factors have been shown to have less accuracy for females who are considered low-risk. Recently, researchers have noted that breast arterial calcification (BAC), which is regularly observed as an incidental finding on breast screening mammograms, could be used as a potential indicator of increased risk of developing CVD.

This project has developed three models using deep learning, a type of artificial intelligence, that can automatically identify the presence of BAC on a mammogram (radiological image of the breast), where it is situated, and how much is present. An anonymized mammogram dataset was used during the training of each model. Images were marked as having BAC or not and were validated by consultant radiologists. Manual tracing of areas of BAC on each image was also carried out under the guidance of a radiologist. Models were trained on a computer graphics card.

One model reported 80% accuracy for the presence of BAC. This was achieved by tuning several parameters such as the size and number of images used, the model's shape and size, the length of time the model was trained and how quickly it learned. This approach was also applied to the BAC location and quantity models. The resulting models will allow the extension of breast screening to include vascular screening, identifying those women attending for breast screening who are at risk of CVD.

Keywords

Cardiovascular disease, breast screening, mammography, computer-aided detection, deep learning

Format

Oral Presentation, Poster

The Consequences of Primer Choice in Environmental DNA (eDNA) Monitoring of Marine Vertebrates

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Abstract

Biomonitoring is a crucial aspect of conservation management for species in aquatic environments. Environmental DNA (eDNA) metabarcoding provides a novel approach to traditional biomonitoring methods, presenting us with the opportunity to detect organisms in environments that are typically difficult to assess. While much has been done to optimise the use of this tool in freshwater habitats, more remains to be done to fine-tune it for monitoring marine biodiversity in offshore areas. This study will particularly aim to determine whether eDNA can be utilised as an effective tool to monitor marine mammals and other vertebrates. Marine mammals, iconic megafauna in the Mediterranean Sea, are usually monitored using visual census methods or hydroacoustics, which are time consuming and costly. Samples have been collected in two offshore areas around the island of Malta, in order to compare cetacean presence in and around a Marine Protected Area and a non-protected one. Samples have been processed and sequenced with three different primer sets targeting mammals, fishes and vertebrates, respectively. We will compare and contrast what species/groups are amplified depending on what primer sets are used and results will be compared to gain a unique and multifaceted insight into marine biodiversity in these areas. The ability to quickly and accurately detect marine mammal species in open water environments using eDNA could prove invaluable for informing future conservation management efforts.

Keywords

Environmental DNA, Marine mammals, Biomonitoring

Format

Oral presentation

The Invasion of the Greater White-Toothed Shrew, and the Potential Disruption of the Relationship Between Parasites and the Native Pygmy Shrew in Ireland

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Abstract

The pygmy shrew (*Sorex minutus*) was the only shrew species inhabiting Ireland, until 2007 when the invasion of the greater white-toothed shrew (*Crocidura russula*) was first recorded. Since its discovery in Ireland, the range of the greater white-toothed shrew has been expanding yearly at a rate of approximately 5Km. This is a great risk to the pygmy shrew as the two species are unable to coexist, which results in the native shrew being absent from areas that the invasive species is present. As well as displacing local populations, invasive species can have a large impact on the native host-parasite relationships, either in an amplification or dilution effect, with the possibility of introducing novel parasites. This study aims to explore how the invasion of the greater white-toothed shrew has affected such dynamics between the pygmy shrew and their associated blood and gut parasites. Samples, of both species, have been previously collected across radial transects in Ireland during two different seasons, where their hearts were harvested and DNA from the gut contents had been extracted. Further analyses of these samples aim to identify any effect that the invasion may have had on the prevalence of associated parasites. Consequently, the results from this study will provide complementary data on how the greater white-toothed shrew has affected, and potentially become detrimental to, the pygmy shrew population in Ireland, which is valuable information when designing appropriate conservation measures.

Keywords

Crocidura russula, Invasive species, Parasites, *Sorex minutus*

Format

Poster

Change, Loss, and Community: Residents' narratives of life on a social housing estate

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Abstract

Aim: To understand what community means to residents on a social housing estate in the North-West of England.

"Community" is a word that can mean different things to different people, making it complicated to use in social policy. However, 'community' is often used in policy and services, especially in poorer areas with high social or council housing levels. However, assumptions about what life is like in these areas create stereotypes about social housing residents. This lack of understanding makes community projects and services that are not very successful. It is important to tell and hear resident stories, especially after the Grenfell Tower tragedy. So, this research uses interviews with residents to listen to what they have to say to tell their own stories of what community means to them. It was found that residents feel that community and social spaces are important to them to; help get to know one another, run events, and support children and young people.

It was also found that feeling safe and at home was essential to the resident's well-being. To help share the resident's stories with a broader audience, creative methods have been chosen to present the findings. The resident's narratives will be presented in illustrations and found poems to help make the research more inclusive and accessible.

Keywords

Community, Narrative, Social Housing

Format

Poster

Customer Experience in the Commercial Airline Industry: a focus on touchpoints within the passenger journey

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Abstract

In this paper; the author explores airline customers' experience and journeys within the context of the airline industry. This study considers the touchpoint elements as experienced by the airline passengers at each stage of their journey. The argument here is about the potential role of culture in shaping of such experiences. The paper also draws on *peak-end theory* to highlight the '*moments of truth*' that are assumed to shape and influence the passengers and their overall experiences with the airline. The idea here is that the passengers' journey may have different starting points. For instance, it can begin with their purchase decision – how or what may trigger their decisional behaviour. Thus, this study further considers past experience's influence on the *theory of planned behaviour variables*, specifically, attitude and subjective norms. The study has adopted a qualitative approach whilst gathering customer experiences by applying the sequential incident technique (SIT). The SIT is a procedural qualitative interviewing method which enables the researcher to collect customer incidents that occurred during the consumption and service delivery process. This technique elicits the customer's thoughts and feelings by adopting the 'story-telling' approach, collecting critical as well as uncritical incidents in a procedural manner. The data collection phase is complete with in-depth interviews gathered. Data analysis includes content as well as thematic after the interviews were transcribed. The results obtained consider the role and influence of culture, *peak-end theory* and past experience. The narratives also reveal other key insights based on the instances faced by the passengers.

Keywords

Customer Experience, Airline, Customer Journey, Touchpoints

Format

Oral presentation

Effect of Active Prophage on the Virulence of *Pseudomonas aeruginosa*

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Abstract

The Liverpool epidemic strain (LES) of the bacterium *Pseudomonas aeruginosa* is a key opportunistic pathogen and major cause of death in Cystic Fibrosis (CF) patients. This is due to the bacterium becoming established in patient's lungs and forming hard to remove communities called biofilms. These biofilms are incredibly hard to treat as the bacteria are surrounded by a protective polysaccharide matrix which enables tolerance and resistance development against antibiotics.

The success of the LES strain is thought to be influenced by several prophages present in its genome and have been associated with increased competitiveness in the CF lung. Prophages are the integrated genomes of a type of virus called bacteriophages that can infect and destroy their host bacteria by bursting out of them or, as in this case, become part of their hosts DNA and provide fitness advantages. Active phages are very common in the CF lung and infecting *Pseudomonas aeruginosa* strains commonly have many prophages integrated into their genome, but little is known about the co-operative interactions between the two. This project investigates the relationship between three active phages of LES and the model bacterial host strain PA01, hopefully aiding the development of CF treatments. Experiments revealed that the prophages affect the growth rate of their bacterial host differently depending on the conditions. Furthermore, infection model experiments indicated that prophage carriage reduces the severity of disease when challenging the wax moth larvae *Galleria mellonella*. These data suggest that the LES prophages may contribute to adaptation for longer survival.

Keywords

Bacteria, *Pseudomonas aeruginosa*, Cystic fibrosis, bacteriophage, biofilm, Liverpool epidemic strain

Format

Oral presentation, Poster

Synthesis of Multifunctional Nanoparticles as Next Generation Antimicrobial Agents Against Antibiotic Resistance

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Abstract

World Health Organization (WHO) has declared that antibiotic resistance is one of the top 10 global health threats facing humanity. The Global Antibiotic Research and Development Partnership (GARDP) reported that 700,000 die of drug resistance infection every year. The development of new robust drug complexes is urgently required to fight the resistant pathogens and to challenge the antimicrobial resistance challenge.

Nanoparticles are used as novel nanomedicines or innovative drug delivery vehicles capable of tackling challenges in traditional treatments. The success of these nanoparticles strongly relies on their tunable surface chemistry yielding functionalized particles with drugs of choice providing target specificity, improved drug delivery and higher reactivity. Amongst others metallic antimicrobial loaded nanoparticles have a great potential to kill or inhibit the growth of infectious bacteria via a variety of mechanisms such as the generation of free radicals or release of metal ions.

This interdisciplinary project aims to design and develop novel multidomain multifunctional metallic nanoparticles, namely silver, gold and copper and implement a systematic study approach to the role of the multifunctionality aspect of nanoparticles exploring the role of the shape, size and morphology of nanomaterials on the antimicrobial effects, the research will also aims to study the mechanism of interaction and inter-microbial fate, with the target clinically relevant pathogens. The purpose of the project is to also explore and describe the development of robust protocols for complex antimicrobial testing *in vitro* of the silver nanoparticles with complex geometries and advanced surface functionalities devised to target and kill bacteria that are at the top priority list of the World Health Organisation.

