

RESEARCH POSTER CONFERENCE

19 JUNE 2019

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Welcome

The University Graduate School is delighted to welcome you to the University of Birmingham's 13th Annual Research Poster Conference. One of our flagship events, this conference celebrates the high quality research undertaken by our postgraduate researchers from all disciplines across the University and the hard work it takes to achieve this.

We would like to sincerely thank our postgraduate researchers for taking part in this conference and sharing their research with the wider community. We would also like to thank each of our judges for giving their time to join us and helping to make the conference a success.

The variety of postgraduate research being undertaken across the University of Birmingham is inspiring. We hope that this conference will give our presenters, judges and guests an opportunity to meet and interact with colleagues from across the different disciplines and be inspired!

The Research Poster Conference Team 2019

Melina Delmas, Luis Freijo Escudero, Shoshana Gander-Zaucker,
Jennifer Turner & Dr. Eren Bilgen

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Schedule

9:30-10:00	Registration
10:00-10:10	Welcome address
10:10-10:30	Presenters' briefing
10:30-11:15	Judging session Group 1 (Yellow)
11:15-12:00	Judging session Group 2 (Green)
12:00-12:45	Judging session Group 3 (Blue)
12:45-13:45	Lunch for presenters and judges
14:00-16:00	Conference open to guests
16:00-16:20	Prize giving
16:20-16:30	Closing address

Your name badge will indicate which judging session you are in (Group 1, Group 2 or Group 3) and you will be given this information during registration on the day of the conference.

During the judging session, you will be expected to present your poster to two non-specialist judges.

During the guest session (2pm-4pm) presenters are expected to stand by their posters as this will give you an opportunity to talk about your research and network with others.

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Refreshments

1

Getting patients up and moving! A new way to treat infected hip replacements

Sophie Louth

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For the 8000 patients a year in the UK who get an infection in their hip replacement, the current treatment methods involve surgery to replace the infected hip with a temporary antibiotic delivering hip. Unfortunately this temporary hip, called a spacer, is not weight bearing so the patient is bed bound for 6 to 8 weeks. This work aims to improve patient outcomes by reinforcing this spacer with a metal structure. This structure is 3D printed in a titanium alloy, which allows for some very complex shapes, including lattices. Different lattice designs have been compared to find the best one for strength, which also leaves space for lots of antibiotics. This new spacer design will enable patients to get up and moving, leading to shorter hospital stays and improved quality of life.

2

Race, Emotions and Rhetoric in British Anti-Slavery Literature, 1787-1833

Nicola Westwood

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My research investigates the different emotions used in British anti-slavery literature. Abolitionist (anti-slavery) writers used sentimental tropes (expressions of sadness, such as slave's tears) to evoke sympathy, and gain the reader's support for the abolition of slavery and the slave trade. This will be compared with portrayals of anger, manifested in slave revolts, violence, and vengeance, although this was problematic as it highlighted the threat posed by slaves. Therefore, abolitionists portrayed slaves praying for divine vengeance, depicting natural disasters (such as earthquakes) as manifestations of God's wrath. Such fear tactics portrayed slavery as a national sin, with abolition as the only way to avoid divine punishment. Current scholarship concerns abolitionist's use of individual emotions, which my research develops with a comparison of these emotions. It will impact both historical studies of the anti-slavery campaign and literary studies of emotions, as well as potentially influencing persuasive techniques of future political campaigns.

3

Race to the surface: Modelling bacterial and human cell growth on dental implant surfaces

Sophie Mountcastle

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Two barriers to successful dental implant surgery are (1) the possibility of infection and (2) poor compatibility with native human cells. The mouth is colonised by millions of bacteria, living in communities called biofilms. Human cells in the mouth are in competition with these bacteria to occupy the implant surface. Infection can result in the need for implant removal, which is both costly and very painful. New materials for implants are continuously being developed, but are not making it into clinics. Testing innovative materials is challenging due to the highly complex oral environment. We are combining models of oral tissue with bacterial biofilms, to better understand how we can help human cells win the 'race to the surface'.

4

Here We Go 'Round In Circles: Circular Narrative as a New Type of Story Structure

Stephanie Katz

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Throughout history, there have been three overarching types of narrative structures: linear, stories told chronologically from beginning to end; nonlinear, stories that include flashbacks or flash-forwards to disrupt chronological flow; and unnatural, stories that push the boundaries of temporal storytelling to the extreme in highly postmodernist ways. However, there is another style of narrative that has been overlooked in scholarly research: the circular narrative. In my research, I aim to define circular narrative, show how it differs from linear, nonlinear, and unnatural narrative, and illustrate the multiple types of circular narrative that exist through the joining of timelines of multiple storyworlds and/or characters that seem wholly unrelated, but in reality, unite as one seamless entity through strategically placed connective devices I term 'bridges'. Circular narrative is a unique and important storytelling structure that should be acknowledged and submitted for further analysis in the literary realm of narrative study.

5

Lost in Transition: making the case for meaningful child participation in transitional justice

Jeannette Rodgers

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Although transitional justice aims to recognise and acknowledge the experiences of victims of conflict, research and policy have failed to consistently embrace contributions from children (defined in international law as a person below the age of 18). This is at odds with international law, which promotes the importance of the participation rights of the child in all matters that affect them and for their views to be taken seriously. Embedded in international development and international child rights law, the poster sets out the author's position on how, and why, the participation of children should be an integral part of transitional justice, reflecting how participation is practiced by child survivors of the genocide within memorialisation in Rwanda. In reviewing current theoretical models of participation, it will be asked what 'meaningful' participation really entails for child survivors 'lost in transition' in Rwanda, and what we can learn from the Rwandan context about effective implementation of child participation in transitional justice.

6

Wind flow around forests

Ed Bannister

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Forests are becoming increasingly fragmented. However, the current standard technique for measuring forest-atmosphere interactions deals badly with varied landscapes. How will this fragmentation affect our weather and climate? We used large-eddy simulation to investigate wind dynamics over the site of the Birmingham Institute of Forest Research (BIFoR FACE).

We found that the wind slows and deflects upwards when it hits the forest. The tree crowns experience high gusts and momentum transfer. The tops of the trees downwind of the forest edge experience very strong gusts. The air above the forest is highly turbulent. We will extend this work by using meteorological data from BIFoR FACE to investigate the coupling of flow dynamics and scalar fields, including CO₂ and heat. This will (1) improve our understanding of how forests affect local climates; and (2) constrain estimates of global carbon uptake, by improving our understanding of flows in fragmented forests.

7

Are big cities more or less polluting than we would expect from looking at smaller cities?

Mukhtar Abdulrasheed

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Traffic-related emissions, the composition and transport of greenhouse gases, are urgent environmental problems that affect climate change and air quality especially in urban areas. This study examines the total pollutant emissions of selected urban areas of different sizes in UK. GIS is used to cut out data relating to total population and whole-area emissions of chosen pollutants (non-point source emission [NO_x, CO₂, CH₄,]) are studied as a function of population. We find, unsurprisingly, that there are larger emissions in urban settlements with larger populations. However, these emissions increase more slowly than 1:1 with population, i.e., there are 'economies of scale' for pollution production. Total emissions from large cities are lower than would be expected when compared to the same population dispersed in smaller settlements. Although currently more polluted, large cities offer a concentration of population and resource that can radically reduce emissions per person.

8

Fungi of the future: Assessing the impact of elevated CO₂ on forest fungal communities

Aileen Baird

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Largely hidden within our forests, the fungi under our feet and above our heads play key roles in nutrient and carbon cycling. These fungi are extremely important, but we understand little about how they may be affected by major climate changes, such as increasing atmospheric carbon dioxide (CO₂). In order to better understand this complex interaction between climate, forest, and fungi, the Birmingham Institute of Forest Research (BIFoR) has a unique Free Air Carbon dioxide Enrichment (FACE) experiment. Located in Norbury Park in Staffordshire, the FACE experiment sprays areas of an ancient oak woodland with CO₂; increasing the atmospheric CO₂ to 150ppm above ambient concentrations- a level we expect to see in approximately 2050. The 2 key aims of this ongoing project are to:

- Characterise the fungal communities across the BIFoR FACE woodland over several years.
- Assess the effects of additional atmospheric CO₂ on woodland fungal communities.

