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ABSTRACT BOOK

Research Conference 2017

July 4 – 5 2017

Poster Location: 1

Name: Raphael Mokwenye

Title - Dementia: Disease, Myth or Folk illness?

Dementia impacts on people's health in many ways, and can be considered as much a social or cultural phenomenon as a biological phenomenon. Amongst sub-Saharan African communities in London, dementia beliefs can form part of a complex body of inherited knowledge or folklore.

The study aims to explore the perceptions and understanding of dementia diagnosis, treatment, and care, from a socio-cultural perspective amongst the sub-Saharan African population in South London, and how this informs our knowledge for further intervention.

Mixed methods research (observation, interviews, focus groups, quantitative data analysis) will be undertaken to gain understanding of local attitudes and behaviour in the understanding of dementia diagnosis, treatment, and care.

Findings will illustrate how social and cultural factors influence health and health seeking behaviour, and may inform policy on how traditional beliefs or perceptions of dementia can conflict with health professionals' practice.

Poster Location: 2

Name: Samira Safari

Title - Recover of Phosphorus from Municipal Wastewater

Wastewater treatment plants (WWTPs) in Europe, including the UK, have very strict limits on the phosphorus concentration of the treated effluent which are up to 0.1 mgP/L. Even when enhanced biological and chemical P removal are practiced in the WWTPs, limits below 1-0.5 mgP/L cannot be obtained.

This paper investigates the feasibility of P recovery from aqueous solution by applying Fly Ash (FA) and natural zeolite (Z-N). The P removal capacity of FA and Z-N was identified by testing the effect of adsorbent quantity (5 and 10 g/L), the solution pH (4, 7 and 9) and the initial phosphorus concentration (10, 50, 75 and 100 mg/l P) at room temperature (20°C ± 2).

The results showed that high P removal rates were achieved for Z-N when the initial/adjusted pH of the aqueous solution was between the 4 and 7. The adsorption isotherms and kinetics for Z-Fe followed the Freundlich model and the Pseudo Second-Order model respectively.

Poster Location: 3

Name: Daniel Horton

Title - Investigating whether preventing genome reorganisation can confer resistance to infection in snails

Nuclear organisation is highly regulated with chromosomes and genes occupying specific regions. However, movement is sometimes necessary and is associated with gene activation or inactivation. The mechanism for this movement is, therefore, a target for pathogens, which have evolved ways to manipulate gene activity to increase their chances of survival. *Schistosoma mansoni*, which is responsible for the neglected tropical disease schistosomiasis, is one such pathogen, which manipulates gene activation in its first host, a freshwater snail. Using the snail, a model for this gene movement was developed and it was demonstrated that the drug 2, 3-Butanedione monoxime (BDM) can inhibit this gene movement. Therefore, a small pilot study was run at the Wellcome Trust Sanger Institute to investigate if BDM treatment could make the snails resistant to infection. The results, though encouraging, have proven inconclusive.

Poster Location: 4

Name: Emmanuel Shittu

Title - Cool Roof Technology: solution to achieving energy efficiency and thermal comfort in low rise buildings in high solar radiation countries

The aim of this case-study is to apply computational method to investigate the effect cool roof technology application on roof surfaces of naturally ventilated low rise buildings located in high solar radiation countries, namely; Brazil, Ghana, and Jamaica. Cool roof material is a passive building technology that works by reflecting solar radiation, hence reducing the magnitude of heat transfer from the buildings external surface to the buildings internal space. This in turn reduces cooling energy demand and improve indoor thermal comfort. Other benefits include reduction in peak electricity demand, and lower greenhouse gas emission. The computational results shows a significant drop in annual cooling energy demand and improved thermal comfort after the application of solar reflective paint on the buildings' roof surfaces. The impact on the reduction of CO₂ emission is determined by the countries fuel use for cooling in the study case regions.

Poster Location: 5

Name: Yaser Hamed

Title: Aesthetics of (Un)belonging in Contemporary British South Asian Fiction

Identity studies have seen an increasing interest in postwar academic circles. The surge in postwar immigration to Britain has raised important questions about belonging and lack of it. In other words, “to belong or not to belong, that is the question” contemporary British South Asian fiction continues to be concerned with. Unlike conventional literary studies that preoccupy themselves with Britishness or its expansion, immigrants’ belonging, alienation, loss or displacement, this study responds to key postcolonial theorists but draws more upon structuralist, post-structuralist, feminist and psychoanalytic philosophies and theories. It addresses the gap of insufficient debate around ethical and aesthetical textual impact of (un)belonging as a variable and ambivalent phenomenon among generations and experiences. The key contribution lies in the attempt to shift focus and perspective of dealing with such psychocultural phenomena from the postcolonial and sociopolitical to the textual and philosophical.

Poster Location: 6

Name: Hanan Alsaari

Title: Tracking for Real-Time Unaware Sensitivity Analysis Based Forecasting for High Frequency Financial data.

With the advancement of computer technology, the term “big data” has become more and more popular in the financial markets. In the literature of finance, this term, in many cases means high-frequency data, whose dimension almost reaches as much as 10 GB per day. Since its inception, high frequency trading has caused major financial rewards on one hand and equally devastating losses on the other. The purpose of this research work is to explore and build predicting approaches for better understanding the principles of high frequency trading, the risks associated, and the mechanisms that lead to decision making. We intend to explore the key factors that influence the processes, the information infrastructure and the key financial models that affect decision making.

Poster Location: 7

Name: Mursal Sherzai

Title - DAO inhibitor preclinical therapeutic studies for FRDA

Friedreich ataxia (FRDA) is an inherited progressive neurodegenerative disorder with currently no effective therapy available. The disease causes damage to parts of the brain and spinal cord which deprives sensory input to coordination movement. Thus, FRDA patients have a loss of sensation in arms and legs, difficulty in walking, and impaired speech. It has been proposed that high levels of D-amino acid oxidase (DAO) enzyme activity affects regular neural transmission extensively in the cerebellum, and in turn inducing stereotyped behaviour and ataxia, as seen in FRDA. In this study, a small molecule inhibitor of DAO, TAK-831, was investigated using FRDA (YG8sR) and normal mice. We found that chronic dosing of TAK-831 was well tolerated and a significant improvement was observed in the motor coordination ability in FRDA mice, compared to control groups. The outcomes of this study encourage the continued study of TAK-831 as a potential therapy for FRDA.

Poster Location: 8

Name: Thomas Fudge

Title - Decentralised Sanitation for Refugee Camps with Energy & Nutrient Recovery

Thomas Fudge

There are 21.3 million refugees (UNHCR, 2017), with people forced to find settlements, where they could end up staying for 17 years. The camps require certain facilities to provide the necessities such as clean water and energy for cooking. Typically UNHCR will take responsibility for the camps providing sanitation, water and sometimes energy. Human excrement and waste are often not treated and dumped away from the camps, which can lead to environmental damage and the spread of diseases. The energy required for refugees to cook and build bricks for shelters results in 49,000 football pitches of forests cleared annually (Chatham House, 2016). This study is exploring the use of microbial electrolysis cells and microbial fuel cells to treat the waste that will produce energy for cooking, water and sludge that can be utilised locally for agriculture. The energy recovery is estimated to be between 1.5-7kWh a day.

Poster Location: 9

Name: Souhaila Al Hesso

Title - Purchasing Power Parity

The World Bank applies purchasing power parity to calculate the poverty line. Purchasing power parity (PPP) exchange rates compare the level of consumer prices across countries.