Keywords

WHO, GARDP, Antibiotic Resistance, Multifunctional nanoparticle, Metallic nanoparticles

Format

Poster

Involving Citizen Scientists in Environmental DNA Monitoring of Mammalian Communities

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Abstract

Monitoring mammals can sometimes require multiple methods to detect each species within a specific location. This can be costly and require huge effort, so more efficient ways to monitor and estimate the diversity of wild mammal communities are needed to further conservation efforts. Environmental DNA (eDNA) is an emerging technique for performing rapid biodiversity assessments, utilizing DNA shed by species from river water and a growing interest of eDNA has led to the involvement of citizen scientists. Consequently, validation of citizen science collected eDNA samples is required alongside an understanding of the value and impact of volunteer participation by considering their motivations for participating. We trained ten conservation volunteers to collect eDNA water samples for detecting mammals along two rivers and distributed two questionnaires prior to and after sampling to gather insights about volunteer demographics and motivations for eDNA sampling. We learned that volunteers were highly motivated to participate, they created innovative methods for collecting samples and there are some aspects they enjoyed and some they did not. The results will inform the feasibility of including volunteers by providing a robust comparison of results obtained and ensuring volunteers benefit from being involved, including considering how eDNA contributes to volunteer knowledge and enjoyment of biodiversity. This study highlights the potential involvement of citizen scientists for eDNA surveys on a regular basis and on a much larger scale as. eDNA has the potential to detect whole mammal communities in very short timeframes and investigate the diversity of mammal communities.

Keywords

Citizen Science, Volunteers, Mammals, Metabarcoding, Semi-aquatic, Terrestrial

Format

Oral presentation

Bioethanol, a Sustainable Solution to Energy Crisis

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Abstract

Energy is predominantly produced from fossil resources however, fossil fuels are non-renewable, expensive and release carbon dioxide when burned which contribute to global climate change. Increasing environmental awareness and the urgency to mitigate against climate change have led to a call to ensure industrial sustainability through efficient use of resources. An alternative raw material for energy production is biomass wastes which are abundant in nature and are a renewable source of energy. Utilizing biomass (from plant or animal) wastes as a feedstock for producing energy and energy products including chemicals is a circular economy model which improves cost and the efficiency of resource usage. The purpose of the research is to show the economic viability of utilizing plant (biomass) wastes as a feedstock for producing biochemicals. Cassava peels would be sampled as a potential feedstock for bioethanol (fuel) production. This would be achieved by determining the yield potential of producing bioethanol from plant wastes (Cassava peels) using simple biotechnologies and comparing to yields from chemical methods and fossil fuels. Following lab experimentation, a business plan would be created based on a circular economy model for bioethanol production from cassava peels which would be low cost and cleaner for environmental health. This model would be accessible to rural cassava producing communities, thereby alleviating energy poverty in low-income households and contributing to sustainable development.

Keywords

Sustainability, Circular economy, Bioethanol, Cassava wastes, Energy

Format

Oral presentation

Modelling High Voltage Effect on Carbon Dioxide Reforming

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Abstract

Promax process flow simulator is software for simulation/modelling of engineering designs and troubleshooting. This has been used in the market for over three decades in various field of engineering, such as simulation of chemical plant, distribution, and transmission pipelines, as well as for reservoir simulation etc. It is well-known for its precision and effectiveness. This presentation describes a simulation that was carried out using the Promax process flow sheet simulator to examine the effect of operating parameters like voltage on the performance of the plasma process in terms of reacting gas conversion and product yield. The power required for the plasma, the gap between the positive and negative electrode, voltage, and reactant gas ratios (CH4/CO2) have been shown to have the most significant effects on the performance of carbon dioxide reforming reaction in experimental works (Gallon, 2010; Ozkan et al., 2015; Uwadiegwu, 2017). However, there are few or no process flow simulations in the literature, particularly at the plant scale. Promax was used to model carbon dioxide reforming of methane using nonthermal plasma. The obtained results showed that when the applied voltage was increased from 10kV to 30kV, the conversion of CO2 grew by about 11.7%. In comparison, the conversion of CH4 fattens by 6.39%. The produced CO and H2 increased by 12.1% and 4.8%, respectively, as the applied voltage upsurged from 10kV to 30kV. Conclusively, it could be deduced that any increase in applied voltage will enhance the CH4 and CO2 conversion, and the CO and H2 produced will change as a function of the applied voltage to the process. There was a significant enhancement in the reactant used in the system when high voltage was applied to the reactor, resulting in higher production of CO and H2.

Keywords

Promax, Plasma, Dry Reforming, High Voltage, DBD, Nonthermal

Format

Poster

Metal Organic Frameworks – A New Drug Delivery Approach to Improving the Treatment Outcome of the Childhood Cancer, Neuroblastoma

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Abstract

Neuroblastoma is a common type of cancer found in children. It is responsible for 15% of all childhood cancer-related deaths. Treatment strategies used till date includes surgery, radiotherapy, chemotherapy, and immunotherapy, but the therapeutic outcome remains poor. Therefore, the need to still explore new therapeutic approaches. Recent evidence suggests that gliotoxin, a compound isolated from the fungi, *Aspergillus fumigatus*, exhibits some anti-cancer effect against neuroblastoma. However, targeting this compound specifically to the tumor cells with minimal or no toxicity to surrounding healthy cells is still a challenge. Hence, the need for a nanoparticulate drug delivery system. Metal organic frameworks (MOFs) are deemed fit for this purpose. Primarily because of their high design flexibility, porosity, and chemical nature, MOFs can host the inherently toxic anticancer drug within their porous structure and release it to the target site. In our study, we synthesized several low-toxicity MOFs, characterized these MOFs using different analytical techniques, encapsulated gliotoxin within these MOFs, and targeted the MOF-encased gliotoxin to neuroblastoma cells. More specifically, we found that the MOF-encased gliotoxin had better efficacy against the tumor cells compared to gliotoxin alone. These results provide the foundation for future studies which would be geared towards optimizing the MOFs for targeted delivery of fungal-derived chemotherapies to neuroblastoma cells. Overall, our findings may be important in improving the treatment outcome for neuroblastoma.

Keywords

Cancer, Neuroblastoma, MOFs, *Aspergillus fumigatus*, Anti-cancer

Format

Oral presentation, poster

Design and Synthesis of Multifunctional Antimicrobial Nanoparticles for the Treatment of Prosthetic Joint Infections

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Abstract

Antimicrobial resistance is one of the most serious public health threats that we face today. Antibiotics that are commonly used to treat infections are becoming increasingly redundant, as bacteria develop resistance to them. Novel approaches to treating bacterial infections must be identified in order to prevent serious illness and death.

The use of nanoparticles, as novel nanomedicines, as an antimicrobial is one promising way of continuing to effectively treat bacterial infections.

Nanoparticles possess several advantages: enhanced reactivity, tunable surface properties and ability to provide target specificity and advanced drug delivery; they can be fabricated using a variety of core materials to tailor end applications; there is compelling evidence showing that metal nanoparticles kill bacterial following several mechanisms which is currently being exploited in advanced therapeutic application of nanomedicine.

The main aim of this work is to outline the approaches to the rational design of novel multifunctional metal nanoparticles (namely made of gold (Au), silver (Ag) and copper (Cu)) that target and kill pathogens associated with prosthetic joint infections. This work focuses on developing a multifunctional metal nanoparticle library with the advanced shape features and investigating their effects on bacteria that are commonly associated with prosthetic joint infections, namely *Staphylococcus aureus* and *Staphylococcus epidermidis*.

The work presented will feature the surface functionalisation strategies, advanced nanoparticle characterisation and development of methodologies for challenging antimicrobial screening of nanomaterials.

Keywords

Antibiotic resistance, nanoparticles, biofilms, prosthetic joint infection

Format

Oral presentation

Arsenic and Lead Contamination in Rice Grown in Mining-Impacted Agricultural Fields in Zamfara State, Nigeria

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Abstract

Rice is cultivated in areas contaminated with lead (Pb) from unregulated and illegal mining activities in Nigeria's Zamfara state. Rice cultivated in such mining affected agricultural fields is at risk of being contaminated, not only with Pb, but also with arsenic (As). It may result towards soil-crop-food transfer of these metals to humans from consumption of rice causing health risk. So, a survey work was conducted in the mining-impacted farmlands of Dareta village in Zamfara State to assess the status of As and Pb in soil and rice grain and to identify rice varieties that have a lower uptake of these metals while maintaining substantial levels of essential elements in the grains. Ten commonly cultivated Nigerian rice varieties were considered for the study and a total of 300 paired soil and rice grains were collected. The mean As and Pb concentrations in paddy soils were 0.91±0.82 mg kg-1 and 288.5± 464.2 mg kg-1, respectively. The mean As content in rice grains (30.4±15.1 µg kg-1) was far below the recommended limit of 200 ug kg-1 while the mean Pb content in all the rice varieties (743±327 µg kg-1) was well above the recommended limit of 200 µg kg-1. The variety (Bisalayi) with the lowest transfer factor (TF) for Pb had the highest TF for iron. It had a better yield potential, was suitable for both upland and lowland conditions and, hence, may be considered for cultivation in high Pb contamination areas to ensure food and nutritional security. Rice cultivation in Pb contaminated farmlands of Zamfara must be undertaken with appropriate remediation measures.

Keywords

Arsenic, lead, rice, mining-impacted fields, essential elements

Format

Oral presentation

Spatial and Temporal Variation in Fish eDNA Detections in a Strongly Tidal Estuary

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Abstract

The application of environmental DNA (eDNA) metabarcoding as a biomonitoring tool has enhanced the capabilities of monitoring organisms across a wide range of ecosystems. Here, we applied eDNA metabarcoding in a strongly tidal system, the Mersey estuary in the UK. We investigated spatial and temporal variations in fish species detections and the potential impacts of barriers (weirs) on fish communities. eDNA metabarcoding revealed 23 different species over 3 weeks across 14 sampling locations. We found a strong tidal influence with eDNA likely being transported in parallel with the tides. This is highlighted by the common roach *Rutilus rutilus*, a freshwater species being predominantly detected further downstream towards the more marine sampling locations. Results from an analysis investigating the patterns of species diversity between sample locations indicated that the presence of weirs had little to no effect on the observed species compositions at each site. Following on from this study, we will be sampling the river Mersey more intensely in both a spatial and temporal sense to understand species diversity and abundance and to generate a more consistent understanding of the migratory patterns of several key species (e.g., salmon *Salmo salar*). Secondly, we will be incorporating hydrodynamic models (the study of fluids in motion) to enable us to make more informed choices regarding optimal sampling locations and will allow for a better understanding of the impacts of tides and current flow on eDNA in a dynamic estuarine system.