9

Failure to Modernise? Factors Affecting Church Attendance in the United Kingdom

Madison Pollard-Shore

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This research project seeks to analyse which of three factors (Worship Music, Leadership Culture and Theological viewpoints) has the largest impact on church attendance within the UK. By using existing census data, and surveying participants, this project seeks to pinpoint which factor plays the largest role. This research is aligned to the Reform and Renewal Guidance of the General Synod (2010), and aims to impact on future church attendance by providing guidance to churches at to areas of potential improvement.

10

Leaky Wave Antenna Design for Remote Monitoring of Vital Signs at Millimeter Wave Frequencies (30-300 GHz)

Solomon Mingle

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Non-contact vital sign monitoring at millimeter wave frequency is very challenging using leaky wave antenna radar technology. A novel leaky wave antenna that will form part of the radar system capable of detecting vital signs (respiration and heartbeat rate) in a remote and contactless manner is presented. Detection of these vital signs is based on a Doppler radar frequency operating in a un-license 60 GHz band. A radio-frequency wave is transmitted to the human chest, whose vital signs can be detected by micro-movements of the body. These movements will, in turn, reflect the wave, which will be received and processed using Matlab to extract vital signs information. This antenna will be beneficial to the Health sector and emergency services. This new design is less expensive, higher gain and can be integrated into other systems.

11

A non-invasive brain monitoring device for severe traumatic brain injury patients

Mario Forcione

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Patients who suffer severe brain trauma require continuous brain monitoring during the acute phase. This is done through the insertion of a catheter into the skull, in direct contact with the brain. This invasive procedure can be substituted by a non-invasive device, called Near-infrared Spectroscopy (NIRS), which monitors the brain with probes positioned on top of the scalp. The NIRS device emits light which passes through the skin and skull to reach the brain. A study has been carried out in the Queen Elizabeth Hospital to test this device in trauma patients in the intensive therapy unit. A contrast dye, easily detectable by NIRS instruments, is injected into the patients; analysis of its passage through the brain allows clinicians to monitor vital brain parameters non-invasively.

12

Systematic Literature Review and Workplace Bullying Research: Things to Know before the Start

Mukul Tiwari

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This poster explores the utility of Systematic Review methodology (SRm) in workplace bullying research. It offers a comparison between various popular literature review techniques in Business and Management Studies, highlighting the advantages and disadvantages both. Although SRm requires a significant amount of effort, time, and cost as compared to other review techniques such as narrative review or meta-analysis, it has become increasingly important in Business and Management Research. However, there is a little evidence that could be found in bullying literature that thoroughly evaluates the suitability of SRm in workplace bullying. This poster will provide a clear direction for future researchers for selecting an appropriate review technique as per the requirement of their research.

13

Shedding new light on resistance to breast cancer treatment

Rhiannon Moss

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DNA double strand breaks, the most toxic form of DNA damage, are repaired by two opposing pathways involving the DNA repair factors RIF1 or BRCA1. Although BRCA1 mutations predispose individuals to developing breast cancer, these cancers are susceptible to drugs known as PARP inhibitors (PARPi). Although PARPi represent a promising cancer treatment, resistance to these inhibitors is a significant issue. Loss of RIF1 represents one resistance mechanism, rendering BRCA1-deficient cells resistant to PARPi. Our lab is interested in identifying new mechanisms of PARPi resistance. We recently showed that cells lacking a new factor called KMT-X are comparable to RIF1-deficient cells. Therefore, my aim was to investigate whether loss of KMT-X affected PARPi sensitivity in BRCA1-deficient cells. My results demonstrate that, like RIF1, loss of KMT-X is a likely mechanism by which BRCA1-deficient cells acquire PARPi resistance. This could lead to the identification of new, clinically-relevant biomarkers for cancer therapy resistance.

14

Disabled athlete activism in South Korea: a mixed-method study

Inhyang Choi

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My study focuses on disability sport and activism. Enabling social missions within disability sport has recently become a key agenda in sport psychology. Importantly, this is the first study to examine the disability rights movement amongst disabled athletes in a non-Western culture. I employed a sequential mixed-method design. In the first quantitative phase. I measured activism orientation in 100 disabled elite athletes and 100 disabled non-athletes in South Korea. Statistical analysis revealed that elite athletes were more willing to engage in activism than non-athletes. In the subsequent qualitative phase I interviewed 18 elite athletes and 12 non-athletes who scored either highest or lowest for activism orientation. Thematic analysis revealed that high-activism athletes were motivated by ease of access, whereas low-activism athletes were discouraged by emotional cost.

My findings enrich cultural understanding of sport psychology and, importantly, promote activism by revealing how disabled athletes can be supported in their social mission.

15

The social network of mitochondria in plant cells

Joanna Chustecki

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Improving growth and yield of crop plants is needed in order to meet global food security measures. The amount of energy plant cells have access to is vital for their growth. Mitochondria are organelles within the cell that produce energy in the form of Adenosine Triphosphate (ATP). They are very dynamic, moving around the cell delivering ATP to where it is needed most. Little is understood about their motion, and how it is controlled. This project uses video data of mitochondria in plant cells, collected from wild type and mutated samples. From these videos we can build up 'social' networks, tracking when mitochondria interact, and how important one individual is to the rest of the system. We are also modelling this motion- simulating predictions for how these organelles travel around cells; getting closer to understanding how they move, and why plant cells need to invest energy to keep them moving.

16

Microfluidic manipulation of biomaterials mechanical properties

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Optimization of the interactions between cells and substrate is important for tissue engineering and biomedical applications such as tissue repair and wound healing. These could be greatly improved using scaffolds where cells are directed in specified areas of interest. Biomaterials exhibiting a gradient of mechanical properties can be used to regulate cell behaviour which is mainly dependent upon the elasticity of the substrate. Here we demonstrated the generation of Gellan gum biocompatible materials with tuneable properties by exploiting heat transport phenomena across a microfluidic device. Using Atomic Force Microscopy, we characterized the hydrogel by evaluating locally the Young's modulus across the 600 μ m width of the hydrogels. Furthermore, we monitored the cell behaviour over time by seeding MC3T3 osteoblasts on the surface of the biomaterial. Finally, we evaluated cell viability, migration and mineralization throughout.

17

Are Game Elements Suitable for Me? Understanding the Relationship Between Gamification and Online Learners' Personalities

Wad Ghaban

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Have you ever been annoyed because game elements (e.g. points or badges) appeared in a learning website, or those elements distracted you? In reality, individuals respond differently to game elements. Because of this variation, we suggest the building of an online learning system that matches game elements to individuals' characteristics, including their learning style, personality and mood. Thus, we aim to provide each individual with suitable game elements. My research will focus on using learners' personality as it more stable characteristic. We will match online learners' personalities to their preferred game elements. To accomplish our goal, we needed first to run several studies to understand how a range of personalities will interact with game elements. The results show variations in the responses of the various personalities, which may provide guidance in building a model that matches game elements to learners' personalities.

18

The birth, life and sudden death of a thousand-year culture: The Kura-Araxes Culture in Azerbaijan during the Early Bronze Age

Narmin Ismayilova

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Kura-Araxes Culture (KAC) is one of the most distinctive and long-lived archaeological complexes of the ancient Near East during the Early Bronze Age. This culture existed from roughly 3500 to 2500 BC, where similar modes of architecture, artefact types and metallurgical traditions draw together astonishingly wide geographical zone, from the Southern Caucasus throughout the Iranian plateau, Eastern Anatolia, and as far as the Southern Levant. Numerous excavations of the KAC sites have taken place in the territory of Azerbaijan.

However, no independent study has so far been conducted by researchers leading to the publication of systematic Gazetteers of sites in Azerbaijan. The aim of the project is to undertake, for the first time, a comprehensive study of the KAC and create an overall map of KAC sites in Azerbaijan. This analysis will help us to evaluate the diachronic development of Azerbaijani sites at a regional level, and also will help to compare them with those in neighbouring regions throughout their development.

19

Prioritisation of Medicinal Plant Species of Indonesia as a Crucial Step in their Conservation and Sustainable Use

Ria Cahyaningsih

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Indonesia is rich in plant genetic resources, including medicinal plants. At least 80% of total medicinal plant species that occur in South East Asia occur in Indonesia. However, their conservation is currently ineffective because of human and financial resource limitations. This presentation aims at giving an overview of how medicinal plant species of Indonesia were prioritised for active in situ and ex situ conservation. The native status, rarity, and whether the species originates from the wild or cultivation were the prioritisation criteria. Additionally, threatened plant species, as well as those listed in related legislation, were included to the priority list and weeds were excluded. Prioritisation resulted in a total of 302 species within 201 genera and 82 families for conservation. Generally, the results of this project will lead to a recommendation that supports National Priority Program and in meeting the expectations of the Convention on Biological Diversity.