My research address whether the World Bank use the wright technique in calculating the poverty line as I believe there is no single international poverty line for whole world since: firstly, countries have experienced different inflation rates. Secondly, the cost of living differs from country to another. Finally, countries have different PPP conversion rates as their exchange rates are different. So I am applying a method that considers the inflation rate, PPP conversation rates and cost of living in each country.

Our results indicate that considering these three factors, the resulting poverty line is different from the one that has been announced by the World Bank. Additionally, different countries have its own poverty line which is not applicable to another country.

Poster Location: 10

Name: Angel Naveenathaya

Title - Microfluidic Mimicry: Vagina-on-Chip (VoC)

Bacterial Vaginosis (BV) is one of the most common vaginal disorders suffered by women, yet it is unclear what causes the infection. It is a disease which desperately needs new treatment as it has been shown to affect up to 50% of the female population in the developing world and up to 33% of women in the developed world [1]. To treat the infection, women are prescribed with antibiotics or vaginal cream/gel however some may experience reoccurrence after treatment. At present, no effective treatment is available for this condition. With new studies now focusing on the new paradigm Organ-on-Chip (OOC), this project involves creating a powerful 3D printed microfluidic tool; Vagina-on-Chip (VoC) to investigate BV: an *in vitro* model that can mimic the *in vivo* function of the human vagina. This will provide a new platform to study BV, for drug development and find better treatment to improve female healthcare.

Poster Location: 11

Name: Marianne Henry

Title - Are Stem Cells Safe?

Human pluripotent stem cells are a form of stem cells that have the ability to turn into almost any cell type in the body; be it a brain cell or a blood cell. Because of this ability, they are increasingly being used for therapies worldwide that could potentially soon turn into treatments for a range of conditions, such as diabetes or Alzheimer's. However, with the number of genetic abnormalities appearing in these cells, their safety is in question. Normally within a human cell nucleus, there are forty-six chromosomes, but in these cells this number often varies with specific gains and/or losses of chromosomes. This, in itself, creates issues around how safe these cells actually are if they are to be used on patients in the near future. Here, we investigate a number of screening methods to identify how safe or unsafe it is to use these cells.

Poster Location: 12

Name: Nur Farahwahida Ab Aziz

Title - Reconfigurable antenna using circular patch antenna

In modern telecommunication system, increasing demand of an antenna with high gain, wide bandwidth and good radiation efficiency while maintaining low profile structure has led to the development of reconfigurable antenna. Reconfigurable antenna is achieved through deliberately changing its frequency, polarization or radiation characteristics. This paper contemplates a theoretical analysis of a pattern reconfigurable antenna using circular patch antenna operating in low frequency. The patch antenna has a ground plane in front of the antenna to reduce losses. The reconfiguration is carried out by inserting metal cylinder on the antenna design. By controlling pin diodes associated with the metal cylinder, the radiation pattern of the proposed antenna changed accordingly. The proposed antenna design is working at a frequency of 1GHz.

Poster Location: 13

Name: Sheyda Shahriari

Title - Finding a link in neural correlates of human's perceptual and illusion

Loss of limb function affects over 25 million globally, mainly due to cardiovascular and trauma causes. The loss or the genetic absence of an upper limb may seriously compromise the functional independence of a person in his/her daily living. Current prostheses are useful to overcome the restrictions that the lack of a limb implies and to provide the amputee with certain autonomy but due to the complex nature of the upper extremity the acceptance of current devices is still below 50%. Many of these devices are often extremely expensive in the range from the \$3000-\$30000 or more and many afflicted persons in developing countries cannot afford to seek this type of treatment. In these areas often there is not adequate medical assistance and trained personnel with rehabilitation of upper limb loss is almost none existent with devices that are inherently the same as the devices used over a thousand years

Poster Location: 14

Name: Kirsty Edwards-Capes

Title - (pseudo)motherhood, care constructs and the geography of the nuclear family: class, gender and the suburbs of contemporary fiction

Existing research on gender in the suburbs draws on geography and feminist theory to demonstrate patriarchal constructs within (sub)urban spaces. Western suburban landscapes are fundamentally underpinned by the most entrenched patriarchal constructs of modern society: the nuclear family, the workplace, motherhood, housewifery and marriage.

These constructs are enforced in domestic spaces and evident in fiction. My research will examine the role of the mother, or the mother figure, within suburban settings, focusing on non-traditional maternal figures, such as foster / adoptive mothers, female relatives as primary carers, institutional care and orphanages.

As spaces change, so do the demographic makeups of suburban neighbourhoods, and the poster will also discuss intersections of gender, race and social mobility in fiction, and my own novel which forms part of my PhD thesis: a work of working-class, feminist, suburban fiction which examines motherhood through the eyes of a 15-year-old girl in foster care.

Poster Location: 15

Name: Habiba Lais

Title: Removal of Fouling in Submerged Structures Using High Power Guided Ultrasonic Waves

Fouling build-up is a known problem in industry as this affects operation of a structure. This work proposes an alternative non-invasive solution to fouling removal of structures using high power ultrasonic transducers whilst the structure continues its operation. The scope of work includes experimentation in fouling creation (crystallization and biological fouling), transducer characterisation, modification and optimization. Finite Element Analysis research in High Power Ultrasonic transducers, optimising cleaning coverage and Fluid-Structure Interaction models for the purpose of optimising the technique for industry application. The final stage of the research is to achieve cleaning in a deep-sea pipeline across 6 meters of length in experimental trials. Current findings has shown an impact into optimisation of transducers based on the structure parameters for improve cleaning along with the ability to predict cleaning results prior to experimental trials for the HiTClean Project.

Poster Location: 16

Name: Saba Saqlain

Title - Investigating Friedreich Ataxia Disease Mechanisms and Therapy

Friedreich ataxia (FRDA) is a neurodegenerative disease. FRDA patients exhibit features, such as diabetes, disease of the heart, curved spine and impaired muscle coordination. This creates problems with basic movements, such as walking and speaking.

Approximately 98% of FRDA patients inherit a faulty gene from both parents. This disease is caused by a change in the DNA sequence, where the number of a three letter sequence- GAA, is repeated up to 1300 times; a "healthy" individual will have up to 30 repeated GAA. This causes a reduced protein of the frataxin gene and protein.

A mouse model was created expressing the human frataxin gene. This mouse showed reduced gene and protein express and reduced motor coordination as seen in FRDA patients.

Poster Location: 17

Name: Janeeta Maunthrooa

Title - Impacts of political risk on capital flows. Evidence from African economies.

This study investigates the links between political risk and FDI inflows for a sample of 28 African countries covering the period of 1990 to 2014. Using a fixed-effects approach, it is found that some components of political risk are more important than others in attracting foreign investment. However, given the heavy-tailed distributions of FDI, a quantile regression is used to examine its asymmetric features. The findings reveal that, in such cases, interpretations about the average estimates can be misleading. Some factors which were initially insignificant in the mean estimations were found to be significant especially for high FDI-receiving countries in the quantile regressions. The results also show that the effect of these measures of political risk are heterogeneous for countries in the sample. Overall, it is concluded that political stability is a crucial determinant of FDI inflows in Africa and, finally, some policy implications are suggested based on these findings.

Poster Location: 18

Name: Carolina Motta Mejia

Title - Understanding Preeclampsia

Preeclampsia (PE), a placentally mediated hypertensive disorder of pregnancy, is associated with decreased levels of nitric oxide (NO), a natural vasodilator, and higher systemic vascular resistance. The placenta sheds extracellular vesicles (PEV) into the maternal circulation as a signalling mechanism. We investigated the expression and activity of endothelial NO synthase (eNOS) in PEVs isolated from PE and normal patients.