Keywords

Estuary, metabarcoding, modelling, eDNA, fish

Format

Oral presentation

Development of a Flexible Adaptive FES Controller for Upper Limb Rehabilitation After Stroke

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Abstract

Currently, 70% of stroke survivors suffer from long term Upper limb (UL) impairment. The demand for UL rehabilitation therapy post-stroke is likely to increase as the number of stroke survivors grows. In addition, the intensities and doses of therapy currently delivered to NHS patients are some ways below that shown to be effective, likely due to NHS financial constraints and therapist shortages. This situation contributes to poor UL motor recovery outcomes.

Over the past few decades, research has shown high intensity functional electrical stimulation (FES) to be an effective UL rehabilitation therapy that promotes neuroplasticity and improves UL motor recovery. This is especially true when voluntary effort is combined with well-timed electrical stimulation to practice relevant real-world tasks repetitively. However, few systems allow for this type of FES-supported therapy. Current FES systems used clinically are of open-loop control, which are time-consuming to set up and require one-to-one therapist supervision to manually (and subjectively) adjust stimulation parameters during a therapy session. Consequently, the intensity, dose, and frequency of UL FES therapy delivered is low as these systems are therapist dependent. Thus, this research aims to develop an automated and flexible FES controller, utilising adaptive finite state machine (FSM) control to adjust stimulation parameters automatically and, in turn, constantly support the user whilst challenging them to apply maximum voluntary effort. This system, therefore, would reduce lengthy setup times and remove the need for constant therapist supervision, enabling high intensity and high dose therapy delivery to maximise UL motor recovery.

Keywords

Upper Limb Rehabilitation, Functional Electrical Stimulation, Adaptive Control, Finite State Machine, Automation

Format

Oral presentation

An Emic Study of Person-Centred Therapy in a Chinese Community using the HSCED method

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Abstract

Cultural differences between Western and East Asian cultures are well recognised. Yet, in one of the most popularly practiced counselling approaches in the U.K., there is inadequate research in the effectiveness of Person-Centred Therapy (PCT) or how it is adapted when used within a non-Western context. For example, PCT has been criticised for subscribing to independent and individualistic identity of the self that may not be compatible with collectivist cultures which value, for instance, hierarchical relationships, group conformity and belief in fate.

Although research exists which support the cross-cultural use of PCT with non-Western clients, there is limited data on the effectiveness, and where there is data, culture is primarily inferred from ethnicity, not considering influential factors such as levels of Western acculturation of the client, cross-cultural training of the counsellor, or the language used in therapy.

This research attempts to track the effectiveness of PCT when it is conducted within a Chinese community within the U.K. when both the Client and Counsellor are Chinese. Using the Hermeneutic Single Case Efficacy Design (HSECD), rich data sets will be developed for each of the three to five client-participants using qualitative and quantitative data for three different counsellor-participants. This will then be examined as to the effects of the intervention and any adaptations that may occur indigenously during therapy.

With the increasing popularity of psychotherapeutic interventions in China and research that show PCT as already a preferred counselling approach in Japan, Hong Kong, and Malaysia, this study will provide essential data on the use of PCT within Chinese societies, and insight into training for Chinese counsellors and provision of PCT services for Chinese clients, in both East and Southeast Asia and the UK.

Keywords

PCT, Counselling, HSCED, Case Study, Chinese Culture

Format

Oral presentation

Examining Parasocial Relationships with Stand-Up Comedian Podcast Hosts

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Abstract

Parasocial relationships (PSRs) are long-term, one-sided relationships between media figures and audience members. They extend beyond a single media exposure situation and are based on repeated encounters. The aim of this research was to gain a better understanding about the role of PSRs in podcasting, which is a medium that has had insufficient academic attention despite being on the rise with recent increases in both audience numbers and advertising revenue. An online questionnaire was delivered to 390 users of podcasts hosted by stand-up comedians in order to investigate the relationships between PSRs, listening frequency, perceived influence, consumer attitudes and consumer behaviour. Preliminary results suggest that there is no correlation between PSRs and listening frequency. However, there does appear to be a positive correlation between PSRs and perceived influence, as well as a weak positive correlation between PSRs and consumer behaviour. Work is continuing to examine the relationships between other variables and gain further insight into podcast users' consumer behaviour.

Keywords

Parasocial relationships, stand-up comedian hosted podcasts, listening frequency, perceived influence, consumer behaviour

Format

Oral presentation

The Artful Eighth: Exploring performance art as an alternate form of memoir in response to Repeal the Eighth

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Abstract
The Eighth Amendment to the Constitution of Ireland guaranteed, as far as practicable, the equal right to life of the mother and unborn. In 2018, the amendment was repealed, the Repeal the Eighth movement in particular drawing upon the lived experiences of women under the Eighth in order to further their 'vote yes' campaign. In Sinead Gleeson's 2019 work *Constellations* (2019), she states that "writing offers more cover than art – there are thousands of words to hide behind" (Gleeson, 2019, p.183), suggesting that art can be utilised as an alternative form of memoir to visualise personal experience. This paper considers how memoir and the artistic form intertwine as a response to trauma, but also how performance art can be used to illicit an emotional reaction from the audience in response to a political message. By exploring my own collaborative practice with a performance artist, I will analyse how performance art can be utilised as a response to spoken word testimony, exploring the effect of the artistic female body on how testimony is perceived when it is presented visually. This paper will ultimately investigate how art and memoir combine to create visual moments of shared experience by exploring the effect of performance art as an expression of testimony.

Keywords
Irish, memoir, art, feminism, repeal

Format
Oral Presentation

Data Mining Techniques for Dynamic Pricing Strategies in Different Business Models with Fairness and Business Ethics

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Abstract

Dynamic pricing is the determination of selling prices for manufactured goods or services whose supply is fixed or infinite and where the demand is variable. The paper focuses on developing a dynamic pricing model that works under uncertainty of demand and market. The paper presents a comprehensive survey of different types of dynamic pricing problems, the business areas that overlap within these problems and the different algorithms that are used in these areas. The different problem types are dynamic pricing problems involving infinite inventory, dynamic pricing problems with limited supply, dynamic pricing problems with competition and demand prediction, dynamic pricing with a finite time horizon and dynamic pricing for perishable products. One major challenge identified is that of developing models that work well under uncertain and varying demand conditions. The specific approach proposed is based on the Multi-Armed Bandit (MAB) framework. This research will develop a dynamic pricing model for problems where demand is uncertain using multi-armed bandit algorithm which also consider fairness and business ethics. The study explores the use of MABs algorithm for different types of dynamic problem types and identify which is the best for a problem type.

Keywords

Dynamic Pricing, fairness and business ethics, business pricing model, Data mining in dynamic pricing, Multi-Armed Bandits

Format

Oral presentation, Poster

Accessing Hidden Aspects of Expert Practice in the Education and Care of Children and Young People with Special Educational Needs and Disability

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Abstract
This study aims to understand the aspects of expert practice that contribute to positive outcomes for children and young people with special educational needs and disability (SEND). The study investigates the way one organisation transforms the lives of children and young people with SEND. The self-maintained partner organisation for this study (The Birtenshaw Group) provides education and care services to children and young people who have not had their needs met by state-funded education and/or care facilities. Through short interviews with, and observations of staff and young people at Birtenshaw, the research aims to understand what works, for whom and in what context. The study aims to provide not only an understanding, but a replicable framework that can underpin SEND education and care for other organisations. The development of a framework based on Birtenshaw's approach could raise the standards of SEND education and care across the UK.

Keywords
Special educational needs and disability (SEND), children and young people, context, education, care

Format
Oral Presentation

International Growth of Luxury Brands – Considerations for Expansion Through Digital Platforms, Allowing for Cultural Variances

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Abstract

The environment and world we live in today is ever changing and has accelerated more so in the last two years. Retailers and brands across the globe have seen many changes to their industry. Whether this is a decline or increase in sales, or growth and expansion of their business. The footprint of brands nowadays is displayed through stores, websites and social media, which gives brands the opportunity to promote themselves through different platforms and within new and different territories. Luxury brands have created an identity through their branding, heritage and marketing. How they are perceived by others is reflective of this, and although can take years to build an identity, this can just as easily change. Digital platforms, such as social media allow for a wide audience and varying demographics to be targeted when growing brand presence or awareness. With such a vast platform demographically and geographically, cultural variances are a big consideration when reviewing what brands should promote on these digital platforms, although still maintaining their brand identity. These variances can range from meaning and connections to colours, way of life and practicality of brands products or general trends and styles within countries. For luxury brands to grow internationally there are many considerations, mainly different cultures. Brands have to move forward with the changes around us, as well as maintain who they are and what they represent. Qualitative research will be conducted to understand perceptions of luxury brands within the current market and participants views on variances of different digital platforms, cultures and projection of marketing. This research will allow brands to explore and understand how best to move into new markets and expand internationally.

Keywords

Luxury, digital, growth, brand, identity

Format

Oral presentation, Poster

Purulent Skin and Soft Tissue Collections: Will a novel clinical approach bring an infected skin/soft tissue abscess to resolution compared with the traditional method of aggressive surgical intervention?

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Abstract

Skin, and soft tissue infections (SSTI's) are a common complaint, accounting for 7% to 10% of all acute infective hospitalisations in the United Kingdom (Ki and Rostein., 2008).

The historic SSTI surgical management practice of incision and drainage (Pastorino & Tavarez., 2021) has long been associated with chronic pain, poor wound healing, poor aesthetics, and prolonged recovery through painful packing of the resulting wound (Hammond et al., 2018; Hussain et al., 2012). Such invasive treatment often requires general anaesthesia, acute operating time, and surgical bed space at a substantial holistic cost to the NHS, including, an £8.3 billion wound care burden (Hayward et al., 2008; Guest et al,. 2020). During the Covid-19 pandemic, traditional management practices became increasingly challenging to maintain (Al-Jabir., 2020).

This research will design and develop an innovative medical device which will facilitate a new, minimal access SSTI treatment approach, under local anaesthetic, without the need for a large direct incision or wound packing. The device will allow for the removal of the infective source, SSTI cavity cleaning, and implantation of an innovative mode of action, through a small single access point.