20

Cashing in on Original Sin: moral conservative groups in late Twentieth Century Britain

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In October, 1972, the programme *Till Death Us Do Part* joked that God and the Virgin Mary had not had any more children except Jesus because they were on the pill. What followed was illuminating: a backlash from Mary Whitehouse's following of moral conservatives demonstrated the specific anxieties in 1970s Britain over issues surrounding religion and 'liberated' sexualities, and how these anxieties flared up when faced with the supposedly changing attitudes towards sexuality and Christianity in Britain from the 1950s onwards. My research addresses the historical absence of these moral conservative individuals, who were mobilising against perceived threats to their disciplined and Christian society, whether it be pornography, homosexuality, or liberated sexual attitudes. It will paint a bigger picture of Britain in crisis; of Britons trying to navigate the new moral landscape of pornography, and diminishing Christianity, whilst still carrying their personal ideological baggage of 'traditional' values and Christian faith.

21

Speaking from the heart: a mathematical point of view

Diana Marta Cruz de Oliveira

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The mechanics associated with a living entity dictates its ability to survive or perish. Similarly, heart valve function relies on its mechanical properties and structural integrity. A compromise in these leads to diseased valve states. There are still many unknowns on the influence of dimensional changes in valve mechanics: to tackle this, we created a mathematical model describing the shape of a heart valve based upon clinical data. We then established a computational characterization associated with different valve configurations.

Our model predicted different cases of function, associated with valve geometrical changes. Diseased configurations, yielded greater valve tissue stress in comparison with healthy ones, exhibiting greater damaging. Our model provides with adjustable geometric detail, useful to study customized cases by employing diverse patient data and generating a range of geometries for computational assessment. Such framework can aid in patient risk stratification by indicating which configurations are associated with unfavorable performance.

22

Meds - children debunk the "gold standard"

Justyna Hofmanova

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Making medicines that are tailored for children has been highlighted as a priority by the World Health Organisation (WHO) and European Medicines Agency (EMA). The traditional use of liquid dosage forms is sub-optimal due to stability and taste issues. Small tablets offer an alternative oral dosage form with benefits of stability, easy dosage adjustment and simple taste-masking options. Several studies have already proven preference of small tablets over liquid in infants and toddlers. A key barrier in developing acceptable and age-appropriate medical products is the lack of knowledge of what is acceptable. In MAScot study (Mouthfeel, Acceptability and Swallowability of Coated small Tablets) we ask preschool and school children to express their opinion of small 7.5 mm tablets, to explore the sensory preferences of paediatric population. Methodology is based on sensory science adjusted to children needs (low burden, fun study delivery). Results will support development of child friendly medicines.

23

Has translation changed the way we talk about migration?

Edward Clay

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Although previous research has shown that translation can play a role in language change, this is the first research study to examine whether translation has influenced the language around migration in English, French and Italian. Migration is a key global issue in today's political and social discourse, so understanding what shapes the way we talk about it is crucial.

This study uses large-scale corpora of EU legislation and newspaper articles in English, French and Italian from different time periods to investigate whether the language around migration has changed on a lexical and/or syntactic level over time, and whether translation may have been a factor in this change. In doing so, this research adopts an interdisciplinary approach encompassing translation studies, corpus linguistics and law. This research will help to inform the way language is used in the debate around immigration and will highlight the importance of translation on language change.

A picture paints a thousand genes

Jack Brazier

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Because of the burgeoning use of antibiotics, bacteria adapts, becoming resistant: a threat we cannot combat. Through a fluorescent labelling experiment, DNA can be analysed and "mapped", producing specific genome barcodes that ascertains the specific bacterial threat that is present, allowing us to battle it more effectively with specialised antibiotics. The DNA map is an image which is processed in Matlab, in this map the DNA strands can be seen and have intensity profiles resembling barcodes. My project will read the image and align the barcodes to the correct reference genome. This is an inexpensive way to match a sample of DNA to the genomes contained. Not by reading the whole sequence but by reading an optical map which presents the genome's unique patterns. Finally, in hospitals patients can have their DNA sample mapped to find out which bacteria are causing them to be ill.

25

Athletics, Air Quality and Meteorology: Does Diamond League Shine?

James Hodgson

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Urban air pollution is an increasingly important topic that can have negative short- and long-term impacts on health, including neurological, immune system and developmental damage. Furthermore, the irritant qualities of pollutants such as Ozone, Nitrogen Dioxide and Particulate Matter can cause respiratory and cardiovascular distress, which can be heightened during physical activity. Following on from previous research examining the influence of air quality and meteorology on public parkrun athletic performance, this study focuses on elite 5 kilometre athletes performing in international events. Local meteorological and air quality data is used in conjunction with race performances from the Diamond League athletics series to determine the extent to which elite competitors are influenced during maximal sustained efforts in real-world conditions, research that has previously only examined marathon runners or been performed in laboratory settings.

26

Tiny but powerful: Nanomedicine with the potential of fighting malignant brain tumours

Basant Mahmoud

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Brain tumours are highly aggressive in nature and their treatment is troublesome. Current treatment regimen involves surgical resection followed by radiation and chemotherapy. Treatment using conventional chemotherapy, however, does not deliver the required drug dose to tumour sites. It also induces harmful side effects on normal tissues. Synthetic nanoparticles can act as drug carriers and delivery vehicles reaching tumour sites specifically and sparing normal tissues.

This research aims at manufacturing drug delivery vehicles of optimum size, stability, specificity and biocompatibility that can cross biological barriers targeting brain tumours. Initially, this research involved synthesizing drug loaded nanoparticles with high entrapment efficiency by overcoming the challenge of entrapping an effective water loving chemotherapeutic drug that is difficult to get through to brain tumours in its free state. Further investigations will follow to confirm full biological efficacy of the synthesized nanomedicine.

Manchester: Shakespeare's Northern Powerhouse 1753 - 1901

Ian Nickson

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From the establishment of its first permanent theatre in 1753 until the end of Victoria's reign in 1901, almost 2000 performances of Shakespeare's plays were produced in Manchester, a number exceeded only by London. Such was the bard's popularity that Charles Calvert's career as theatre manager in the city and creator of theatrical versions of Shakespeare's plays was so successful that his funeral procession attracted 50,000 onlookers. Why was the city so enthusiastic about Shakespeare's plays and so receptive to their moral messages? I will answer these questions by assessing the impact of social, economic and technological changes on the city's cultural life. Manchester's contribution to the development of national and international Shakespearean theatre and how Manchester adopted Shakespeare's works to give direction to its development have not been researched before. My new and original research aims to link Manchester and Shakespeare in the public consciousness for the first time.

Automated Quality Control

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Magnetic Resonance Imaging (MRI) is an imaging technique which enables acquisition of high-resolution images of the inside of the body. Dynamic Susceptibility Contrast (DSC-MRI) is a form of MRI which uses a contrast agent to assess blood flow within the body. It can be used to estimate biomarkers such as the Cerebral Blood Volume (CBV). This has many useful applications such as grading brain tumours, which is very useful for treatment planning. However, DSC-MRI is also susceptible to artefacts, which can affect the quality of the data acquired, and therefore the accuracy of any biomarkers. Therefore, quality control is very important. Currently, this is carried out by assessing DSC-MRI images by eye, which is time-consuming and subjective. This project focuses on the development of an algorithm which can automatically analyse a DSC-MRI data set and determine whether it is of suitable quality to be used in research.

Personhood 2.0: Back to the drawing board

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Most philosophical accounts of human rights accept that all persons have human rights. Typically, 'personhood' is understood as unitary and binary. It is unitary because there is generally supposed to be a single threshold property that is required for personhood (e.g. rationality). It is binary because it is all-or-nothing: you are either a person with human rights or you are not. A difficulty with this view is that there are subjects, such as children and those with dementia, who do not meet the requisite threshold and so are not persons with human rights. This is the problem of marginal cases.

My thesis argues that we cannot resolve the problem of marginal cases if we accept a unitary, binary view of personhood. Instead, I present the first systematic defence of plural degrees of personhood view. On my account, marginal cases can have some degree of personhood and some human rights.