PEVs were isolated using dual-lobe placental perfusion and ultra-centrifugation from women with normal and PE pregnancies. NOS expression and activity were analysed on placental tissue, placental lysates and PEVs using molecular biology techniques.

We have identified, for the first time, that eNOS is expressed in PEV. The PEV bound eNOS is active and there is significantly lower eNOS activity in PE PEV.

Decreased eNOS activity in PEV from PE compared to normal pregnancies could help explain the altered systemic vascular resistance in PE.

Poster Location: 19

Name: Bilal Al-Kaseem

Title - Modelling of Sustainable 6LoWPAN Sensor Node for Smart IoT Applications

In traditional M2M sensor node, the stored energy in the non-rechargeable battery determines the node lifetime while it is being depleted with time. This work is aimed at modelling and simulating a new class of M2M sensor nodes that can report data wirelessly and powered perpetually. The developed sensor node model presents solar energy harvesting mechanism for 6LoWPAN based M2M sensor node using photovoltaic (PV) module. The developed approach will avoid periodical battery replacement and hence, the energy supplied to the sensor mode is not limited anymore. The introduced M2M sensor node is modelled and simulated using MATLAB/Simulink 2017a and the obtained results showed that the battery lifetime is extended when the node run on an independent power source. The simulation scenarios are conducted for one hour under different environmental conditions to test and validate the impact of the developed scheme to develop a new class of self-powered sensor node.

Poster Location: 20

Name: Omolara Oluwole

Title - Removal of textile dyes from aqueous solutions using thermally modified clay and agricultural waste

The discharge of textile dyes from textile industries into the aquatic ecosystem poses a threat to its humans and their health. Mixed adsorbents were prepared at different proportions using *carica* papaya seeds (CP), clay minerals [Kaolin clay (KC)] and calcined at 100°C - 600°C. These adsorbents were used for the removal of Methylene blue in aqueous solutions. The effect of dosage, calcination temperature, contact time, adsorption kinetics and isotherms were determined. Results obtained showed the following: 100 % kaolinite clay (1 g: 300°C: 15 mins: 100 % removal), 100 % *carica* papaya seeds (2.5 g: 100°C: 30 mins: 100 %) and 75/25 (CP/KC) (1.5 g: 300°C: 60 mins: 99.28 % removal). The adsorption of methylene blue followed the pseudo second order. Experimental data obtained did not fit into Langmuir and Freulinch isotherms thus other adsorption isotherms will be used.

Poster Location: 21

Name: Saqlain Suleman

Title - Creating a cellular model of genotoxicity using neurons derived from induced pluripotent stem cells for gene therapy.

Gene therapy works to cure genetic diseases by using a vehicle, such as a virus, to insert the correct version of the mutated gene into a patient. However, there are problems associated with this treatment method. The inserted gene may be incorporated within the genes of the host cell, leading to unwanted side effects, including cancer. Furthermore, it is hard to target specific parts of the body which are affected by the disease.

My research focuses on using stem cells, which can be individually derived from a patient, and infecting these cells with a virus carrying the correct version of the mutated gene. These stem cells will then be differentiated into neurons and examined to see if the treatment works and if it is safe. This is an extremely promising technique which may enable us to study the safety and efficacy of gene therapy within cells.

Poster Location: 22

Name: Jingxin Liu

Title - Emotion Recognition From EEG recordings

Human brain behavior is very complex and it is difficult to interpret. Human emotion might come from brain activities. However, the relationship between human emotion and brain activities is far from clear. In recent years, more and more researchers are trying to discover this relationship by recording brain signals such as electroencephalogram (EEG) signals with the associated emotion information extracted from other modalities such as facial expression. In my work, machine learning based methods are used to model this relationship in the publicly available dataset DEAP (Database for Emotional Analysis using Physiological Signals). Different features are extracted from raw EEG recordings. Then Maximum Relevance Minimum Redundancy (mRMR) was used for feature selection. These features are fed into machine learning methods to build the prediction models to extract the emotion information from EEG signals. The models are evaluated on this dataset and satisfactory results are achieved.

Poster Location: 23

Name: Hajar Mikaeili

Title - Investigating the role of FXN antisense transcript 1 in Friedreich ataxia

Friedreich ataxia (FRDA) is a rare genetic disorder. It is a progressive disorder and most patients eventually become wheelchair bound. Since there is no treatment for FRDA, patients mostly die of heart failure in their early adulthood.

FRDA is caused by deregulation of a gene named *FXN*, resulting in low levels of frataxin protein production. In FRDA patients, the *FXN* gene contains a high number of trinucleotide DNA sequence copies. A recent study detected a high level of an antisense transcript called *FAST1*. Transcription of DNA generates mRNA and *FAST1* is a complementary RNA for the *FXN* mRNA. *FAST1* can perhaps bind to *FXN* mRNA and form a hybrid which is correlated with condensed DNA configuration. In my research I investigated possible effects of *FAST1* on *FXN* gene expression.

Poster Location: 24

Name: Fan Zhang

Title - Musical Emotion Recognition based on Multiple Features and Random Forest Classifier

Music makes our life lovely because it can affect our mental states significantly with its emotional information it has. And how to recognize the emotions from music more effectively is always a research aim. In this paper, an automatic emotion recognition system from music is proposed by extracting different features from music and using machine learning methods through learning from common knowledge on emotional state of the trained data. Firstly, two-channel audio signals are processed, and typical audio features are extracted. Then some other features used for EEG signal analysis are also extracted. Finally, these features are combined and the random forest classifier is used for the classification. The proposed method has been tested on a public music dataset and the experimental results demonstrate its efficiency by outperforming the state-of-the-art performances. For future, some more advanced method of feature and machine learning will be used.

Poster Location: 25

Name: Sundos Abdulrahim

Title - Museum's communication strategies (Kuwait as case study)

The research is examining the communication practices that the National Museum of Kuwait uses to create national identity. Different aspects will be discussed, for example, the country's history, colonisation, urbanisation, the invasion, and its redevelopment. From all aspects, the national museum will be the centre of the discussion, focusing on what it has done for national identity. The aim of the research is to highlight the role of the National Museum in creating a national identity in Kuwait by using different methods of communication. The research methodology involves a qualitative approach, and it will utilise the methods of observations and interviews. This research will be the first that examines the museum from the inside. The potential contribution of the research is to provide a communication strategy for museums in Kuwait.

Poster Location: 26

Name: Ali Khaghani

Title - An Investigation on Key Enabling Technologies for Ultra-Precision Smart Machining of Progressive Addition lenses (PAL)

The principal aim of this research is to investigate an integrated approach and the associated scientific understanding for design, precision manufacturing and metrology of Progressive Addition Lenses (PAL) known as vari-focal lenses and its application perspectives.

Overall, this research represents a comprehensive research of freeform optics manufacturing at truly industrial scale. To solve the major challenges in manufacturing affordable, high-quality freeform optics, it is essential to develop a highly effective and efficient engineering approach which will integrate the design, precision manufacturing and metrology measurement of the free-form.