This novel practice will not require general anaesthetic, operating rooms, or admission to a surgical bed. The intended effects of the device will resolve infection, provide faster recovery times, and improve patient experiences of pain and aesthetic satisfaction.

Keywords

Abscess, Skin, Soft Tissue, Treatment, Incision and Drainage

Format

Poster

Prediction of Radiated Noise

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Abstract

It is important in many settings to ensure that noise and vibrations are controlled in order to avoid nuisance and injury. This can be applied to a domestic appliance, such as washing machine, a piece of equipment in a factory, vehicles such as cars, and many other scenarios.

In order to control noise and vibration, the vibro-acoustic transmission path of the object in question must be understood: this is the manner in which a vibrating source connects to air, when the physical vibrations of the object become sound. The In-situ Transfer Path Analysis approach is used in this project, which is a method of measuring the elements of a vibrating system in order to make a prediction on how much noise it will radiate. This prediction is then compared to the measured noise, and the accuracy of the prediction model can be determined. Presented are results of an experiment in which a sound source is measured and the radiated noise is predicted.

Keywords

Noise, Vibration, Acoustics, Radiation, Sound

Format

Oral presentation

The Lobster Pregnancy Test

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Abstract

The landing of berried (egg-bearing) lobsters into England was made illegal in 2017. Since then, an illegal technique called 'scrubbing' is thought to be used in order to be able to still land caught, berried lobsters. The aim of the Lobster Pregnancy Test project is to be able to develop a field kit that can detect scrubbing, in order to facilitate law enforcement.

The field kit in development is based on the Enzyme-linked Immunosorbent Assay (ELISA). This is a is a highly sensitive protein assay, which is the basis on tests like the human pregnancy test, or the COVID lateral flow test. When the target protein (in our case, proteins from lobster eggs released as eggs are broken during scrubbing) is detected, a change of colour in the assay is observed and recorded by Optical Density (OD).

Lobsters have been sampled by swabbing. So far 6 positive controls, 10 negative and 50 unknown have been collected for protocol optimization, in collaboration with the National Lobster Hatchery, in Padstow, Cornwall.

Preliminary results show a close, positive relationship between the intensity of the colour change and the presence of the target protein. Further tests are being run to determine how long after scrubbing the antigen can be detected for; whether the antigen is detected on newly spent lobsters and how contamination from other individuals can be ruled out.

Once optimised, this kit will allow the detection and hopefully prevent the illegal practice of scrubbing, which will help preserve the stocks of this important British resource.

Keywords

ELISA, Lobster, Fisheries, Test, Protein

Format

Poster

Do Childhood Cancer Drugs Kill Heart Cells and Why?

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Abstract

Anthracyclines are potent anti-cancer drugs used in the treatment of childhood cancers. Anthracyclines kill cancer cells by elevating levels of highly damaging molecules called reactive oxygen species (ROS) leading to a condition called oxidative stress. However, anthracyclines produce many unwanted side effects including cardiac toxicity which leads to heart failure later in life. Heart function is dependent of the billions of cells that form heart muscle. We know that anthracyclines alter the way heart cells work, but we don't know precisely how. It may be that anthracyclines also cause unwanted ROS elevations in heart cells leading to their death. The aim of our study is to determine (1) if this is the case and (2) if anthracycline-mediated heart cell death can be prevented with antioxidants; drugs that prevent the harmful effects of ROS.

Cancer and heart cells were grown then exposed to anthracyclines with or without antioxidants. We measured oxidative stress and cell death using specialist equipment.

Anthracyclines killed cancer and heart cells. The percentage of cells killed increased as drug dose increased. Anthracyclines also increased levels of oxidative stress in both cell types. However, when antioxidants were present levels of cell death and oxidative stress were reduced.

The effects on cancer cells were expected and confirmed our methods work. However, to our knowledge this is the first study to demonstrate that anthracyclines kill heart cells via elevations of oxidative stress. Encouragingly, we also demonstrate this can be prevented. This may improve the treatment of childhood cancer saving more lives.

Keywords

Cancer, Anthracyclines, Antioxidants, Oxidative stress, Cardiotoxicity

Format

Oral presentation, Poster

Filtering for Frogs: the future of conservation

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Abstract

The ecological emergency is causing extinction events across the board. Frogs are often described as the canaries in the coal mine, the early warning that the wider ecosystems are on the brink of collapse.

The last few decades have seen alarming declines in amphibian populations across the globe. Driven by a toxic cocktail of factors including; climate change, habitat loss and disease, many species have been pushed to the brink of extinction. The amphibians of Central America have been especially impacted with many iconic species missing and thought to be extinct. However, in recent years some rare frogs have been found clinging on in remote regions, offering conservationists a chance to protect them. This collaborative PhD is building upon the amphibian conservation work of Manchester Museum and the pioneering efforts of the University of Salford's Molecular Ecology Group.

The focus of this research is addressing the urgent need to discover, identify and protect these rare animals by refining methodologies and field testing applications of environmental DNA (eDNA) research. This non-invasive method works primarily by capturing the traces of DNA left by organisms in water, which can accurately paint a picture of the biodiversity within a given site. Therefore, eDNA metabarcoding has the potential to scale amphibian monitoring projects to cover larger areas by training citizen scientists, processing hundreds of samples and quickly accessing remote and inaccessible locations. With limited resources for amphibian conservation, producing large amounts of data and utilising bioinformatics is key to accurately informing conservation interventions.

Keywords

Conservation, Amphibians, Extinction, Environmental DNA

Format

Oral presentation

The Fans Behind the Tube: How brand equity exists within official and Fan TV YouTube channels of football clubs

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Abstract

With the increase of social media use, there has been a rapid growth of football official and Fan TV YouTube channels. So far, official YouTube channels of the top 5 clubs in the English Premier League (EPL) have a total 18.5 million subscribers whereas Fan TV YouTube channels established by their fans have 2.2 million subscribers. Furthermore, Fan TV YouTube channels are independent of the football club's control, they are free to share their brand perceptions without club restrictions. This poses a risk to the brand equity of football clubs. Brand equity is important because it is the value of having a recognized brand, based on the idea that firmly established and reputable brands are more successful. In this respect, this research is significant because: it is a new and developing subject in the discipline of digital marketing; and it may enable marketers to understand how to nurture, maintain and protect their football clubs' brand equity on official and Fan TV YouTube channels, given the lucrative brand value top EPL football clubs have: Manchester City Football Club $1.41 billion; Liverpool Football Club $1.34 billion; Arsenal Football Club $993 million. Through brand equity as a theoretical lens, this research employs netnography which is a form of qualitative research that seeks to understand the cultural experiences that encompass and are reflected within the traces, practices, networks and systems of social media. Thus, it investigates online interactions within official and Fan TV YouTube channels (AFTV, The Redmen TV and Man City Fan TV) that lead to brand equity of three EPL football clubs namely: Arsenal FC, Manchester City FC and Liverpool FC.

Keywords

Brand equity, brand value, official YouTube channels, Fan TV YouTube channels, football clubs

Format

Oral presentation

6G Network Communication, Architecture Core Network, Requirement Security Issues and Key Challenge

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Abstract

The wireless communication has increased exponentially in recently years, and mobile communication standards are developed every decade. Fifth generation communication has already been deployed at many places around the world, 5G network offers a data rate up to 10Gbps, and extra features, such as network layers that means put data phone in layer and IOT in second layer, but it is still far from what hyperconnected society and industry needs. Future wireless connectivity beyond 5G will require a smart and green platform that used for hight bandwidth and fast connect. Research communities and industry started planning, and preparing for beyond Fifth-generation mobile communication, that is (6G) as shown in figure 1 below. The 6G ecosystem network is expected to provide a full connectivity with terrestrial wireless and satellite communication systems as well as integration with smart devices in IoT available in vehicles, smart cities and intelligent industry. 6G system will have higher capacity that means receive a huge number of data, higher data rate, lower latency which means no delay when send and receive data, higher security and better QoS. Potential 6G research topics are; security and privacy challenges, novel network architecture, applications of 6G, physical layer security, artificial intelligence, machine learning (the idea behind AI and machine learning to make life more essayer, to take decision be themselves without human intervention for update. Research focusing on new architecture that would provide reliability and security in such heterogeneous communication environment.

Keywords

6G, novel network architecture, security, physical layer security, artificial intelligence in 6G

Format

Oral presentation

Enhanced Vector Based-Forwarding Routing Protocol (ENH-VBF) for Underwater Communications

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Abstract

Water covers 71 percent of the earth surface, making it essential for human survival. Oceanic world becomes more important due to discovery and monitoring of natural resources in the water which consist of salt, crude oil etc. Rapid changes in technological advancement have re-shaped the discovery and monitoring of natural resources which result to the emergence of Internet of underwater things (UIoT). Underwater wireless sensor network (UWSN) consists of sensor nodes which collaborate and extract information in underwater. UWSN experience communication challenges which comprises of bandwidth limitation, propagation delay, and sensor nodes energy etc. However, sensor nodes involved in underwater communication depend on battery for their life, which makes it more challenging for the sensor nodes to be replaced or recharged. Routing plays a vital role in the exchange of information between sensor nodes from source to destination. This paper proposes an enhanced underwater routing protocol named as enhanced vector-based forwarding (ENH-VBF) which tackles an effective underwater communication in terms of sensor nodes energy consumption. The performance of ENH-VBF was measured using AQUA-SIM simulator for network simulator 3 (NS-3). Result obtained indicates an improved performance in terms of packet delivery and energy consumption by ENH-VBF routing protocol when compared with other routing protocols.

Keywords

Underwater wireless sensor network (UWSN), Sensor nodes, Vector based-forwarding routing protocol, routing protocol, energy consumption

Format

Oral presentation

Fintech and Money Laundering in Nigeria: Moderating Effect of Financial Regulations and Literacy

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Abstract

The main aim of the study is to explores the relationships between Financial Technology (Fintech), money laundering, and the moderating effect of financial regulation and financial literacy on financial technology and money laundering nexus. Financial technology has greatly improved the speed of settlement, reduced regulatory burden, and promoted cross-border payment and settlement. It is argued that criminals could exploit the security deficiencies of financial technology to launder illicit funds, especially, in countries with weak regulatory framework and low financial literacy. The objectives of the research are.