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Female Artists and the British Poster Movement (1919-1939)

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My research examines the output of over 150 female artists who contributed to the 'poster movement' in Britain (1919 and 1939). Challenging the conventionally male-focused nature of Art History I explore how these women used the alternative medium of the poster to achieve artistic notoriety and consider how this connected to the changing social, political, and cultural position of women during the interwar. My research focuses specifically on women's work for major companies and bodies, including the government's Empire Marketing Board campaign and the General Post Office's publicity drive. This allows me to explore both the impact of women on the visual culture of the interwar period and the relationship between poster work and the wider growth in female power and autonomy during this time.

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Fibroblasts in Rheumatoid arthritis: From friend to foe

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Immune cells move from the blood into tissue to fight infection, and repair damaged tissue. A series of check-points tightly regulates their movement across blood vessel walls to control the number of cells entering the tissue. A defect in one or more of these check-points allows an inappropriate accumulation of immune cells in the tissue seen in chronic inflammatory diseases, such as rheumatoid arthritis (RA). Cells resident in the tissue, fibroblasts, "talk" to the cells of the blood vessels to regulate immune cell entry into the joint. At the earliest stages of RA development, fibroblasts change and lose the ability to limit the number of immune cells entering the joint. They also undergo a second change in their function, which allows them to actively promote immune cell entry. My project aims to identify the biomolecular pathways responsible for these changes in fibroblast-blood vessel communication and potentially new drug targets.

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Should we be worried about the TEENY-WEENY things in Nanotechnology?

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The manipulation of extremely small things (called nanoparticles) to improve our lives is called Nanotechnology. From medicine to agriculture and engineering, this technology is changing our world and has great prospects. The most fascinating of these nanoparticles is Graphene, a form of carbon with 2D dimension and one atom-thick layer. It is used for many applications such as touchscreen phones and cancer drugs delivery. Graphene may inevitably find its way into the environment (air, water & soil) during its life-cycle.

So what happens to them in the environment? How will they affect us (humans and animals)? Are they toxic? In answering these questions, my research is trying to understand the fate, bioaccumulation and toxicity of graphene by labelling it. Labelling graphene (e.g with DNA - a novel approach) will enable us to know their exact number (concentration), understand how they behave in the environment and predict their impact.

33

Liquids sensing for industrial applications

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Liquid is one of the primary state of matter that has so much importance in our lives. The fact that every liquid has distinct property called the dielectric constant. It gives us the opportunity to measure and analyse various form of liquids by simply exposing them to some sort of electrical signal. Today this knowledge of dielectric properties of liquids has become an important tool, if properly interpreted will provide useful information that can be utilised in many ways. From changes in concentration level; to moisture content in plants; to analysis of body fluids to aid medical diagnosis. For instance early detection and monitoring of diseases such as diabetic and cancer in medicine and quality of product in food and petroleum industry. My research is aimed at designing sensors that are capable of investigating liquids with accuracy and at reduce cost using microwave resonators cavities.

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Towards a Point-of-Care Optical Waveguide Biosensor for Enabling Judicious Use of Antibiotics

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Acute respiratory illnesses can be classified as bacterial or viral; unfortunately, both present with very similar symptoms in patients. Ensuring patients can receive swift and appropriate treatment is key to successful healthcare, but antibiotics cannot cure viral infections and their unnecessary use is leading to antibiotic resistance. Monitoring levels of procalcitonin (PCT) in blood within 6-12 h of initial infection has the potential to distinguish between bacterial and viral infections, but current state-of-the-art immunoassays used to measure PCT are not suited to be used in doctor's offices. We are aiming to address this gap by developing a point-of-care (PoC) biosensor based on polymer optical waveguides, structures which guide light for detection. Our objective is to design waveguides that will remove the effect of other components of blood, leaving only the signal from PCT. This will avoid the need for lengthy sample processing, which is a major bottleneck for PoC applications.

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Dynamic Responses of Railway Prestressed Concrete Sleepers with Under Sleeper Pads Subjected to Extreme Impact Loads

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Nowadays, under sleeper pads (USPs) have recently been adopted as a resilient component placed underneath the concrete sleepers to prolong the track service life. However, it is well-known that, with any imperfection of either wheel or rail, railway tracks usually face impact loading conditions. This paper presents a 3D finite element model of prestressed concrete sleepers with USP under extreme impact loading. This study has confirmed field measurement data that the sleepers with USPs tend to have lesser flexures and contact force. However, this study also firstly reveals that the sleeper with USP could be amplified by the extreme impact force, especially when excited by a high-speed train travelling over short-pitch rail defects or rail joints. Based on the obtained results, it is implied that the applications of USP should be very careful since the USP could trade off the desired benefits by aggravating dynamic behaviour of sleeper with USP.

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Comic Factory – Text Visualization System

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Web pages and other text files present a lot of information, and users can't get critical information quickly. As a result, information overload can cause users to waste time browsing and missing key information. On the other hand, due to the diversity of world cultures, various languages are spread among different groups. Language barriers have become the most serious obstacle to cultural exchanges. Therefore, finding a more understandable way to communicate is the most urgent requirement for promoting cultural exchanges in the world. The main research of this project is how to extract the key information in the text and convert these key information into the picture. This allows the user to understand the meaning of the original text by viewing the picture. This will help users understand text information more quickly and help users in different countries overcome language barriers.

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How Can We Decide If a Word List Is Good for a Particular Purpose?

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Most word lists today use corpora (a large collection of texts) to identify important vocabulary items to be focused on in the teaching and learning process. With the advances in corpus tools, many word lists have been developed and published to serve different pedagogical purposes, sometimes developed uncritically. This created problems for practitioners such as language teachers, materials developers as well as language learners as it is not always easy for them to decide which list is of maximal usefulness for them. The current research aims to develop a generic checklist for the evaluation of word lists for different pedagogical purposes. The poster will present the findings of the first stage of the study: a survey of current practices related to making, using and selecting word lists for language teaching and learning purposes. The findings will be used to develop the checklist adapted from Nation (2016).

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Liver Disease: A single protein can make all the difference

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Liver disease is the fifth biggest killer disease in the UK and the third most common cause of premature mortality, but treatment options are limited. Our group have shown that Vascular Adhesion Protein-1 (VAP-1) drives establishment and progression of liver inflammation and scarring, and may be a useful drug target. However, more data is needed to understand the mechanisms behind VAP-1 function to provide maximum benefit from any future therapy.

We are currently using synthetic viruses to introduce genetically altered VAP-1 into isolated human liver and blood cells. These proteins are tagged with fluorescent markers allowing us to track their location and interaction with cellular machinery and adjacent cells. We can monitor how these modified cells cope with the stress of disease such as clearing infections or healing wounds. We hope this will reveal new ways to target the function of VAP-1 and reduce the burden of liver disease worldwide.

The Sunshine Vitamin: The Role of Vitamin D in Skeletal Muscle Health

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Around 40% of adults within Europe can be classified as vitamin D deficient, with severe deficiencies often resulting in symptoms of fatigue and poor skeletal muscle function. Vitamin D exerts its biological effects following binding to a receptor known as the vitamin D receptor (VDR). Recent evidence has suggested that vitamin D may improve skeletal muscle energy production, however it is not known whether the VDR mediates this adaptation. We recently demonstrated that a reduction-of-function of the VDR within a skeletal muscle cell line impaired skeletal muscle energy production. Additionally, we observed that mice subjected to a period of vitamin D deficiency also suffer impaired skeletal muscle energy production. We now understand that both vitamin D and its receptor, the VDR, influence skeletal muscle energy production. Understanding the wider role of vitamin D within the body could help to optimise skeletal muscle health across lifespan.

Cinematic Concretisations of French Identity: Symptomatic defenses

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Film offers a "visible voice" to help resolve the challenge of integrating newcomers. Especially during times of threat in France, the challenge is often equated with an "immigration problem" and relaunches the debate about French identity, as defined by an inclusive, rational, idealistic ideology. Current times of threat recall the Nazi Occupation when French identity was in crisis, thus eliciting psychological defence mechanisms on the national and personal levels. A critique of the national, this study examines the personal by analysing defence mechanisms exhibited in physical and sound spaces by the main "self" in ten French Occupation films. The study argues that a gap exists between national and personal images of French identity, that the gap is inherent to French ideology, and that cinematic concretisations offer a "visible voice" to help move the debate beyond impasse. Additionally, the study's insights are relevant on the larger European scale.