The project is involved with developing key enabling technologies for ultra-precision smart machining of free-form optics, including an innovation approach to design of self-centring clamping devices, linear motor direct drive slide-way by using MMC (Metal Matrix Composite) with smart structures, development of a fast tool servo and high precision control algorithms, and novel tool paths generation with CNC algorithms for machining free-form optics

Poster Location: 27

Name: Khalid Eltayef

Title - Skin Cancer Detection in Dermoscopy Images Using Sub-Region Features

Malignant melanoma is one of the most dangerous forms of human skin cancer. Dermoscopy is one of the major imaging modalities used in the diagnosis of melanoma. Early detection of melanoma usually curable. Due to the difficulty for dermatologists in the interpretation of dermoscopy images, Computer Aided Diagnosis systems can be very helpful to facilitate the early detection. Consequently, we present a fully automated method for melanoma detection using image processing techniques. Several noises are detected and removed by applying a bank of directional filters and Image Inpainting method. Therefore, the lesions are segmented by combining the Particle Swarm Optimization and Markov Random Field methods. The K-means is applied on the segmented lesions, then the important features are extracted and used as an input to the Artificial Neural Network as classifier. The method was tested on 200 dermoscopy images and achieved exceptional performance against the alternative methods we compared to.

Poster Location: 28

Name: Pauldy Otermans

Title - Similarities between underlying neuroanatomical correlates of executive functions in working memory and multitasking

This functional magnetic resonance imaging (fMRI) research studies the effect of multitasking on working memory. Performance decrements arise in dual-task compared to single task performance, caused by interference between tasks due to a processing bottleneck. This is resolved by executive functions, and it has been suggested that dual-tasks demand executive functions of working memory. This study investigated how the neuroanatomical correlates of the two tasks compare to each other. For this, the psychological refractory period (PRP) paradigm was combined with a working memory task. fMRI results showed that both tasks activated, among other areas, the inferior frontal junction, i.e. area surrounding the junction of the inferior frontal sulcus and the precentral sulcus. However, the PRP task activated more the inferior middle frontal gyrus (MFG) whilst the working memory component activated more the superior MFG. Results support the assumption that PRP dual-tasks demand the executive functions of working memory.

Poster Location: 29

Name: Rui Qin

Title - Facial recognition on Interactive movie

This research is based on RIOT project which is about to find people how to act and survive in a riot situation. RIOT project provides an interactive movie with 3D sound system and facial recognition system. The subjects are sitting in the 3D sound environment and watch a riot movie in first person. The movie will have different endings depends on the emotions recognized by the real-time facial recognition system. I was response for the facial recognition system. I built the system from train data collection and work with our industry partner we have collected facial data from 20 people including all kinds of racial and gender. Then I tested different kind of machine learning system and choosing CNN plus lightness control system to reach the best result. In the future work, we are working on adding an EEG recognition system to make the system more accuracy.

Poster Location: 30

Name: Nisrin Alyani Ishak

Title - Towards Developing a Value Capture Framework in Social Co-Creation: A Managerial Perspective

Current study considers manager's perspective on formulating strategies towards developing a value capture process framework from social co-creation. It explored recent evidence of social co-creation in real-firm findings. The objective is to explore manager's knowledge on social co-creation and to recognise strategy on value capture. The theoretical work considers the absorptive capacity theory which discusses the capability of the organisation on absorbing new value from co-experience and co-sharing between manager and the customers. This qualitative study conducted thirty semi-structured interviews with managers in the UK companies from various industries. The findings reveal that despite following the manager's mental model, validating, reviewing and an analytical analysis is needed to have an efficient way to capture value. Value capture requires a constant commitment and continuously engages in social co-creation. The research results represent a further step towards developing a value capture framework on social co-creation.

Poster Location: 31

Name: Shireen Jawad

Title - The effect of reserved zone on the behavior of food web model

We propose a continuous time model of a prey-predator food web with a prey refuge. The habitat is divided into two disjoint zones, namely unreserved and reserved zones. The predators are not permitted to enter in to the reserved zone. Therefore, the aim of this work is to offer the mathematical analysis of this model and to discuss some obtained particular results. Conditions which influence existence, uniqueness, positiveness and boundedness of solutions of the proposed model are studied. Local stability analysis around all equilibria of the system is discussed. Furthermore, global stability of model system around all the equilibrium points is investigated based on Lyapunov direct method. The local bifurcation near each of the equilibrium points is obtained. Some numerical simulations are studied to confirm our analytical results. It was shown that the refuge has a stabilizing impact on the food chain predator-prey interactions.

Poster Location: 32

Name: Najeeb Gambo Abdulhamid

Title - Harnessing the Power of Connective Technologies and e-Skills in Digital Disaster Response: Classifications, Applications, Obstacles and Opportunities

This poster reports on a study carried out to investigate the opportunities, challenges and the classification of ICT tools used in responding to eleven major disasters across nine countries over the period of 15 months. Our aim is to offer greater insight and provide a detailed understanding of the nature of such ICT initiatives and how they are used in practice. To achieve this, a qualitative study design using various data collection methods was adopted. Such approaches include field notes from participant observation of disaster responses, internal drills and meetings, Skype chat logs and semi-structured interviews. The analysis points to eight key areas where ICT tools have been successfully deployed. Our findings also offer insight into areas where connective technologies have eased or hindered the capacity of co-operative work during such response operations. We conclude by suggesting implications for design, research and practice.

Poster Location: 33

Name: Ehinome Ikhaliya

Title - TTAT-MIP: A Malware Threat Avoidance Model for Online Social Network Users

Online social networks have introduced new ways for malware attackers to exploit unsuspecting users. Consequently, improving the malware threat avoidance behaviour of users has become a growing concern in research and practice. Using a survey questionnaire, we extended the technology threat avoidance theory (TTAT) by analysing 285 samples through structural equation modelling (SEM) approach. Our findings suggest that users are motivated to avoid a malware threat based on; the effectiveness of a safeguarding measure; its cost and the self-confidence in using it. Also, our results suggest that users are motivated to avoid a malware threat when persuaded by their social network connections (mass interpersonal persuasion). Moreover, we have used the elements of our new model to design and deploy a Facebook video animation system as an effective safeguarding measure against malware attacks on social networks.

Poster Location: 34

Name: Hosameldin Ahmed

Title - Intelligent Condition Monitoring Technique for Bearing Faults from Compressively-sampled Vibration Signals

Owing to the importance of rolling element bearings in rotating machines, condition monitoring of rolling element bearings has been studied extensively over the past decades. However, most of the existing techniques require large storage and time for signal processing. We propose a new intelligent method for bearing faults classification from compressively-sampled vibration signals. First, the vibration signals of roller element bearings are acquired in the time domain and resampled using Compressive Sampling (CS) framework. Then, a separating transformation based on Independent Component Analysis (ICA) with Score Matching (SM) estimation is employed to learn an over-complete set of features from the compressively-sampled vibration data. Finally, with these learned features, classification performance using multi-class Support Vector Machine (SVM) shows that the proposed method has the ability to achieve high classification accuracy with significantly compressed measurements compared to some existing methods.

Poster Location: 35

Name: Adel Fadhil

Title - The performance of the Public Service: an end-users perspective

This research will relate to other academic efforts in this field in theorising the Strategic human resource management–Performance relationship to enable scholars and practitioners to predict and plan for the organisational performance.

Questionnaire survey and hypotheses test have been used and 569 samples collected from 15 Governmental with a response rate of 76%. Partial Least Squares (PLS) Structural Equation Modelling (SEM) has been used to test the hypotheses.

The Strategic human resource management practices are positively related to human resource outcomes and organisational outcomes. Also, the HR outcomes are positively related to organisational outcomes, and the organisational outcomes are positively related to organisational performance.

Firms can gain sustainable competitive advantage through humans. So, those skilled and motivated workers can offer the essential speed and flexibility, which is vital for an organisation to gain a competitive advantage.