1. To examine the relationship between Financial Technology (Fintech) and money laundering in Nigeria.
2. To investigate the moderating effect of financial regulations on the relationship between Fintech and money laundering in Nigeria, and
3. To examine the moderating effect of financial literacy on the relationship between financial technology and money laundering.

Technological determinism theory will be deployed as underpinning theory. The subjects of the research would be all the population of the users of fintech in Nigeria which is estimated to be 32,363,047. The data will be analyzed through regression with the use of Statistical Package for Social Sciences (SPSS) version 22.0 and the Smart Partial Least Square Structural Equation Modelling (Smart PLS-SEM) version 3.0. The findings of the study will serve as a springboard for designing policies to mitigate the emerging risks of financial technology and promote the stability of the financial system. The study contributes to the increasing literature on the emerging risks of financial technology.

Keywords

Fintech, money laundry, financial regulations, financial literacy, Nigeria

Format

Oral presentation, Poster

Understanding China's Intervention in Global Media: China-led Co-production Documentary

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Abstract

Over the past decade, China's rapid global expansion of its media industries has led to renewed interest in the connections between media and international relations. This "going out" strategy has been reshaping the country's media and cultural landscape. Nichols (2001) acknowledged documentary's function of constructing and contesting national identity. China has seen the possibility of promoting its views and challenging the Western dominated representation of itself via co-production documentaries. Since the publication of NRTA's "Advice on promoting the documentary industry" in 2010, China's documentary industries have undergone unprecedented transformation in both domestic and international contexts. Since then, these industries have been exploring new co-production models and have emerged as a key player in the global market.

Existing studies of Chinese media have primarily concentrated on concerns relating to politics, regulations, and cultural hurdles. They have tended to focus on the news, films, and print media. The documentary industries have received too little attention. In this project, I will be conducting what is called a programme research to identify the distinctive features of co-production documentary programmes. In addition to traditional methods of studying media text and audience, I will scrutinise different organisations, stakeholders, and practices that operate within the global market. As a result, I will have critically appraised the co-production documentary industries on a microlevel. These findings should contribute to our understanding of how media discourse influences politics and ideology (soft power), whilst offering fresh insights into the changing cultural and economic relationship between China and the West.

Keywords

Co-production, documentary, national identity, soft power, industry studies

Format

Oral presentation

Investigation into the Co-integration of Foreign Direct Investment (FDI) and Startups in Israel

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Abstract
This study focuses on the Causality between Startups and Foreign Direct Investment (FDI), including latent variables inherent in Founders and Co-Founders of Startups.
The originality of this research and its contribution to knowledge is based on the model that there is long-run causality between Startups and FDI, combined with the assertion that there are latent variables inherent in founders and co-founders of Startups that outweigh the general public, using Luthans' (2002) Psychological Capital model.
The study shows four latent variables in what is known as Psychological Capital. They are HOPE, EFFICACY, RESILIENCE and OPTIMISM—these latent variables influence to a large extent who are the people who endeavour to form Startups. From a questionnaire sent to thousands of Founders and Co-founders in Israel, the United Kingdom, Germany and Sweden, their Psychological Capital Index was higher than all three control groups from Israel, the UK, and 28 previous research papers on different groups of the population.
The research went on to show that Startups in Israel had a Long-Run Causality effect with Foreign Direct Investment inflow into the country. A further Panel Cross Section analysis was performed on eight other countries: Australia, Canada, China, Germany, Sweden, Switzerland, the UK and the USA. The results showed that all had long-run causality with FDI, similar to Israel. One anomaly was found not to have long-run causality, and that was China.
The final effect of this twin-track research design shows the interdependence between the Macro and Microeconomic effects on the economy of different countries. The fact that Founders of Startups have a higher Psychological Index than the general population and have a Long-run Causality effect with FDI, thus contributing to the increase of FDI inflow into the country, should be a positive signal to Governments to increase assistance and plans to help and bolster the Startup ecosystem in their countries.

Keywords
FDI, Startups, Psychological Capital, Causality, Founders

Format
Oral Presentation

Gold Nanoparticles-Enabled Combination Chemotherapy as Novel Anticancer Treatment

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Abstract

Nanoparticles (NPs) have been extensively studied in recent years due to their application in the diagnosis and treatment of cancer. Incorporating the combined properties of different nanoparticles such as their unique size, shape, and composition has led to the designation of multifunctional nanoparticles and drug-carrier systems. Moreover, recently developed synthesis techniques confer the possibility of exercising control over the shape and dimension of NPs that presents unique properties associated with novel shapes of particles. Although the structure has been known as a crucial parameter, exploiting shape-related characteristics of such as hollow structures and rod-shaped nanoparticles has still been limited. Hence, this interdisciplinary PhD study is aiming to design and synthesis novel gold NPs with different chemicals such as polyethylene glycol on their surfaces and evaluating their anti-cancer effects on a range of cancer cell lines. In addition, this project will investigate the relationship between the shape of nanoparticles and their navigation through different biological environments as well as their interactions with biomolecules.

Keywords

Gold nanoparticles, cancer, chemotherapy, drug delivery, multifunctional nanoparticles

Format

Oral presentation

Building Experts' View on the Drivers and Barriers of Vertical Greening Systems Adoption into Buildings in Nigeria

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Abstract

Climate change is significantly impacting the global environment, agriculture, and health. As climate change advances, it is becoming clear that we need to prepare for massive changes, most of which will be negative. The developing countries are at risk of combined consequences of climate change on the ecosystems, ranging from economic, social, as well as health. Global initiatives to mitigate the effects of climate change are ongoing with the development of a variety of mitigation strategies.

Vertical greening as a mitigation strategy is effective in improving the microclimate of the built environment and has been acknowledged to have several positive effects including environmental, economic, and social. However, in Nigeria, it is rarely, if ever, put into practice. This study used semi-structured interviews to investigate drivers and barriers to the adoption of Vertical Greening Systems from the perspective of building experts. With the aid of thematic analysis, the factors that hinder the adoption of the Vertical Greening Systems in Nigeria were identified as the lack of standardisation, absence of building codes and inadequate awareness of sustainable solutions. This study will provide ideas on how to enhance and promote the application of Vertical Greening Systems in Nigeria.

Keywords

Climate change, Microclimate, Vertical Greening Systems, Mitigation Strategy and Ecosystem

Format

Oral presentation

Sourcing Sustainability Products for Desired Outcome: A Case of Public Sector Procurement at Electricity Company of Ghana

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Abstract
The impact of procurement in the business world has until the past few decades been assessed by financial cost implications with no regard to environmental and corporate social responsibility issues. Sustainability in procurement considers the impact of environmental, economic and social factors along with price, quality, logistics and information handling. While sustainability in procurement is given critical consideration in most advanced economies that of Sub-Saharan Africa is yet to appreciate its full benefit. The current evaluation of procurement performance in Electricity Company of Ghana (ECG), the electricity distributor in Ghana, may be inadequate because it relies heavily on the use of price as a primary performance measurement tool. The purpose of my research is to assess the level of knowledge and appreciation by internal and external stakeholders in sustainability procurement to identify relevant qualitative themes to achieve best value for money procurement. Key challenges bedeviling the introduction of sustainability procurement in ECG has been the creation of a clear and compelling case for change. The main objective to the study is to investigate and determine sustainability drivers in goods procurement by Ghana's biggest electricity distributor. An in-depth interview will be designed and administered to participants from the Supply Chain departments in ECG and external stakeholders to explore reasons why actual sustainability practices deviate from policy. A conceptual framework will be designed linking ECG Vision and Mission to corporate and procurement objectives. The focus will be on tangible products or goods procurement to identify Strategic, Measurable, attainable, Results focused and Time-bound variables that may be used as evaluation factors in similar utilities in the region.

Keywords
Procurement, Ghana, supply chains, electricity

Format
Oral Presentation

Lack of Stakeholders Engagement During Quality Assurance in Information Systems Development

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Abstract

The inability of businesses across different sectors to deliver successful project outcomes has been an ongoing theme in recent years. Despite the reasons for failure, organizations seem unable to learn the lessons of failure. Quality assurance (QA) is an essential and crucial aspect of the software development lifecycle. The activities that are performed within QA cut across different phases of information systems development (ISD). Effective engagement of business users/stakeholders in any ISD will ensure greater chances of successful project delivery. For more than half a century, IS has continued to record low success rates and many scholars have argued that the reasons for failure stem from budget issues to technical challenges with less emphasis on stakeholder's engagement during QA. More recently, few studies have begun to argue differently based on ethical, organisational and social issues whereas this research presents a different narrative. A qualitative research methodology will be deployed which will entail conducting a survey and structured critical literature review. Data obtained from the survey will be carefully analysed to unravel the complexities associated with IS project failure.

This research has been informed primarily by the body of research carried out over the years and the author's hands-on experience. This has led to the identification of a gap in our knowledge; hence the question being asked about why the lack of stakeholder's engagement during quality assurance in ISD is poorly understood? This study hopes to propose a theoretical framework that would improve success rates in IS projects.

Keywords

Quality Assurance, Testing, Stakeholder Management and Engagement, Success and Failures in IS/IT

Format

Oral presentation

Development of Cybersecurity Framework for Bahrain's Fintech Stakeholders

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Abstract

There is a paradigm shift in the financial services industry. Financial institutions are being driven to modernize technologically as customer demand increases for remote banking services, quicker response times, and online transactions convenience. (FinTech) is the term used to refer to financial and technology convergence space solutions. It usually refers to new innovations that conduct or connect with financial services via the internet, smart devices, software applications, or cloud services and encompasses anything from mobile banking to cryptocurrency applications. Despite FinTech's advantages, cyber risks of system hackers, security breaches, and theft has become an everyday occurrence and are used to threaten the stability of this novel innovations.