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I can see your heartbeat: Nano-organisation of the adrenergic receptors and why is it important

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G-protein-coupled receptors (GPCRs) are responsible for many of hormone and neurotransmitter effects. They are involved in metabolic, cardiovascular and neurological diseases. For example, beta 2 - adrenergic receptors are involved in the control of heart contractility - the heartbeat! They serve as targets for commonly used drugs such as β -blockers. Indirect evidence suggests that these receptors might be highly organized in space and time, forming signalling nano domains crucial for their function. Single-molecule microscopy has revealed this complexity of receptor interactions. It has been previously shown that the signalling of some GPCRs takes place in certain preferred locations - the hot-spot areas. This so far has been demonstrated in 2D space, yet, 3D particle tracking is necessary to fully understand the system complexity and its interactions. I aim to create 3-dimensional maps of the adrenergic receptor organisation in space and propose a mechanism of action of available drugs.

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Factors associated with healthcare costs of back pain - A comparison of alternative econometric models using THIN database

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Back pain imposes enormous costs on the economy, but little is known about the determinants, and patterns of these costs. We evaluated several econometric modelling approaches for estimating the impact of explanatory variables on healthcare costs of back pain using The Health Improvement Network (THIN) database. Seven commonly used regression models were applied which included ordinary least squares (OLS), generalised linear models (GLMs), and extended estimating equations (EEE) model. The sample comprised 108,013 patients from 428 practices across the UK. Healthcare costs increased significantly with age, deprivation, comorbidities and for smokers, female, and obese patients. The simpler model (OLS) and the most advanced model (EEE) performed as well, or better, than the widely used GLM models. Predictions from five of the models were highly consistent indicating their robustness. Our findings demonstrate the need for researchers to examine their assumptions about the most appropriate model for analysing healthcare cost data.

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English across the Time Zones: A Corpus-based Analysis of South Asian Englishes

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Pakistani English is considered to be a separate variety of English. However, all the previous attempts at establishing English used in Pakistan as Pakistani English were restricted either to finding out individual linguistic features or comparing Pakistani English with British/American English leaving the identity of Pakistani English out of sight under the cover term 'South Asian English'. This study attempts to analyse how South Asian English is different from British English and how Pakistani English is variant from or similar to other South Asian Englishes in order to establish Pakistani English as a distinct variety. It uses Multi-dimensional (MD) approach introduced by Biber (1988) to explore linguistic variation among South Asian newspapers. It is a unique research enterprise because a specialized corpus of South Asian English newspapers reportage has not yet been developed. No exclusive research on South Asian newspaper reportage has been conducted before.

Copyright Law in the Age of Artificial Intelligence: "Redefining Author"

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Today, with the recent boom of artificial intelligence (AI), more and more creative works are being generated by AIs that are capable of learning without being specifically programmed by a human. They have become a new source of creativity. In most cases, while AIs learn from the data provided by programmers to generate a new piece of work by making independent decisions throughout the process to determine what the new work looks like, the work is actually created by the AI itself. Although it seems that conferring copyright in works generated by AIs has never been specifically prohibited, there are indications that the regulatory frameworks of many countries are not open to AI copyright. To qualify as a work of "authorship" a work must be created by a human being and this takes us back to copyright history and theory, and emerge a question: What is an author in copyright law?

9/11: How Did We End Up Here?

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As the American people watched as the horror of 9/11 unfolded, the nation asked itself 'how did we end up here'? My research will examine the emergence of Counter-Terrorism policy post-Watergate to 1988 and will demonstrate how the United States vulnerability became more acute through inconsistent policy making by successive administrations as well as by an inability to recognise how terrorism was becoming more transnational in the post-Cold War period.

This research will also examine the conflicts over whether counter-terrorism policy should be subject to full Congressional oversight or instead be the Presidential prerogative within the Executive Branch. Ultimately this dissertation will demonstrate that successive American administrations failed to recognise clear indications of the developing threat and squandered opportunities to establish a coherent counter-terrorism policy. The history of a State's counter-terrorism policies has relevance today as nations struggle to find a response to contemporary terrorism threats.

Cultural Communication between Renaissance Crete and Italy: The Case of King Rodolinos

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My research focuses on the Cretan tragedy King Rodolinos (1647), written by the Greek author Ioannis Andreas Troilos, and its communication with the culture of Renaissance Italy, firstly demonstrated by its source text, the Italian tragedy King Torrismondo (1587) composed by Torquato Tasso. I argue that the Greek tragedy is a "creative adaptation" of its source. The term "creative adaptation" suggests that Troilos adopted only those features that suited his work, while he imbued the tragedy with his own talent. I also highlight his familiarity with the theories expressed in the treatise *A Discourse on the Composition of Tragedies and Comedies* (1554), composed by the Italian scholar Giambattista Giraldi. Mannerism (period style between the Renaissance and the Baroque, dated roughly from 1580 to 1680) is the third factor that provided fertile ground for the composition of King Rodolinos and highlights its communication with the cultural scene of the sixteenth-century Italy.

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Rome Away from Home? Changing Views of the Tiber's opposite bank

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Ancient Rome was a complicated place. Cluttered, noisy and unplanned, it was the exact opposite of the grid-plan ideal Romans favoured in their provinces. This all changed in 64 AD, though, when, as Nero fiddled, much of Rome burned down. This enabled the capital to be reordered and regularised. However, one district escaped all that. Transtiberim (meaning 'across the river') was the only part of Rome on the other side of the river, and, spared from the destruction, it evolved in a very different, more chaotic way to the rest of the city. My poster illustrates how, both part of and apart from the ancient metropolis, this understudied region went from bucolic idyll to criminal hotbed; from home of the Senatorial elite to centre for diaspora communities and the destitute. Here, at the epicentre of classical civilisation, we find therefore an all too recognisable tale of urban development and decline.

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Algerian Identity through the Prism of the Sahara Desert

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My study looks at the place of the literary representation of the Sahara Desert in the development of Algerian identity. My purpose is therefore to examine the intersection between identity and space and how the latter influences and constructs the former. The Sahara Desert, as an emerging element in the Algerian literary expressions paves the path for a study of a hitherto unexplored area: narrating the desert in the journey of self-discovery.

My analysis will underpin the place of the Sahara Desert within the boundaries of space along with contextualising the contribution of desert spaces to Algerian Identity. I will also examine the legacy of the Sahara Desert and how it is engaged with in colonial discourse and reinvested in the postcolonial Algerian literature. Hence, my project aims to bring further understanding of the role of arid spaces in the reflections of identity in the Algerian literary imaginary.

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Does neck pain change the way people move during a challenging walking task?

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Chronic neck pain is common with approximately four out of five people experiencing neck pain during their lives. When neck pain becomes chronic, it can cause movement changes and disability. Evaluating movement differences in people with neck pain during walking could provide important information to inform approaches to rehabilitation. This study examined 1) a simple task: walking without head rotation 2) a challenging task: trunk and neck rotation during walking with head rotation in people with chronic neck pain (mild pain) and healthy individuals. No differences were found between groups during the simple walking task. However, the people with neck pain displayed reduced variability of trunk rotation during the challenging walking task compared to healthy individuals. Results provide evidence that people with neck pain exhibit differences in spinal movements during a challenging walking task. Findings support the importance of examining movement behaviour during challenging tasks in people with neck pain.

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Fighting cholera with a new, fast and portable electrochemical sensor

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Every year millions of people fall ill or die after consuming food or water poisoned by bacteria. An early detection of these microorganisms would prevent most of these cases. In my project I'm developing a sensor for the detection of the waterborne bacteria cholera. Unlike current methods, the sensor will be simple, fast, cheap and portable. The sensor will also be a proof-of-concept for the detection of other bacteria. Cholera infects humans producing a toxin that attaches to our intestine cells through a sugar, galactose. We will mimic this infection mechanism covering small (few mm²) gold surfaces with molecules linked to galactose. When the cholera toxin attaches to the galactose of these molecules, it will disturb an electrical current being applied to the gold surface, indicating the presence of the pathogen.

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Setting the historical context of contemporary Islamic thought in the Arab Gulf since 1945

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The primary purpose of this work is to outline and analyse the prevailing religious and contemporary Islamic thought of Arab Gulf region after the WW II, to determine the factors and schools of thought that were most prominent in shaping its thinkers, locating which schools of thought it could be best identified with. In doing so, it will also outline the political, economic, and social context, of the factors that proved to be influential in shaping the religious-intellectual thought of Arab Gulf region at that time. To reach the aim of this work, it is better to divide it to three sections, the first one, will examine the overall condition and the religious-intellectual life of the Arab region in general and Gulf region in the specific in the 19th and 20th century. The second one will discuss the political and social factors that influenced the Arab Gulf's thinkers. Thirdly comes the illustration of the Islamic schools of thoughts that influenced the Arab Gulf's thinking. The conclusion will summarise the findings of the research.