Poster Location: 36

Name: Sophie Jahn

Title - Development of a 3D model to test the effects of the endocrine disrupting chemical bisphenol A (BPA) in human placental cells

Objectives: The purpose of this study is to develop a 3D model using placental cells, as a platform of testing endocrine disrupting chemicals (EDCs) in humans. We also seek to elucidate the effects of EDCs in vitro by assessing changes in gene transcription and protein expression following exposure to EDCs. **Methods:** Cell lines: BeWo and Jeg-3. We have elucidated the expression and cellular distribution of all estrogen receptors using immunofluorescence, RNA extraction, qRT-PCR, ImageStream and Western blotting. We are using microarray analyses to identify changes that BPA can exert at transcriptome level. **Results:** qPCR confirmed an upregulation of estrogen receptors in BeWo cells treated with BPA. Treatment with BPA (3 and 10 nM) also increased the phosphorylation status of Akt, p38 and ERK1/2. **Conclusion:** Our data are indicative of involvement of BPA on key pathways involved in metabolism and energy balance, highlighting the role of BPA in the placenta.

Poster Location: 37

Name: Shima Abdullateef

Title - Chasing the Reflected Waves in Human Arterial System

While travelling in the vessels, the blood stream encounters with many bifurcations and changes in the structure of the vessels, which generates backward waves traveling towards the heart. The existence of backwards waves and their effect on increasing the pressure in aortic root is well established and investigated in many studies, however, there is an ongoing debate about the origin of the reflected wave in aortic root, and how far the reflected waves could travel in the arterial tree. In this project the One-dimensional arterial modelling is used for simulation of a simple bifurcation in two different situations, In order to evaluate the behaviour of a reflected wave originating from two different locations.

The current simulation of a simple bifurcation demonstrates the possibility of chasing the reflected waves as they travel backwards to the mother tube. It can be further extended to more biological environment such as human arterial tree.

Poster Location: 38

Name: Yasemin Akar

Title - Breakdown of surface divergence based models for interfacial gas transfer velocity at large

Gas transfer velocity K_L depends on both the Schmidt number Sc and the root-mean-square of the surface divergence β_{rms} , i.e. $K_L \propto \sqrt{\beta_{rms}/Sc}$. Previously it has been shown that this relation works well for surfaces with low to moderate contamination. However, it will break down for β_{rms} close to zero.

The flow fields in the main Direct Numerical Simulation (DNS) and large-eddy simulation (LES) are solved using fourth-order discretisations of convection and diffusion. A fifth-order-accurate WENO scheme is used for scalar convection combined with a fourth-order central discretisation for scalar diffusion.

Simulations were carried out for $Sc = 32$ and $ReMa/We = 0.12, 1.2, 30$ where Re is the Reynolds number, Ma is the Marangoni number and We is the Weber number. which is important parameter to determine level of contamination. It will be shown that the dependency of K_L on β_{rms} begins to break down with increasing of surfactant concentration

Poster Location: 39

Name: Nima Taefehshokr

Title - Investigating molecular mechanism regulating Egr2 Expression and its role in the immune response

The immune system is evolved to defend the body against pathogens and is composed of thousands of complicated and intertwined approaches, which are highly controlled by regulatory processes such as transcription and repression of cellular genes. Early growth response gene (Egr2) is important for maintaining immune stability and it has a vital role in controlling inflammation and preventing the development of autoimmune diseases.

In this study, we have found that Egr2 expression is regulated by antigens and cytokines, including INF γ and IL-6. Furthermore, it is shown that Egr2 can be significantly expressed in tumor infiltrating lymphocytes (TILs) as we observed in a mouse melanoma tumor model.

Collectively our results demonstrate that Egr2 is an intrinsic regulator in the immune system and tumor microenvironment. In the next step, we will study the function of Egr2 in TILs to address the tumor microenvironment phenotype and how to achieve effective anti-tumor immunity.

Poster Location: 40

Name: Maxime Bolut

Title - Laser Welding Duplex Stainless Steel Using Diffractive Optics

Duplex Stainless Steel grade 2205 is used for critical applications like nuclear waste containers or ship building. The material's outstanding properties in term of corrosion resistance and strength are due to its dual phase microstructure of ferrite and austenite that must stay in balanced proportion. In manufacturing, laser welding is a versatile joining solution which has recently seen an increase in research interest as it offers both speed and flexibility. While laser welding's low heat input helps improve weld quality and reduce stresses, the high cooling rate does not allow enough time for sufficient austenite phase to form. Innovative solution investigated in this study extends the material cool down during welding and achieves the desired phase balance in the weld. Diffractive Optical Element split the incoming laser beam to combine welding and post-heating in single pass. The poster presents the feasibility and initial results of this approach.

Poster Location: 41

Name: Futra Zamsyah md Fadzil

Title - System Engineering Event Modeling on CUL Machine

The optimum performance of power plants has major technical and economic benefits. In this study we are working on developing a Hardware in the Loop environment to test and measure various parameters that causes the ineffectiveness of harmonic filters.

Various internal and environmental events within the power system generation plant are being measure and correlation analysis will be done in real-time to validate and verify the scenario. Input-output coincident matrixes are being produced and the "Event-tracker" algorithm is applied to translate it to the sensitivity index accordingly. The results of the coincident matrix are being further analyzed using the "Event Clustering" algorithm to group the coincident event according to the rank order clustering methods which later produce a collection of event profile for pattern recognition and classification purposes.

The performance of this event-tracker classification method will be compare with the popular signal processing methods which interpret the type of Power

Poster Location: 42

Name: Dorothy Winful

Title - High strength steel under fire conditions

High strength steels (HSS) defined herein as material with a yield strength between 460 and 700 N/mm², are increasingly being utilised in structural applications, in particular for long span structures where there are environmental and economic benefits of using this material over normal strength steel. Before engineers can specify these materials in structures, it is critical that their performance in fire is fully understood. This poster will summarise the research on the behaviour of HSS under fire conditions, which includes the material properties of quench and tempered (QT) and thermo-mechanically control processed (TMCP steel) obtained from a series of isothermal and anisothermal elevated temperature tensile tests. Results show that the TMCP steel had better strength retention properties that the QT steel at temperatures up to 800°C, and further research will explore the microstructural influences on the material properties of these steels at elevated temperatures.

Poster Location: 43

Name: Raquel Sales

Title - Heterochromatin establishment in vivo: role of Protein Phosphatase 1 and environmental contaminants

All the cells of an organism come from the same cell, the fertilized egg, and have the same DNA, but then, how can there be so many different cell types and produce a so complex functional organism? One of the mechanisms involved in this process is the level of compaction of the DNA within the cell nucleus, established in early development and crucial for the correct function of an organism. Therefore, alterations of this process might potentially affect health throughout life. Using zebrafish as a model organism, I aim to investigate how exposure to environmental contaminants during development can disrupt the process of DNA packaging, leading to increased susceptibility to disease later in life.

Poster Location: 44

Name: Mamdouh Alshammari

Title - Electric turbocompounding and turbocharging for a downsized gasoline engine for fuel efficiency improvement

In this study it is investigated the potential implication of a novel turbocharging method which combines turbocharging and turbocompounding in one single unit which consists of two parts, an electrically driven compressor, and a radial expander which drives an electric generator. This method allows the compressor and the turbine to operate at different rpm, so the turbine can produce the required energy for the compressor operation and recover the exhaust wasted heat. The additional recovered energy from the turbine can be used as a new battery charging source for the hybrid powertrain. A comparison of the proposed configuration to the well-known turbocharged downsized engine showed an improvement in brake specific fuel consumption by up to 2.5% under steady state conditions. However both of the compressor and turbine need to be precisely designed before calibrating the IC engine on GT-Power programme in order to obtain better and more accurate outputs.