This research looks into the definition of FinTech, highlights the challenges that FinTech faces, and finds what measures can effectively manage the FinTech cybersecurity risks. Furthermore, it provides an overview of the commonly adopted cybersecurity standards in the financial and banking industry. The research uses these standards as the basis for proposing a cybersecurity framework for FinTech's stakeholders in Bahrain, as regulation for this subject is still recent. A framework that ensures an excellence level by creating a balance that optimizes its advantages while lowering potential cyber threats to the financial system. Bahrain is used as a research field to illustrate the critical aspects involved in developing such a framework through in-depth research interviews with executives, experts, and other business stakeholders.

To assist in developing a usable framework to address cyber risks and threats for Fintech, the research identifies several vital factors and insights related to Bahrain, that will structure an acceptable cybersecurity framework for Fintech businesses in Bahrain. Initial findings obtained reveal the key areas that make up the proposed framework's core pillars, such as risk assessment, cybersecurity policies and governance, the efficiency of operational processes, level of technology, and promoting cybersecurity awareness and capacity building.

Keywords

Cybersecurity, FinTech, Framework, Bahrain

Format

Oral presentation

Towards a Sexy Spirituality on Stage: How Can We Experience and Express our 'True Selves' Through Performance Personae?

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Abstract

We live in a society in which we are bombarded with encouragements to authenticity, to 'be yourself'. At the same time the grand narratives of religion and normative societal expectation which offered a stable, if restrictive, ground for a sense of identity are breaking down in the face of socio-political questioning and alternative spiritualities.

I use a Performative Practice as Research Method to examine the intersection point at which spirituality, myth and archetype meet concepts of identity, sexuality and gender. My emphasis is on finding the connections between non-normative fluid, or Queer, gender and sexual identities, and their counterparts within ancient mythology and archetypal spirituality.

In practical terms this involves the creation of performances which blend archetypal themes with autoethnographic subject matter, expressed through storytelling, song, poetry and humour via the voices of several performance personae.

Keywords

PaR; Identity; Spirituality; Queer

Format

Oral presentation

Dynamic Capabilities Expediting the Transition to AIoT: The Convergence of AI and IoT

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Abstract

Customer preferences for personalisation, environmental sustainability and convenience are forcing organisations to create personalised experiences and deliver better value with products and services. In response to the evolving landscape, organisations are compelled to unlock the potential of technology and data to innovate and create cutting edge products and services. An outcome of that is the expediting transition to smart living, connected mobility, connected industry and smart cities, yielding improved operational efficiency and sustainability. Innovations such as these are an outcome of harnessing key technologies such as cloud computing, big data, Internet of Things (IoT) and Artificial Intelligence (AI) to name a few.

IoT encompasses the ecosystem of devices, applications and services developed using the data collected from sensors, which sense information surrounding the environment they are embedded in. By undertaking a systematic literature review this research outlines the phases of evolution of IoT. This is further corroborated by adopting a case study research strategy that studies how organisations embrace IoT and AI to undergo a transformation through the confluence of resources and capabilities.

By applying the lens of dynamic capabilities and resource-based view theories, early inferences reveal that dynamic organisations sense opportunities arising from the evolving technology landscape, strategise, commit resources and develop capabilities to seize opportunities thus snowballing a transformation. The resources and capabilities thus developed are deployed in value creating strategies which foster innovation and deliver upon operational efficiency. The personalised and differentiated value thus generated for customers are enabling organisations to achieve a competitive advantage.

Keywords

Internet of Things, Artificial Intelligence, IoT, AI, Digital Transformation

Format

Oral Presentation, Poster

Population Structure and Hybridisation of European Seabass

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Abstract

Extensive literature has proven that escapes of domesticated fish from aquaculture followed by interbreeding with wild conspecifics represent a threat to the genetic integrity of natural populations. In addition to disease and competition, wild populations can become inundated with genetic material from domesticated peers that reduces fitness and survivability. Extensive work has focused so far mainly on the interaction between farmed and wild Atlantic salmon, Salmo salar, especially within rivers, while very little attention has been given to marine farmed species. European seabass (Dicentrarchus labrax) is a critical species for aquaculture in the Mediterranean Sea, however, levels of introgression amongst the wild populace is unclear. With wild stocks being under ever-growing fishing pressure, it has become evident that more needs to be done to understand more about the extent and effects of introgression of farmed genes into the wild. In this study, 2,392 samples were taken from 19 farms and 33 locations in the wild and screened at 1,605 SNPs generated using double-digest RAD (ddRAD). Population structure and individual admixture were assessed using state-of-the-art statistical approaches. Results unravel previously unknown patterns of differentiation among Mediterranean populations and reveal a complicated picture. Broodstock is often moved between the Atlantic and the Mediterranean Sea, and selection practices are also clearly leaving a strong signature in the individuals' genomes. Genomics proves to be a very important tool in discovering patterns of differentiation in marine fish populations, while highlighting how unregulated and long-term farming practices can affect natural populations diversity.

Keywords

Genetics, population structure, marine biology, hybridization

Format

Oral presentation

Self-Managing Teams within Higher Education

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Abstract

Since the increase in tuition fees in 2012, UK universities are experiencing a collective pressure to deliver a superior experience to their students.

As Universities are highly complex organisations operating within considerable regulatory constraints, their ability to be creative and explore new ways of working are somewhat restricted. In addition, there may also be little free time or resource to focus on any significant change. Therefore, this calls for a reform in the way public sector teams are organised to deliver their services. Universities need to evolve into agile, responsive organisations to remain competitive within the sector.

Considering the private sectors' ability to be responsive to a change in customer needs, the implementation of self-managing teams has shown increased organisational agility. The definition of a self-managed team (SMT) is a group of employees that are accountable for all or most aspects of producing a product or service. Although there are differing frameworks available, literature on SMT generally share the same fundamental principles. These are that success lies within removal of traditional hierarchal structures and the introduction a flat structure of self-directed teams. These teams are then responsible for all elements of work including the co-ordination of activities, the management of budgets, critical decision making and overall service delivery.

However, translating the core guiding principles of SMT into a public sector organisation, such as a University, is not thoroughly researched or documented. Therefore, further research is needed to consider Universities and how they reorganise their structures to become more responsive organisations.

Keywords

Moving Forward, Service Excellence, Agile Working, Self-Managing Teams

Format

Poster

Nexus Between IT Concepts and the Built Environment: Potentials of BIM as a facilitator to other IT concepts

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Abstract

The construction industry has been associated with challenges such as slow adaptation to trends. However, with the introduction of building information modelling (BIM), several potentials have surfaced. This paper identifies the potential benefits of BIM particularly as a medium to support other IT innovative practices and tools such as Internet of Things (IoT), Virtual Reality (VR), Blockchain and much more. BIM can be a product or a process. BIM as a product refers to the digital model produced by the stakeholder involved in a project while BIM as a process refers to the process that this model is developed. A three-step methodology process was adopted in this paper. The first step was a systematic literature review of the publication that were associated to information technology, built environment, and BIM. The second step is synthesizing the identified literature gathered from several database including web of science, Scopus, and science direct. The third step involved discussion and the presentation of the data collected through the utilization of VOSviewer which is a software tool for constructing and visualizing bibliometric networks. From the discussion of this paper, it was evident that BIM has the potential to support IT related concepts. Although research in this field is gradually gaining recognition, there is need to test the practicality of how compatible BIM is with this concept. Thus, this paper recommends further research on the practicality of BIM serving as a foundation to facilitating IT related concepts in the built environment practices.

Keywords

Information Technology (IT), Internet of Things (IoT), Building Information Modelling (BIM), Built Environment, Virtual Reality (VR), Blockchain Technologies

Format

Oral presentation

Psychological Distress in Chinese Breast Cancer Patients Receiving Chemotherapy: Current situation and expressive writing intervention

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Abstract

Purpose: This portfolio of six published works aims to explore the current situation and evaluate the effects of an expressive writing (EW) intervention on psychological distress in Chinese breast cancer (BC) patients.

Methods: First, a systematic review was conducted to understand the experiences of women with BC undergoing chemotherapy. Then, to further explore the situation of psychological distress among Chinese BC patients, patient-caregiver concordances about distress was examined, and the Emotional Inhibition Scale was translated and validated into Chinese. Furthermore, the effects of EW, a convenient psychological intervention, was tested in a multi-center randomized controlled trial in Chinese BC patients receiving chemotherapy.

Results: BC patients undergoing chemotherapy need effective support. In the Chinese culture, family caregivers tended to underestimate BC patients' psychological distress. The Chinese Emotional Inhibition Scale demonstrated acceptable reliability and validity for assessing emotional inhibition in Chinese cancer sample. Furthermore, EW may have a significant positive impact on health outcomes in BC patients, but this benefit may not last long. Further tests suggest that the writing dosage does not appear to improve the efficacy of EW in BC patients receiving chemotherapy, and the level of emotional expressivity and the pattern of affective word use could be factors that may moderate the effects of EW on quality of life.

Conclusion: Chinese BC patients tend to inhibit their emotions. An EW intervention may have a positive effect on BC patients, and emotional expressivity and writing content could predict beneficial effects of EW in BC patients receiving chemotherapy, which might help clinicians identify the individuals most likely to benefit from such writing exercise in China.

Keywords

Breast cancer, psychological distress, expressive writing, emotional expression, well-being

Format

Oral presentation

A Case Study Approach to Art Collections in Manchester/Liverpool to Test the Future Possibilities of Online Exhibitions

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Abstract

This research examines digital curation in relation to local art collections in the Greater Manchester and Liverpool area. 'Digital curation' can be considered as the employment of different types of technology (for gallery display, online presentation, and data storage) to present exhibits in a new and accessible way. Four separate artists' works from Chinese art collections will be used: University of Salford Art Collection; the Centre for Chinese Contemporary Art (CFCCA), Manchester; Open Eye Gallery in Liverpool; and the Tate Liverpool. Through the case studies, practical aspects of digital curation will be demonstrated including the use of photographs, artist biographies, the archiving, and the presentation of the respective works of art. In terms of the works of art to be digitized, the focus is on contemporary art in China, especially the post-1979 Chinese art collections in Manchester/Liverpool. A key part of the project will be a comparative study of the Spatial and Omeka-S software programmes which provide platforms for online exhibitions.