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Educational leadership in non-white majority schools: a post-colonial perspective on global multicultural capital

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This project looks at how both staff and student leaders understand, recognise, and embed diverse embodied cultural capital within the institutional environment/ ethos/ cultural pedagogy of three schools/ colleges based in Leicester. It does so within the historical context of Leicester's multiculturalism. This project looks for evidence of a global multicultural capital embedded within each institution's ethos/ environment/ open spaces. It is looking for evidence of institutional, symbolic, and objectified recognition of embodied non-white cultural capital in institutions where non-white students are the large majority. It does so through a postcolonial theoretical lens. It hopes to find non-white cultural capital embedded within each institution's ethos/ open spaces as a counter-balance to the formal colonial curriculum. It explores whether the embodied narratives, histories, and experiences of non-white students are recognised as a way to contest unequal power relations and oppressive cultural hierarchies within education and wider society.

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"OK Google, how long will it take me to get to work today?" - Utilisation of real-time routing algorithms to infer air quality in cities

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Awareness regarding the air we breathe in our cities has grown significantly, in part due to the imminent implementation of Clean Air Zones in the UK. However, cities are a complex landscape and pollutant concentrations can vary greatly from street to street. Therefore a synthesis of techniques is required to account for variations in traffic, meteorology, and urban geometry. While the transport sector accounts for the majority of pollution in UK cities, a limiting factor of current techniques is that traffic is approximated at coarse temporal and spatial resolutions. This work will present a novel technique that helps to 'fill in' the gaps in our traffic data by harnessing the power of real-time queries to mapping services, such as Google Maps. Initial results are promising and the next stages of the project will include validation of the mapping services output and application of this technique to the Birmingham area.

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Causal Explanation in Quantum Theory: Is 'Spooky Action at a Distance' Really Spooky?

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Daily experience tells us that windows break if one throws heavy rocks at them, and the red ball enters the pocket when struck by the player's cue ball. Nonetheless, the phenomenon of quantum entanglement in fundamental physics deeply challenges how we think about causes and effects in the world. Imagine a system of two photons emitted by a source, sent in opposite directions to distant regions of spacetime. A measurement of the polarisation of the photon (its oscillation orientation) at point A enables the observer there to know with certainty what the measurement result on the photon at B will be even when the distance A-B is such that cannot be covered by a superluminal signal. This correlation suggests instantaneous communication, forbidden by quantum information theory and the theory of relativity, thus putting at stake our intuition that causes always precede and provoke their effects. Is a causal explanation of quantum entanglement possible?

Packing problems in large graphs

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My research is based in the field of extremal graph theory. The goal is to find or prove the existence of an optimal packing of certain families of graphs into some large host graph. Here, we say that two graphs G and H pack into another graph R if we can find edge-disjoint copies of G and H in R . Consider the following example. We take a collection of cycles. Our theorem provides values for the number of edges and the degrees of vertices, such that any graph which satisfies these constraints will contain edge-disjoint copies of each cycle in the collection. That is, the cycles pack into any graph satisfying the constraints of our theorem.

My poster will explain the exact statement of our result and exhibit several examples. Many interesting corollaries follow, which correspond to long-standing problems such as the tree packing conjecture and the existence of designs.

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What really makes a film feminist: a comparative analysis of Westernised films and Hong Kong cinema between 1990-2000

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Feminist films cannot be reduced to women's cinema. A possible definition of women's cinema includes films about women, films addressed to women or films directed by women, one of the commonest understandings hitherto.

However, in terms of filmmakers of feminist films, it is crucial to make clear that there is no limitation on the gender categories they may fall into. This research draws attention to Westernised films and Hong Kong cinema directed by filmmakers with different genders between 1990-2000, discussing gender representation in cinema in relation to different socio-cultural contexts and various gender perspectives of the directors. The redefinition of 'feminist film' is expected to challenge the stereotype that women make good feminist films and men are unlikely to be feminists. The exploration of the films' feminism would also help to challenge the gender binary, assisting people in examining their traditional concepts of gender.

The Role of Learning in the Policy Change: A Conceptual Framework

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There are various ways to analyse policy change. Among the existing approaches, there has been limited use of learning as an analytical lens. Most studies focus either on the role of the policy actors, institutions, or critical events on policy change. The main reason for this is because learning is difficult to be observed. People often fail to spot learning in a policy change because it is difficult to be detected, as it happens in the policy actors' mind. However, learning is not a random decision. It is a rational decision which is derived and triggered. This condition should make learning possible to be observed. Part of my project is to develop a framework for analysing policy change. This poster demonstrates the conceptual framework to help people think of various possible ways of how learning can be used to analyse and to promote policy change.

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Developing a Grating Magneto-Optical Trap for High Precision Sensing

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Ultracold atoms are highly sensitive to changes in their environment. Given this property, they are used as effective sensors in several contexts: atomic clocks for timing; magnetometers for magnetic field sensing; and spatial gravity mapping for engineering applications, including construction, resource management, and irrigation. We have designed, built, and tested a table-top magneto-optical trap (MOT) which traps Rubidium-87 atoms and lowers their temperature to the ultracold regime. In our system, a laser incident on a grating is split into multiple beams which reflect and intersect above the grating surface. These beams cool the atoms while the interaction of the beams with a strong magnetic field traps the atoms. We investigate how changes to the magnetic field alter how atoms are trapped, including how magnetic fields can be used to maximise the number of trapped atoms, increasing sensing ability while reducing power consumption of a grating MOT sensor.

Did you know you speak 'gesture'?

Paulina Poplawska

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Hand gestures are said to most often occur during speech. There are many ways in which the language we speak and the gestures we use are both connected. But how does the language we speak itself influence our gestures? In my research, I am looking at how co-speech gestures can vary between bilingual and monolingual speakers of Polish and English. Not only does my research focus on the aspects of co-speech gestures which have already been compared in other languages, but it also looks at how languages coexist and interact within bilinguals. My research fills a significant gap in the literature, as very little is known about the use of speech and gesture in communication in this particular population. Moreover, further research is needed on cross-linguistic influence on lexical representations and on gestures in bilinguals.

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Negotiating belonging across generations - The case of 3rd Turkish heritage migrants in Germany

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In recent years there has been a rise in anti-Turkish feeling in Germany with a drive to expel Turkish migrants that corresponds to the political shift in Turkey since 2003. The political shift has been explored widely, but research on its impact on Turkish migrants in Germany is missing out.

Correspondingly, my Ph.D. focuses on Turkish migrants in Germany and aims to identify what factors shape 3rd generation Turkish Migrants' sense of belonging and identity and to ascertain the role of diaspora institutions, thus the political shift in Turkey. The 3rd generation Turkish migrants' are grandchildren of Turkish guest-workers, who migrated in the 1960s to Germany. The results will present possible causal links between belonging and identity of migrants, and the role of diaspora institutions.

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Moral Sequencing and Intervening to Prevent Harm

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This poster presents a novel system of 'moral sequencing' that can be employed in moral situations to: decide if/when you (Deliberator) should intervene to prevent someone (Initiator) from harming another person (Victim); and ascertain the extent to which Initiator is morally responsible for their actions.

I argue for a probability-driven formal decision-making process linked, first and foremost, to how the sequence of events unfolds and, if available, an assessment of Deliberator's prior knowledge of the beliefs, dispositions, past actions, etc. of Initiator. Interestingly, moral sequencing accounts for cases of personality change (evidenced in various clinical populations) and can help explain: why Deliberator might be justified in intervene earlier in situations where Initiator undergoes a personality change during a moral sequence; and why this Initiator might be attributed less moral responsibility for their actions (thereby vindicating their claim that early-sequence Initiator and late-sequence Initiator are "not the same people").

Birds On The Web - Sightings Of Feral Parakeets Around The World

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Parakeets are native to tropical and sub-tropical areas, yet feral birds are found across the temperate zone. The UK population is more than 30,000 Rose-ringed Parakeets (*Psittacula krameri*) and rapidly increasing (possibly by 30% a year), yet their range is limited to cities. What limits the spread of these non-native invasive birds? To answer this question, we need to find where feral parakeets actually are. We have produced a website, parakeetsightings.bham.ac.uk, to gather details of sightings (presence) and non-sightings (absence) of feral parakeets. A smartphone app is in production. We need sightings (and non-sightings) of feral parakeets, from the UK, Europe, USA and Canada. Every sighting of feral parakeets helps to identify why these birds thrive only in cities. This research will aid in understanding distribution of invasive non-native birds and future distributions in a changing world climate.