Poster Location: 45

Name: Nurul Izrin Md Saleh

Title - Ontology and Simulation

Computer simulation has been used to analyse A&E (Admission and Emergency) patient flow and resource capacity planning to the delivery of effective healthcare services. With the amount of data available, knowledge representation is vital in order to sift through data and make sense of it whilst an effective simulation tool requires efficient knowledge representation schemes. Pertaining to this idea, an ontology-based simulation emerges. However, the overall implementation of simulation within A&E departments does not surge in recent years as expected. This is due to lack of analytical skill during the analysis of service redesign in modelling complex and integrated emergency medical services. The aim of this research is to provide an in-depth analysis of service redesign by following ontology selection framework and disseminating the concepts and processes derived from ontology knowledge into simulation by applying set of transformation method. The simulation result is then compared to existing model for evaluation.

Poster Location: 46

Name: Alireza Valizadeh

Title - Innovative bonding of aluminium to steel; towards reducing the weight of automobile

Aluminium and iron are used widely in various applications due to their unique physical and chemical properties. Aluminium is lighter than steel but its strength cannot match to that of steel. Joining aluminium to steel can lighten the weight of components in automobiles without compromising on the mechanical performance. It can reduce the fuel consumption and lower the harmful gas emission, thereby protecting the environment and human health from global warming and air pollution. The differences in physical and chemical properties between aluminium and steel present a significant technical challenge to join these two different materials together.

This research is focussed on (1) the use of economical manufacturing process of casting to bond aluminium to steel and (2) understanding of the underlying science in the development of high quality bond, in order to avoid the generation of pores and cracks which severely limit the mechanical properties of the bond.

Poster Location: 47

Name: Serap Sap

Title - Developing Corporate Brand in Small and Medium Sized Enterprise (SMEs CEO BRANDING)

Small and medium sized enterprises (SMEs) have their own constrains; time, money and skill to have marketing campaigns. Thus, corporate branding can be a new way for SMEs to differentiate themselves from competitors while growing internationally with limited budgets and creating long term strategies. However, previous corporate branding studies focus more on multinational/big companies, yet corporate brand should be applied to all type of sizes. Therefore, this study objective is to explore a comprehensive way by involving CEO brand, product brand and corporate brand in SMEs and how does this impact their international performance. Nine interviews were done with SME managers in Turkey to explore constructs. Survey will be done to validate proposed model that addresses the corporate brand identity management at corporate level and its impact on international performance.

Poster Location: 48

Name: Khalifa Bureshaid

Title - A study of Jet Ignition in an Optical Research Engine

Running engine under lean condition has much more positive such as reduce exhaust emission and fuel consumption. The improvement of ultra-lean burn engine concepts help to increase the air quality. Ordinary spark plug has limitation to use in lean combustion in contrast with Turbulent jet ignition (TJI). Thus, TJI enables ultra-lean operation through high energy jets acting as a distributed ignition source. The specific goal of present research is to establish the key mechanisms involved during ignition and combustion of the main chamber fuel-air charge. To this end an existing full bore optical research engine will be modified to accommodate an MJI system supplied by MAHLE Powertrain LLC. The experiments will involve parametric study via advanced combustion imaging techniques including time resolved spectroscopy (chemiluminescence).

Poster Location: 49

Name: Zeng Fan

Title - Low voltage coded excitation for in intrinsically safe environment

Ultrasonic testing (UT) has been used to obtaining parameters related to the physical and mechanical properties of the material and its durability. To make this technique can be used in flammable and explosive environments; the biggest challenge of the project is to explore the possibility of improving the echo signal-to-noise ratio (eSNR) of low voltage ultrasonic testing. Due to the excellent mathematic performance, long, complementary code excitation, pulse trains and pulse compression techniques are considered into the project. The pulse compression signal can be divided into two categories, frequency modulated excitation signals and binary coded excitation signals.

Poster Location: 50

Name: Ifeoluwapo Joshua

Title - The role of p21-activated kinases in the regulation of glucose metabolism, using yeast as a model organism

Glucose is an important macromolecule serving as a major source of energy in most, if not all, organisms. Regulation of glucose metabolism is a vital process and is mediated by several protein kinases. p21-activated kinases are highly conserved serine/threonine kinases that are involved in a wide range of biological functions such as cell cycle, cellular metabolism. In *S. cerevisiae*, two of these kinases, Ste20 and Cla4, are well characterised. Interaction between the enzymes of glucose metabolic pathways and Ste20/Cla4 was identified by split ubiquitin technique. The expression of two key proteins, Gpd1 and Gpp2 (involved in the synthesis of glycerol) were investigated under various conditions mediated by these kinases, such as pheromone response, hyperosmotic stress response pathway and limited nutrient via the MAPK signalling pathway. So far, data obtained suggests that Ste20 and Cla4 have overlapping role in regulating Gpd1 and Gpp2 with further experimental analysis to be carried out

Poster Location: 51

Name: Gerard Jansen

Title - Flow field design optimization for enhanced Proton Exchange Membrane Fuel Cell durability and performance

Sustainable technologies like PEM Fuel Cells (PEMFC) are needed to reduce green-house gas emissions from energy generation. The PEM Fuel Cell generates electricity and useful heat from reacting Hydrogen and Oxygen and can be scaled to the energy needs of the application, from sub-kW to MW scale. This project focusses on enhancing the PEMFC bipolar plate design to reduce activation, ohmic and mass-transport losses by improving the flow channel geometry. An advanced Metal-Hydride Storage Vessel (MHSV) is integrated to store hydrogen in solid phase: a safe, reliable and energy efficient alternative to high-pressure storage. Experimental testing shows a 7.8% increase in efficiency when using semi-hemispherical flow-path geometry. Further research is being done to optimize the integrated system by turning waste heat into useful heat for pre-heating reactant gases and water to increase overall system efficiency.

Poster Location: 52

Name: Yasir Al-Okbi

Title - Aerodynamic Performance Enhancement and study technique for thermochromic liquid crystal temperature measurements on naca 0021

The moving surface of boundary layer control, as used to the NACA airfoil 0021, is designed experimental work Complemented by theoretical studies at a subcritical Reynolds number ($Re = 2.1 \cdot 10^5$). The leading edge rotating cylinder effective way extends the lift result without substantially influencing its slope. Enhancements in the maximum lift and stall angle are possible. The maximum coefficient of lift achieved was around 2.22. Approximately 2.6 times that of the normal airfoil. The maximum delay in stall was to around 16° . The performance enhances with growing in the ratio of cylinder surface velocity (U_c) to the free stream velocity (U).

Influence of the cylinder is considered either through the idea of slip speed or a pair of counter rotating vortices placed below the leading edge.

By using thermal -sensitive paint visualization and steady-temperature measurement the consequences describe a laminar to turbulent change process that develops over the airfoil.

Poster Location: 53

Name: Mahmoud Alhamad

Title - Responsibility to Protect for Syria: Why it never happened?