My methodology will take Sino--British perspective and contemporary art history on digital curation. This research aims to make a new contribution to knowledge as little research has been conducted into cross-cultural aspects of digital curation. It is relevant to current problems as a result of the COVID-19 pandemic which has caused museums and galleries to rethink their approaches to exhibitions. It will also explore the possibility of the online exhibition as a platform for cultural diplomacy since national culture has become a manifestation of soft power.

Keywords

Digital curation, Online exhibition, Virtual exhibition, Chinese contemporary art, transnational culture

Format

Oral presentation

Role of MYC and Cyclin D1 in Breast Cancer Stem Cells

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Abstract

Cancer is the second leading cause of death in the world. Among cancers, breast cancer presents the highest rate of cancer incidences in females. Cancer stem cells (CSCs) are small cell subpopulation within tumours that play a vital role in cell proliferation, growth and expansion of tumour mass. CSCs are resistant to conventional anticancer therapy and are able to generate new tumours in other tissues by moving in the blood. Mitochondria are the cell organelles that produce most of the energy needed for the cells function. Recent evidence shows that CSCs have high mitochondrial mass and rely more on mitochondrial metabolism. Identifying potential target in CSCs could provide a promising way to eradicate CSCs and overcome tumour regrowth. The aim of this study is to investigate the effect of two genes (named MYC and Cyclin D1) on metabolism, survival, and propagation of breast CSCs. For this purpose, the green fluorescent protein (GFP) was inserted downstream of the mentioned genes. The cells having high fluorescence intensity represent the cells with high expression and activity of the gene of interest. Afterwards, the metabolic and stemness features of cells were analysed using different assays. I found that breast cancer cells with high activity of the gene of interest are enriched in cancer stem-like cells and show higher mitochondrial metabolism. Different compounds will be tested on breast CSCs to target the selected genes, effectively inhibit mitochondrial function and CSCs growth.

Keywords

Breast Cancer, Tumour, Cancer stem cells (CSCs), Mitochondrial metabolism, green fluorescent protein

Format

Oral presentation, Poster

Measurement and Analysis of Volatile Organic Compounds (VOC) Emissions from Major Pressurised Domestic Aerosol Sprays

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Abstract

VOCs (volatile organic compounds) are a type of air pollution that are found in larger amounts indoors than they are outdoors. Aerosol sprays, such as hairsprays, air fresheners, insecticides, body sprays, antiperspirants, dry shampoos, oven cleansers, and shoe sprays, are a major source of indoor VOCs. This is owing to the high amount of propellants in each pressurised aerosol container, such as blends of Liquefied Petroleum Gas (LPG, e.g. butane) as the main propellant. Volatile Organic Compounds (VOCs) are organic compounds that quickly vaporise at room temperature and contribute to indoor air pollution. These aerosol sprays almost certainly include VOCs. As a result, they can have a direct impact on human health, reducing life expectancy because of respiratory and cardiovascular disorders, and damaging lung function. Indoor emissions from fragranced products can travel outside and contribute to the creation of urban smog.

This study measured VOC emissions from off-the-shelf aerosol sprays at "source" in the United Kingdom. As propellants and products, these aerosol sprays include hazardous chemical substances. Female and male body sprays with different sizes and brands were selected to analyse. Results showed that the average percentage of Propellant VOC of all cans tested is 58% and the average percentage of Bulk is 42%. Therefore, no matter what the can size is, the level of VOC is almost same which is about 58% of VOC per each can. This translates to a potential decrease by more than half of the VOC emissions from the body spray category of domestic sources of air pollution if LPG is replaced by clean air.

Keywords

VOC, Domestic aerosol sprays, Emission, Body Sprays, Ozone forming potential,

Format

Oral presentation, Poster

Three Minute Thesis™

Postural, Physical and Musculoskeletal Impacts of Children using Personal Electronic Devices

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Co-Sponsored by Cardinus Risk Management Ltd.

Abstract

Personal electronic devices (PEDs) usage has increased in children over the past decade for schooling and personal use. Little research has been done looking at children using PEDs and the effects this usage has on the musculoskeletal system and posture. This study aims to explore biomechanical/physiological changes in children using PEDs and if this is linked to self-reported PED usage, and back/neck pain.

Participants with no muscle pain or neck/back pain aged 7-17 years old, were recruited from NHS departments and social media for a lab-based and a virtual study. The lab-based study measured muscle activation and tone of muscles in the back and neck, and the spinal curves. The tests were done with the participants using and not using a tablet sitting and standing. The virtual study consisted of an interview and observations of children using PEDs in a free-living environment.

In the lab based study (n=47) children with pain increased the curves of their spine greater when using PED compared to healthy children. Muscular activity changed when using a PED both in sitting and standing in all groups. In the virtual study children (n=30) used PEDs more at the weekends however children with pain used PEDs more than healthy participants throughout the week. All participants in the virtual study sat in unconventional positions when using PEDs.

Children's increased PED usage, posture and muscle activity changes when using a PEDs may lead to back and neck pain. These results suggest the need to understand how ergonomic factors could be impacting on physiological differences in how children are association with pain.

Keywords

Musculoskeletal pain, Personal electronic devices, Children, Technology Usage

Format

Three Minute Thesis™

Sharkdust: A novel approach to monitor the illegal trade of shark and ray products

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Abstract

Trade restrictions have been established to counteract the rapid global decline of sharks and rays. Tackling the illegal trade of endangered species poses enormous challenges for authorities, including taxonomic ambiguity, product variety, logistical issues for inspections and trade flow complexity. Traditional genetic techniques have been developed, but these techniques are either time-consuming or species-specific, and generally fail to provide a comprehensive picture of the biological complexity of underlying trade patterns. Here, we explore a powerful, alternative option, based on the next generation sequencing of trace DNA fragments retrieved from dust and scraps left behind by trade activities. We collected 28 'sharkdust' samples from seven processing plants across Java, Indonesia, and generated shark and ray DNA sequences. We also collected individual tissue samples (183) in the same processing plants and identified the species from mini barcoding technique (MBT) for comparison. Over 74% of DNA sequences belonged to CITES-listed species; the species that restricted being traded internationally under CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) by concerning their vulnerability to extinct. The top five CITES-listed species detected from 'sharkdust' were hammerhead sharks (Sphyrna spp.), silky shark (Carcharhinus falciformis), bigeye thresher shark (Alopias superciliosus) and the recently CITES-listed giant guitarfish (Glaucostegus typus). A total of 75 shark and ray genera (representing half of chondrichthyan orders) were identified, with 20 more genera detected using the dust samples than those identified with MBT. Furthermore, dust samples were shown to be effective at capturing the species diversity being exploited. We argue that this 'sharkdust' approach is likely to become a powerful and cost-effective monitoring tool wherever marine wildlife is traded.

Keywords

Trade monitoring 4.0, Indonesia, CITES, Sharks, Rays, DNA metabarcoding

Format

Three Minute Thesis™

An Investigation into the Effects of External Factors on Employee Engagement in the Nigerian Hotel Sector (A Study of Selected Hotels)

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Abstract

Engaged employees are enthusiastic, proactive, efficient and passionate about their work. This gives their organisation a competitive edge, better performance levels and higher profitability. Globally, only 20% of employees are engaged. As a major strategic approach to sustainable business performance, much has been written on Employee engagement, but little is known about the external factors affecting the engagement of hotel employees in developing countries. This research bridges this gap, contributes to existing literature, and suggests that there may be factors beyond typical workplace conditions that influence employee engagement.

This research aims to investigate the extent to which government policies and labour union activities affect employee engagement in the Nigerian hotel sector. Prompted by previous research findings, it generates new evidence of how government policies and labour unions affect the salaries, benefits, and working conditions of hotel employees, impacting engagement levels. The study prompts hotel employers to consider the impact of external factors when planning employee-engagement strategies.

From a qualitative perspective, semi-structured interviews were conducted on thirty hotel employees in three five-star hotels in Nigeria. By examining the themes raised in interviews, findings reveal that lack of representation by the labour unions, unfavourable government policies and job insecurity within the Nigerian hotel sector affect employee engagement. Competitive salary, adequate incentives and compensation will help cushion the impact of external factors.

Keywords

Employee engagement, motivation, commitment, Job satisfaction, hotel employees

Format

Three Minute Thesis™

Validating environmental DNA as a powerful and cost-effective monitoring technique for declining, elusive, and invasive mammals

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Abstract

British mammals have suffered huge declines and to better understand the impact on mammalian communities, accurately measuring species distribution is important. However, using current monitoring methods it can be a difficult task, as usually multiple methods are combined to provide a full snapshot of the mammalian community. As mammals move through the environment, they leave behind traces of their DNA in the form of skin cells, fur, urine or faeces. This DNA degrades in the environment and can be collected through environmental samples such as water or soil, this is termed environmental DNA or eDNA. Environmental DNA provides a rapid, reliable, non-invasive method for detecting and monitoring mammalian communities without impacting the species or the habitat in which they live. This method has revolutionised monitoring surveys by applying specialised laboratory methods which can identify multiple species simultaneously from the DNA extracted from environmental samples. My research focuses on investigating the use of eDNA further for providing a real-world application for detecting and monitoring rare, endangered terrestrial and semi-aquatic mammals that could be applied widely and in a cost-effective manner. To do this, eDNA surveys are compared with established traditional methods such as camera trapping and field sign surveys to highlight how efficient eDNA is for detecting multiple mammal species. Environmental DNA data has the potential to inform species distribution and diversity to build an understanding of where species are located to inform the conservation management of those species.