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Girls on Film: The Perception of Women in Pornography - Emerging Findings

Amy Gunn

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This poster presents the emerging findings from my research project Girls on Film: The Perception of Women in Pornography. Research was carried out in the summer of 2018 in the form of an online questionnaire (which received an overwhelming response of over 450 participants worldwide). My objective was to gather and analyse the observations of female viewers of mainstream pornography - something hitherto unexplored within research. While there is extensive feminist writing on pornography, few studies have gone beyond the concept of porn to engage with a distinct female viewership and their diverse opinions on the material available to them. This research takes the feminist standpoint that not only do (some) women watch pornography, their opinions on what they are watching should be acknowledged within academic and feminist writing and can help inform the current phenomenon of how mainstream pornography is inextricable from understanding sexuality in 2019.

Agent X: Creator of Bone

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As we age, natural changes in bone and muscle occur. However, sometimes these changes can lead to diseases such as rheumatoid arthritis (RA) and osteoporosis. In the past 50 years there have been big improvements in the treatment of RA, leading to a large increase in life expectancy. However, new treatments are being developed at a slow pace and treatment strategies predominantly modify only minor features of the diseases and are not able to stop or reverse bone damage. Recently we have found a novel leukocyte transmigration peptide, agent X, which may have the ability to increase bone growth, leading to stronger, less breakable bones.

Additionally, in models of disease, preliminary data has suggested that agent X is able to restore bone growth and decrease bone damage. This data advocates that in both healthy and diseased bones, agent X may have a beneficial strengthening role, providing possible therapeutic potential in reducing fracture rates in the elderly and restoring bone growth during arthritis.

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A novel regulator of metabolism

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Biological events can be regulated through a series of protein modifications, commonly known as signalling pathways. These protein modifications may activate or deactivate a particular signalling pathway. The addition of a phosphate group to a protein (protein phosphorylation) is a common, reversible protein modification. Enzymes known as kinases and phosphatases regulate protein phosphorylation by, respectively, adding or removing a phosphate group from proteins. In comparison to the kinases, we know very little about the signalling pathways that phosphatases regulate. We have identified a novel role for one such phosphatase, leukocyte antigen related protein (LAR), in the regulation of energy production within cells, a process known as cell metabolism. It is important to understand the mechanisms regulating cell metabolism because metabolic disorders, such as diabetes, can occur when cell metabolism is dysregulated. Here, we will present how we have begun to unravel the role of LAR in regulating cell metabolism.

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Valuing women's preferences for breast cancer treatment: surgery, radiotherapy or active monitoring?

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Breast cancer screening programmes reduce the number of deaths from breast cancer but may also lead to the overdiagnosis and potential unnecessary treatment of low-risk disease that may never have caused symptomatic harm. Active monitoring (regular mammograms or x-rays of the breast) may be offered as an alternative to immediate surgery and radiotherapy to try and reduce the harm of overdiagnosis, yet little is known about how such strategies may impact upon quality of life. We conducted a primary study interviewing 172 women in Melbourne, Australia, and applied economic methods (quality of life instruments) to find out how women value the different treatments for low-risk breast cancer. Our findings suggest active monitoring is an acceptable alternative for reducing the harm of overdiagnosis on quality of life, and may be used to advise future policy decisions on the consequences of breast screening and treatment programmes.

67

Re-defining authorship for the creative rights of an author

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The infamous *Naruto et al v Slater et al* (2018) recently raised the legal issue of whether animals could be granted authorship in the context of the Copyright Act 1976. The case raises the question of whether authorship needs to be re-defined as the law assumes that creativity, a fundamental aspect of authorship is solely attributed to the human mind. It raises a broader concern for copyright law: whether artificial intelligence that produces work of both an artistic and literary nature can be deemed creative. This poster will explore the scientific evidence that is available suggesting that animals are creative, in addition to the theoretical foundations and justifications of copyright law. The poster aims to demonstrate that creativity, a sentient process, is interwoven with an interest in continued life.

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Reading postfeminist sexualised culture: new perspectives in audience interpretations of sex in music video

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What do music videos say about sex and relationships? How do young adults make sense of them? What are the significant cultural factors influencing this interpretive process? What role does social media play in this? My research takes an ethnographic reception studies approach to answer these questions, extending current understandings of the processes by which audiences interpret sexual scripts in music videos. It then considers the implications this may have for sexual violence against women. I spent 10-months working with young adults in Birmingham, observing them engaging with, interpreting, and unpicking the sexual scripts in music videos. My research illuminates the processes by which sexual scripts are interpreted in a postfeminist sexualized media landscape, which I argue presents a heteronormative version of sexuality that legitimises existing power relations linked with sexual violence against women. In investigating the relationship between ideas and action, I explore how messages are reproduced and internalised.

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Children's Adoption is not Prohibited in Islam

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In 2016, 70,440 children were in local authority's care in the UK from all backgrounds and at any one time, there are nearly 4000 children in these care homes awaiting to find a new home. A significant number of these children are from a Muslim background and there is a serious shortage of Muslim Adopters. This led to various campaigns to recruit carers to cater for these children. Many Muslim people believe adoption is prohibited in Islam, hence depriving this group of children from their basic rights: a right to a family home; meeting their cultural, ethnic, religious and linguist needs/rights; saving the cost for local authorities for meeting these needs.

This thesis focuses on adoption law in Shari'ah Fiqh and its compatibility with UK civil law on adoption. It offers a rebuttal to the controversies raised by scholars on identity, prohibited degree of marriage, modesty, illegitimacy, contact and inheritance, in the light of civil law.

Literary Representation of Women in Saudi society

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This study will identify the sociocultural, historical, religious, political and economic factors that have contributed to transforming women's roles and status in Saudi society, changes which have accelerated in Saudi Arabia since 2000. Providing these insights into both secular and religiously conservative attitudes towards women's rights and gender relations in Saudi society will help to establish how this context impacts on the representation of women and gender-related themes in contemporary novels written by male and female Saudi authors. Since it is not possible to cover all the factors, attitudes and discourses affecting women's issues in Saudi Arabia, this thesis focuses on those that are of direct relevance to the themes to be explored elsewhere in this thesis including women's roles and position in both the private and public sphere. This study provided an overview of the status and role of Saudi women in society including a brief overview of the challenges they have faced, as well as their achievements.

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How has TV Dramas Legitimised China's Rural Neoliberal Transformation Agenda?

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The Chinese state is leading a neoliberal transformation in China's rural area. A growing number of rural topic TV dramas choose to follow its agenda. However, it is not clear why the TV drama industry gets involved in this rural transformation process, and how much these dramas can help the state to carry out its policies. This study aims to address these issues. By conducting in-depth interviews with government officials, drama professionals and peasants in two villages, supplemented by analyses of relevant literature and archives, this research reveals how China's rural neoliberal transformation process looks like when it intersects with China's media marketisation process. It concludes that the Chinese state is increasingly collaborating with the market for the interpenetration of political-economic interests, and thereby joins the global discussion on how neoliberalism, as a way of governing, works in different socio-political contexts.

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The Representation of Muslim Men's and Women's Bodies in Contemporary Art

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Gender-related research in the Middle Eastern context has mainly addressed the female body and the plight of Muslim women in Islamic societies. Muslim masculinity has had little attention paid to it, in comparison with Muslim femininity. In my PhD, I attempt to further the analytical research on Middle Eastern art and gender by considering the impact of globalisation on local gender relations, and by taking masculinities into account so as to assess the interactions between the stereotypical representation of Muslim men's and women's gender practices. In this respect, I investigate how Western curatorial policies have strengthened traditional monolithic gender identity within the other culture, and how individuals (here, the artists/art critics who are associated with the Islamic world) respond to their fixed given identity. My intention is for this research to create more diversity in general perceptions of those cultural practices that represent Muslim men and women.