The aims of this study are to discuss the scope of the responsibility to protect (R2P) as a concept that shows the role of the UNs to protect civilians from atrocity crimes when their state is unable or unwilling to do so. R2P is a norm that is based on customary international law, Human Rights and *opinio juris*. Sadly, applying R2P is usually blocked by veto power under state sovereignty and non-intervention. The study focuses on the state sovereignty as a responsibility to protect its individuals. Therefore, if the state fails to meet this crucial responsibility, the principles of non-intervention and state sovereignty should result in taking action by the UN. The dissertation comes up with a hypothesis of if the regional and international organisations work together on a timely and decisive response, escaping from blocking R2P by veto power is possible.

Poster Location: 54

Name: Rana Al-Dujele

Title - Ultimate behavior of concrete filled tubular flange girders (CFTFGs)

This PhD project is focussed on investigating the behaviour of concrete-filled tubular flange girders (CFTFGs). These are complex members and their behaviour is governed by a number of inter-related parameters. This project aims to study the relative influence of a number of these variables. In order to study the bending capacity of CFTFGs, The finite element ABAQUS software is used to establish the nonlinear static analysis model of CFTFGs which are subjected to a concentrated load in the vertical direction. To simulate the concrete material in steel tubular flange girders, two different methods are used in this study. The yield surface of the linear Drucker-Prager model (DP) and the concrete damage plasticity (CDP) model are employed. The results from the numerical analysis are compared to available test data. A good agreement was shown between the experimental and numerical data, thus validating the numerical model which has been developed.

Poster Location: 55

Name: Lewis Kiely

Title - Modelling of dynamic response of metals under extreme loading conditions

Recent short pulse laser experiments and molecular dynamics simulation suggest that at the formation of a shock wave in metals, the amplitude of the so-called elastic precursor is far greater than the traditional dynamic elastic limit, decaying over a timescale of tens of nanoseconds. Conventional continuum models fail to reproduce this behaviour. Modelling of plasticity using a combination of dislocation kinetic equations and continuum mechanical relations has been identified as a potential method to address this problem. The model used here combines microstructural properties in the form of dislocation motion, generation, immobilisation and annihilation to evolve plasticity on a continuum scale. The initial validation results show a good agreement between the stress and strain levels calculated against other material models, as well as the reproduction of the 'superelastic' precursor behaviour.

Poster Location: 56

Name: Hanna Dusza

Title - Early life exposure to endocrine disrupting chemicals: unravelling relevant exposures and effects on human foetal development

Although there is accumulating evidence that *in utero* exposure to endocrine disrupting chemicals (EDCs) may predispose humans to disease later in life, characterization of foetal exposure to EDCs remains challenging. This study aims to develop a novel approach to identify a wide range of EDCs including previously unidentified compounds and their metabolites present *in utero* by analysis of amniotic fluid and meconium samples. For this purpose, effect directed analysis (EDA), a powerful tool for identifying biologically active compounds in complex mixtures, will be utilised. EDCs will be profiled using state-of-art chromatographic separation methods and the relevant compounds causing toxicity identified using *in vitro* reporter-gene bioassays capable of detecting important endocrine mechanisms. The toxicity of the new, most promising candidate EDCs will be further investigated in an embryonic model of foetal development. Consequently, this research represents a unique opportunity to better understand the extent of foetal exposure to EDCs.

Poster Location: 57

Name: Amy Flynn

Title - Unknown hollows causing subsurface risk for engineers

Drift-filled hollows (DFHs) are typically cone shaped features built into and often breaching the London Clay. Found within the London Basin, the hollows are not visible from ground surface thus creating sub-surface risk for engineers.

DFHs can be up to 500m wide, 60m deep and are filled with disturbed sediment differing from the surrounding strata, and therefore have different geotechnical properties. They are often missed in site investigations, causing unexpected issues such as differential settlement, tunnel face collapse and water ingress.

Large-scale engineering projects affected by DFHs include HS2, Thames Tideway, Crossrail and the London Underground.

Using field methods, geotechnical and geochemical testing my project aims to understand the geotechnical characteristics of DFHs and further knowledge on their formation.

With decreasing space for building and increasing sub-surface development, identifying DFHs and understanding their characteristics will aid the engineering sector to reduce risk, stick to timescales and keep costs on budget.

Poster Location: 58

Name: Nurullah Yildiz

Title - A Comparative study on the coastal wave run-up empirical equations for coastal/ocean resilience

This study concerns determination of the wave run-up height produced by wave actions on the coastal areas. Wave runup is a function of incident deep-water wave amplitude, wavelength (period), beach slope and roughness of the beach. We compare wave runup calculated from various empirical equations such as equations of Holman(1986), Mase (1989), Komar (1998), Ruggiero(2001) and Stockdon (2006) using MATLAB statistical simulations. In addition, in this study, experimental studies are conducted on the wave runup by changing beach slope, water depth, deep-water wave amplitude and wavelength. The experimental results are compared with the aforesaid empirical equations. Results showed that the empirical equation of Mase (1989) gives significantly higher values for wave runup compared to other equations. For incident wave heights of less than 5 m, the predicted values for wave runup are closer to each other while the difference rapidly increases for incident wave heights of more than 5 m.

The abstracts used are written by the students and not edited

Poster Location: 59

Name: Juvaria Syeda

Title - Image analysis for complex data

Corrosion and corrosion fatigue can sometimes cause severe damage and threat to safety and can also have huge economic impact hence the reliability of structures is an important factor. The present state of the art for identifying such corrosion defects is limited which is manual visual assessment and pit counting. By developing an effective system to assist in structural reliability assessment, it is potentially possible to be more objective, time-efficient and still extend the useful life of a component.

The main scope of the project is to design and develop a system by using image-processing techniques and then later on use more advanced methods like machine learning and neural networks, to analyse surface structural integrity flaws like pits and cracks as a non-destructive testing method. Example applications where this appears to benefit are assessment of pitting corrosion in pipes based on API-579 standard and corrosion fatigue in rail axles.

Poster Location: 60

Name: Muhammed Khan

Title - Divinity and State: Dichotomy or Similitude; Analysis of Contemporary Muslim Nation States

Modern Nation State System draws its inspiration from Pact of Westphalia 1648 which was further fortified by the doctrines of legal positivism and protection of human rights through social contract. The case study of Afghanistan, Pakistan, Iran, Egypt and Iraq demonstrates that a struggle is going on between traditionalists who want to validate the doctrines of modern nation state from divine law and those who want to establish a state on the principles of legal positivism and human rights. Primary question of this research is to locate the monopoly over law and codification. Whether it belongs to state or religion? This work will analyse the constitutional working of modern Muslim democracies and will endeavour to find the way out.

Poster Location: 61

Name: Nathanael Harwood

Title - Using Bayesian Networks to investigate the role of Arctic change in the rise of extreme weather at mid-latitudes

Recent Arctic change may be having an impact on the weather we experience daily. The Arctic is warming at twice the rate of the Northern Hemisphere whilst wavy jet stream patterns are becoming increasingly common, leading to persistent weather at mid-latitudes. This project examines links between Arctic changes and mid-latitude extreme weather using a Bayesian Network approach to examine the past and projected rise in extreme weather events. Novel statistical approaches to this are essential as a large degree of uncertainty remains in the field, in part due to the recent occurrence of pronounced Arctic warming and amplified atmospheric patterns. Understanding the relative importance of drivers of extreme weather is a difficult but essential question to answer; billions of people living at mid-latitudes are at risk of being exposed to extreme weather patterns caused by wavier atmospheric flow, which has been the predominant atmospheric configuration of recent winters.