Keywords

Environmental DNA, mammals, terrestrial, semi-aquatic, monitoring, citizen science

Format

Three Minute Thesis™

Predictive Maintenance of Industrial Assets

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Abstract

In the view of the Industry 4.0 (4th Industrial revolution focusing of rapid advancement of smart automation) trend, Intelligent Predictive Monitoring and Decisive making process or control strategies have become a crucial requirement in today's Manufacturing Industries to safeguard Data exchanges and Industrial assets from damages that hinder overall company goals. Poor maintenance of assets can cause unusual downtime which can in-turn affect the overall cost effectiveness of the plant.

From the automation point view of system, efficient and right use of sensing systems can help detect the failure states which can Identify faults which would be difficult to control and monitor otherwise. With advancement in technology, it is an absolute requirement to have Predictive Maintenance (PdM) enabled with Intelligent Sensing systems that exploits the different Machine Learning algorithms to precisely predict the events of faults while utilizing minimal resources. Traditionally, physics-based models are used for better performance indication under the condition that they are accurately modelled as there exists many nonlinearities within the system.

PdM based data-driven methods have emerged as highly productive solution to cater for industrial data and smart manufacturing hubs, specifically to execute health recognition (e.g., failure analysis, and assessment of remaining useful life). Hybrid models are capable of providing benefits from both the data- and physics-based models. The crucial process data applied to different AI (Machine learning and Deep learning techniques) along with a hybrid-based decision-making system can help reduce the total dependency on model-based system and give far more benefits in terms of accuracy and reliable fault prediction.

Keywords

Predictive Maintenance, hybrid models, Machine learning, remaining useful life

Format

Three Minute Thesis™

Exploring How Certain Features of Autism Spectrum Disorder Can Provide the Context of Vulnerability to Engaging in the Incel Identity: Risks and protective features

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Abstract
I am studying incels (involuntarily celibate), who are often men who believe they are never going to have sex, and that they are entitled to sex with women. They have developed an extreme hatred towards women, because of this belief. These men meet with each other on social media and other Internet platforms to share their ideas and their beliefs. These websites are a breeding ground for extremism. A number of incels have autism spectrum disorder (ASD) or display strong traits of ASD. This research seeks to understand how ASD can sometimes make some men with ASD more drawn towards, and find significance in, communities of incels. I am planning, through a series of interviews to talk to young men on the autism spectrum and young men who are incels, as well as those who identify as both, looking for the potential risk factors that they share. With this research I can get a better understanding of how these two groups relate to one another. With my eventual end goal being a way to inform the development of timely and appropriate prevention strategies and support for young men with ASD who may be at increased vulnerability from becoming drawn into woman hating, extremist groups.

Keywords
Incels, ASD, Internet, Autism, Extremism

Format
Three Minute Thesis™

An evaluation of Management Control Systems using the framework of Performance Measurement Systems: A case of the Banking sector in Pakistan

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Abstract
Management Control Systems (MCS) is a recently growing area of research, MCSs are found to significantly influence organisational performance. In today's changing business environment, the need for effective Performance Measurement Systems (PMS) is increasing at banks for the effective management of their operations, and to rapidly adjust against the changes in the external business environment. Keeping in view this fact, the current study has been aimed at investigating the common forms of MCS working at banks in Pakistan and understanding the relationship between MCS and PMS at banks in Pakistan. The current study has selected banks as the target market because of the intense importance of this sector for the economy of Pakistan. The data from 106 branches of 22 banks has been collected using a structured questionnaire and has been analyzed using SPSS and AMOS. The study will make important contributions theoretically by adding advanced research on the banking sector of Pakistan, and it will contribute practically by highlighting and suggesting ways for banks to improve their performance measurement systems.

Keywords
Management Control Systems, Performance Measurement Systems

Format
Three Minute Thesis™

Investigation into the Co-integration of Foreign Direct Investment (FDI) and Startups in Israel

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Abstract
Many of us have said to ourselves – "I have a fantastic new idea" – Yes, it happens to every one of us, sometimes more than once over the years. The majority have not done anything about formulating this idea into reality.
This research shows four latent variables in what is known as Psychological Capital (PsyCap). They are HOPE, EFFICACY, RESILIENCE and OPTIMISM—these latent variables influence to a large extent who are the people who endeavour to form innovative Startups. From a Likert questionnaire sent to thousands of Founders and Co-founders of innovative startups in Israel, the United Kingdom, Germany and Sweden, their Psychological Capital Index was higher than all three control groups from Israel, the UK, and 28 previous research papers on different groups of the population. These encouraging results also show that the PsyCap Index for Founders and Co-founders of Startups increases with age and higher education. The research also shows that startups cause Foreign Direct Investment (FDI) inflow into the country in the long run. Apart from the Israeli economy, this study showed that these results hold for seven other countries using a Pooled Cross-section analysis of the data. The fact that Startups have a Long-run Causality effect with FDI, thus increasing the inflow of FDI into the country, should be a positive signal to Governments to increase assistance and plans to help and bolster the Startup ecosystem in their countries.

Keywords
FDI, Startups, Psychological Capital, Causality, Founders

Format
Three Minute Thesis™

Lack of Stakeholders Engagement During Quality Assurance in Information Systems Development

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Abstract

Information systems (IS) failure has been a constant menace in the past half a century. The inability of organizations across multiple sectors to deliver successful project outcomes has been an ongoing theme in recent years amongst scholars and practitioners. Despite the numerous reasons for failure, organizations seem unable to learn the lessons of failure. This study seeks to contribute to the body of knowledge by addressing some of the key issues by providing insight into the need to focus on stakeholders' engagement and participation during quality assurance. Quality assurance (QA) is a crucial aspect of the software development lifecycle. The activities that are performed within QA cut across different phases of IS development. The role of stakeholders during QA in information systems development (ISD) is poorly understood. Hence, this investigation also aims to propose a sustainable theoretical framework that could minimize the failure rates. A qualitative research method will be utilized for this investigation. Primary data will be obtained from surveys while secondary data will be from an in-depth review of the literature with specific attention to the retail and health sectors. A thorough evaluation of these data sets will enable us to unravel some of the challenges associated with the lack of stakeholder engagement. Empirical evidence and the author's personal experience have led to the identification of a gap in our knowledge which is the novelty this research offers. This has resonated with some questions being asked such as how can we improve stakeholders' engagement during QA in ISD?

Keywords

Quality Assurance, Testing, Stakeholder Engagement, Success and Failures in IS/IT

Format

Three Minute Thesis™

Towards a Sexy Spirituality on Stage: How Can We Experience and Express our 'True Selves' Through Performance Personae?

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Abstract

We live in a society in which we are bombarded with encouragements to authenticity, to 'be yourself'. At the same time the grand narratives of religion and normative societal expectation which offered a stable, if restrictive, ground for a sense of identity are breaking down in the face of socio-political questioning and alternative spiritualities.

I use a Performative Practice as Research Method to examine the intersection point at which spirituality, myth and archetype meet concepts of identity, sexuality and gender. My emphasis is on finding the connections between non-normative fluid, or Queer, gender and sexual identities, and their counterparts within ancient mythology and archetypal spirituality.

In practical terms this involves the creation of performances which blend archetypal themes with reflective subject matter drawn from personal experience, expressed through storytelling, song, poetry and humour via the voices of several performance personae.

Keywords

PaR, identity, spirituality, queer

Format

Three Minute Thesis™

Dynamic Capabilities Expediting the Transition to AIoT: The Convergence Of AI and IoT

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Abstract

The growth in products and solutions surrounding smart living, connected mobility, connected industry and smart cities are an outcome of innovation led by harnessing key technologies such as cloud computing, big data, internet of things (IoT) and artificial intelligence (AI) to name a few. According to strategy consultants McKinsey, IoT is expected to deliver an economic impact of up-to eleven trillion dollars globally by 2025.

This research outlines the phases of evolution of IoT derived from a systematic literature review. The findings are further investigated by interviewing senior executives at global industrial manufacturing organisations (IMOs) by adopting an exploratory case study research strategy. The purpose of which is to develop an understanding of the resources and capabilities developed by IMOs as they embrace IoT and AI, and the role of these resources and capabilities in delivering a competitive advantage.

Early deductions through the lens of dynamic capabilities and resource-based view theories, divulge that dynamic IMOs are sensing opportunities emerging from the evolving technology landscape, and are strategising, pledging resources and creating capabilities to capture opportunities, effecting a burgeoning transformation. The resources and capabilities consequently developed are deployed in value creating strategies to deliver personalised and differentiated value. The value for customers delivered is either in the form of enhanced smart products and services, pro-active maintenance or improved operational efficiency. Early findings are revealing that IMOs are achieving a competitive advantage by leveraging data, IoT, AI and associated technologies.

Keywords

Internet of Things, Artificial Intelligence, IoT, AI, Digital Transformation

Format

Three Minute Thesis™

The Transferability of Plant Pest Models

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Abstract

Plant diseases have increased dramatically in recent times with significant environmental and economic impacts. Surveillance for early detection of new epidemics is crucial for successful control and eradication. How surveillance relates to the prevalence of disease is a novel subject that is vital for scientists to explore to inform policy makers as to best approaches to allocating surveillance resources. Parnell et al.'s rule of thumb is a mathematical model predicting the prevalence of disease when it is first detected. How this model performs across a wide range of epidemic scenarios is one example of measuring transferability. The accuracy of the rule of thumb over large spatial scales with hosts population distributed differently in space is not fully known. To measure the transferability of this model we run thousands of simulations with varying epidemic conditions and host population dynamics. Using a computer simulated monitoring program, we calculate how far an epidemic has spread before being detected and compare this to our prediction prior to observation. Is there is a significant gap between our rule of thumb prediction and the simulated outcome? Do the altering parameters of our simulation model affect the accuracy of the rule of thumb? If so does this make the rule of thumb less transferable with practical application? Advancements in surveillance modelling are necessary to keep pace with the increase of plant disease globally. Perhaps more importantly, developing and testing models that are transferable is vital for their practical application. Models feed ecosystem sustainability, trade and conservation strategy leading to new frontiers of food production and ecosystem security. With the precedent of global challenges to food security and biodiversity, modelling is a well established strategy for addressing these imminent issues.

Keywords

Plant disease, epidemics, surveillance modelling

Format

Three Minute Thesis™