Poster Location: 62

Name: Jaye McLaughlin

Title - Economic inequality and violence in London neighbourhoods

Previous research has indicated that levels of economic inequality predict homicide rates, and it is theorised that this is due to increased intra-sexual competition in men (Daly, 2016). However, some contention remains as to whether inequality or poverty is the better predictor. Most previous studies have looked at large areas (e.g. variation between countries, states or provinces). Therefore, we investigated the association between economic inequality and levels of non-lethal violence in the UK, where homicide rates are low, at a finer geographical resolution.

Following exclusions due to census boundary changes, in a regression analysis incorporating 553 London wards, both income inequality (measured using Gini coefficients) and average income were significant predictors of per capita assault rates for crimes recorded by the Metropolitan Police and the London Ambulance Service during the period 2010-2012, with Gini being a marginally better predictor. This is consistent with the hypothesis that inequality increases violence.

Poster Location: 63

Name: Yi Qiu

Title - Modelling of Microstructure Evolution during Twin Roll Casting

Twin roll casting (TRC) is an energy efficient way of producing sheets of magnesium alloys for lightweight applications. However, challenges remain in controlling the microstructure of the TRC products due to the complex nature of the process. A model has been developed to simulate microstructure evolution under the influence of fluid flow during the TRC process. In this model, the development of phase field, grain orientations and temperature gradient in the alloy are modelled via finite volume analysis of the Cahn-Hilliard equation, while the velocity field of fluid flow is updated using the lattice Boltzmann model. The proposed model can be used to predict the effects of casting parameters and alloy composition on the as-cast microstructure, and can be applied to optimise the TRC process to develop high performance alloys with improved mechanical properties, tailored for specific applications.

Poster Location: 64

Name: Philip Marmon

Title - Characterising Mechanisms of Toxicity of Non-Steroidal Anti-Inflammatory Drugs In Zebrafish

Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, are used by millions of people worldwide to treat conditions that involve inflammation and pain. Long-term therapeutic use of these medicines can adversely affect multiple organs, including the gastro-intestinal tract. Novel types of NSAIDs have recently been developed with the aim of mitigating this risk, with mixed results. In this project, we will use a combination of computational and *in vivo* approaches to advance our understanding of the mechanisms by which NSAIDs affect the immune and gastro-intestinal systems. Firstly, we will leverage existing *in vitro* and omics datasets to perform computational predictions of drug-mediated effects. Subsequently, we will use this knowledge to tailor the design of *in vivo* experiments. Using genetically engineered zebrafish and fluorescence microscopy, we will be able to explore the effects of these drugs from a novel perspective, which cannot be replicated using mammalian models or patients in the clinics.

Poster Location: 65

Name: Monica Pereira

Title - Can Automated Technology Improve Social Skills?

Across many sectors training programmes aim to help learners improve their communication skills. It is well recognised that non-verbal 'social signals' play an important role in communication effectiveness. Previous research in the social signalling domain meticulously observed hours of videos and conducted observational studies to identify these social signals. This resulted in subjective inferences about human emotions.

Therefore, the current research aims to answer the question of whether social skills can be trained using automated technology in a person-to-person training context. This will be investigated in three stages: an exploratory, a design and an experimental stage.

The development of this training intervention will allow trainers to provide objective feedback to trainees about their performance with clear criterion. Furthermore, training will align with expected training outcomes and this will result in authenticity of training programs. Further long-term benefits of this research might contribute to the eventual development of a training avatar.

Poster Location: 66

Name: Susanna Venditti

Title - Fractional Solidification of recycled Al alloys

In this project we study fractional solidification as a method to purify recycled Al from impurities such as Si and Fe. Fractional solidification is a separating technique which uses a semisolid material with solute elements partitioned between the solid and the liquid phases. In fact when cooling an alloy with the partition coefficient $k < 1$, the crystal structure of the solid that is being formed can-not accommodate all solute atoms inside and they are rejected at the interface. This results in a liquid fraction enriched in solutes (impurities) leaving the solid fraction relatively purer. In order to verify the theoretic principles of this separating process we designed a filtration experiment and we tested it on two compositions representing casting and wrought alloys: Al-7 wt% Si, and Al-1 wt% Si-1 wt% Fe. A final level of purification close to 40% was achieved for both compositions.

Poster Location: 67

Name: Yichao Deng

Title - What are the determinants of M&A success throughout the whole M&A period

In the world of mergers and acquisitions, the enduring important problem is that previous studies focused too much on the success of finance. Financial success is an obvious outcome in mergers and acquisitions because it is easy to see the income from balance sheet after M&A events. However, strategic success, counting the company's development potential, is not obviously shown from accounting-base data. When we measure a M&A activity, both financial and strategic factors should be taken into account. In this paper, we will research on the success of cross border M&A. To identify the success, strategic success and financial success will be measured by several proxies. We are expecting to find out the factor to influence mergers and acquisitions success.

Poster Location: 68

Name: Kanya Paramaguru

Title - Structural Trade within the EU

This paper aims to develop a comprehensive approach to measuring trade openness within the EU that accommodates for market size, trade elasticity, and correlation with business cycles to determine the level of country's trade openness. Using a novel dataset of intra-EU trade on a quarterly basis over a 15 year period for all EU members, this paper shows that with our new method, we can prove that intra-EU trade is beneficial for members and furthermore, the results prove a higher positive correlation between trade-openness and GDP. This paper promotes a structural way in which to think about trade openness that is more considered by taking in to account movements over time, sensitivity to business cycles and the market-size that is available to each member state of the EU. The results of this paper can help policy makers to detect the economies that have the most embedded EU trade structures.

Poster Location: 69

Name: Jaskaran Kaur

Title - Directors networks and corporate social responsibility

According to the literature, there is significant financial consequences when there are personal connections among firm executive, board members, bankers and other financial participants, however the effects of director's networks on corporate social responsibility (CSR) remain an under-researched area. So, this study aims to investigate, research question: How director's networks will have an impact on corporate social responsibility (CSR)? Using a sample of over 500 publicly listed firms in across all the industries in the UK during period of 2005-2015. This findings will contribute to the academic literature related to director's networks and CSR.

Poster Location: 70

Name: Alexander Morton

Title - A search for the Standard Model production of tZq in the dilepton final state using data from CMS at 13 TeV

A search for the Standard Model production of a single top quark in association with a Z boson (so-called tZq production) in the dilepton final state is presented. The data sample used for the search corresponds to an integrated luminosity of 36 fb^{-1} recorded by the CMS experiment at the CERN-LHC in proton-proton collisions at a centre of mass energy of 13 TeV. A shape based analysis has been performed using Boosted Decision Trees (BDTs) to discriminate between the signal and the dominant background processes, namely, top quark pair production and Drell-Yan production. The resulting BDT discriminant distribution is then fitted using the Higgs Combine Tool to determine the significance of the signal event yield and to set limits on the tZq production cross section

Poster Location: 71

Name: Bashir Dodo

Title - Automatic Retinal OCT segmentation using Fuzzy Histogram Hyperbolization and Graph cut Methods

The segmentation of various retinal layers is vital for the diagnosis and tracking medication progress of various ocular diseases. Due to the complexity of retinal structures and the tediousness of manual segmentation and variation from one specialist to the other, many methods have been proposed to aid with this analysis. However image artefacts in addition to inhomogeneity in pathological structures remains a challenge, with negative influence on the performance of segmentation algorithms. Previous attempts have prepossessed the image or model the segmentation algorithm to handle the obstruction but it still remains an area of active research, especially in relation to the graph based algorithms. In this paper we propose a simple yet efficient and computationally inexpensive method comprising fuzzy histogram hyperbolization (FHH) for enhancement technique, and graph-cut method to automatically segment 7 layers across 8 retinal boundaries.