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Is breeding in the city a walk in the park?: Researching the effects of "urbanness" and climate change in an iconic British bird

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In the UK, urbanization continues unabated. We are fast losing 'greenspace', a key habitat for supporting many native species. Simultaneously, the impacts of climate change are also being observed, most notably in the increasing intensity and frequency of extreme weather events (EWEs). However, little is known about how wildlife respond to these multiple challenges. My research investigates how fine-scale environmental change within the complex cityscape affects the timing of breeding (phenology) and breeding success in the urban-adapted Blue Tit. Six years of nestbox data were collected from a network of 31 sites (N=310), covering a gradient of increasing urbanization and decreasing habitat connectivity in the city of Birmingham. I will introduce how I am modelling this data together with high resolution satellite and ground-based temperature and precipitation data, to better understand how the city environment buffers (or exacerbates) the potentially detrimental effects of extreme weather during different phases of the breeding cycle.

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Jingle all the weigh. Preventing weight gain at Christmas

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Studies have consistently shown that holiday periods, such as Christmas, are a high-risk time for weight gain. On average the population gains 0.5-1.0kg per holiday that is not subsequently lost. We evaluated the effectiveness of a weight gain prevention intervention delivered over the Christmas holiday period. Adults (n=272) were recruited to a two-group, blinded, randomised controlled trial. The intervention had three components: 1) self-monitoring & recording of weight with instruction to reflect on weight trajectory; 2) ten top tips for weight management; and 3) information about the physical activity calorie equivalent (PACE) of festive foods and drinks. The comparator group received a healthy living leaflet. Mean weight change was -0.13kg (intervention) and 0.37kg (comparator). Mean difference between intervention and control groups at follow up was -0.49kg (95% CI -0.85, -0.13, p=0.008). These results should be considered by public health policy makers to prevent weight gain in the population during high risk periods such as holidays.

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Evolutionary strategies of Bdellovibrio bacteriovorus - predators and prey

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Antibiotic resistance is a serious threat to human health and new treatments for bacterial infections are urgently needed. Bacteriophages, first used at the beginning of the 20th century, and the predatory bacterium *Bdellovibrio bacteriovorus* (discovered in 1962) are potential alternatives to antibiotics. We developed a mathematical predator prey model to explore the effects of *Bdellovibrio* and bacteriophage on prey bacterial numbers. Our system has nutrients, a prey species (*E. coli*) and up to two predator. As *Bdellovibrio* spends considerable time in the periplasm of its prey as a 'bdelloplast', this stage is also modelled, giving a delay between prey removal and 'birth' of predators. We examined effects of both *Bdellovibrio* and a bacteriophage on prey populations and found a distinct difference in effectiveness between *Bdellovibrio* and bacteriophages. We also looked at various biological factors on predation efficiency. We found an optimal predator:prey ratio, predator attack rate and mortality.

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Rewiring cancer metabolism in chronic lymphocytic leukemia; A Genome Scale Metabolic Modelling approach

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Rewiring metabolism is now considered a new hallmark of cancer. In this study, we performed gene expression analysis (RNA sequencing technology) to highlight the important role of metabolism in groups of Chronic Lymphocytic Leukemia (CLL) patients, based on their clinical outcome. We demonstrate differences in metabolic reprogramming between rare spontaneous regression CLL cases and CLL cases with poor clinical outcome (non-regression). To further investigate this concept in more details, pathway analysis reveals that non-regression cases have a differential reliance on oxidative phosphorylation compared to spontaneous regression cases. Importantly, in order to assess the effect of putative post-transcriptional modifications beyond these gene expression results, Genome-Scale Metabolic Modeling (GSMM) approaches were applied to identify metabolic drug targets for cancer therapy. Overall, our findings indicate the potential of targeting metabolic vulnerabilities in CLL.

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Bacterial "text messages" - What is the role of bacterial communication molecules in the formation of dental plaque associated with severe gum disease?

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Bacteria like social interactions. They congregate to form complex structures called biofilms. The best known type of biofilm is that found in the oral cavity as dental plaque. To coordinate aggregation, bacteria send out "text messages" - small molecules important for communication. Our project focuses on the role of small molecules called cyclic di-nucleotides (CDNs) in plaque formation of *Fusobacterium nucleatum*.

This species helps coordinate plaque formation, allowing harmful bacteria to grow which causes severe gum disease (periodontitis). *F. nucleatum* has also been shown to play a role in systemic diseases (colorectal cancer). We identified a gene producing CDNs and deleted it from the DNA. Normal and deleted mutant species biofilms were structurally compared using scanning electron microscopy. Additionally, the levels of CDNs were measured. As periodontitis affects over 50% of the adult UK population, this research might shed more light on how to prevent it as well as other life-threatening systemic diseases.

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Investigating the potential of using video as a tool for reflection to develop an environmental approach to promote the self-determination of students with autism in Post-16 special education

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The present study explores the potential of using video as a tool for reflection to develop an environmental approach aimed at promoting the self-determination of students with autism in Post-16 special education. The reasoning for this study came from an analysis of the current statutory guidance which places an emphasis on empowering young people to make decisions regarding their lives. The study will be structured in three phases, each meant to inform the next, and will involve mixed methods of data collection. It will undertake a participatory action research design, in which staff and students in a Post-16 specialist setting will be actively involved in developing, shaping, and piloting the approach. The study aims to demonstrate the potential of video as a reflective tool through generating an approach aimed at promoting the students' self-determination through the development of existing teaching practice, and to support a whole-school approach.

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An energy-efficient automatic train regulation method for metro lines in cases of delay

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For metro systems in over-crowded conditions, when an unexpected disturbance occurs, the operation of trains will be disturbed due to the high frequency and density of the metro traffic. A large number of passengers might be stranded on platforms due to service gaps and the limited free capacity of trains.

In this research, we develop a mathematical programming model with the aim of jointly optimizing the total train delay, the number of stranded passengers and the energy consumption of trains. Then, we adopt commercial optimization software CPLEX to solve the proposed model, which can obtain trade-off solutions in a reasonable time. Finally, three numerical experiments are carried out to verify the effectiveness of the proposed method.

80

Noisy Knees: Acoustic Emissions As Biotribological Diagnostic Tool

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Wear is one of the most common cause of failure of artificial joints. Current failure diagnosis methods (X-rays and CT scans) can be harmful to health, costly and time consuming. Acoustic emission (AE) can successfully monitor and detect damage and defects in mechanical structures and has proven useful in detecting frictional characteristics of mechanical systems. This project aims to use AE to monitor the frictional behaviour of artificial joints and consequently diagnose their failures. A friction-sound test system has been set up with test parameters chosen to mirror a lumbar (lower back) spinal implant. Results show that AE is capable of predicting the frictional behaviour of joints and the progression of wear thereby simplifying the artificial joint failure diagnosis process. AE has the potential of becoming a significant diagnostic tool for diseases like osteoarthritis and low back pain with potential to reduce costs and improve quality of life.

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To what extent should international law be involved in addressing obesity? Lessons from tobacco control

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The consequences of obesity, like those of tobacco, have become a political concern. The traditional approach of seeing obesity as personal responsibility is ineffective. My research explores the role of international law in responding to the epidemic. I use the WHO Framework Convention on Tobacco Control as a model of a powerful legal instrument used by countries to implement tobacco control measures and a substantial tool to counter legal challenges initiated by the industry. The current global health law approach to obesity prevention is at an early stage of development. While non-binding instruments have been adopted, they are insufficient and rely heavily on voluntary self-regulation. A binding international agreement, rooted in human rights, has untapped potential to improve global health by establishing norms, targets, specific obligations, and accountability mechanisms in addressing obesity.

This research contributes in identifying ways forward and pushing change to the current legal framework of obesity prevention.

82

Fighting Infection with 3D-Printing and Silver

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Infections on the surface of prosthetic implants such as hip replacements account for a quarter of all implant removals, and are frequently life-threatening. To combat this, we need new approaches to make implants more resistant to infection, working together with the normal oral or injected antibiotics used after surgery. My research is finding ways to do just this using silver, an antimicrobial that has been in use for thousands of years. By using modern metal 3D printing techniques, it's possible to introduce silver to implants in entirely new ways. Whether through weaving silver into the ordinary alloy of an implant, or introducing a second material like a silver loaded cement, the next generation of implants could be protected from bacteria whilst having the customisability available through 3D printing.

83

Life under siege: Nottingham during the English Civil War (1642-46)

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Nottingham was an important town during the British Civil Wars of the 1630s and 40s. Despite the King raising his standard in the town it rapidly became a stronghold for Parliament, and its residents became embroiled in one of the fiercest areas of fighting in the country. This research builds on and extends the 'county study' approach in novel ways; rather than focusing on political and military events it concentrates on the experiences of Nottingham's population and interprets the impact of the Civil Wars on everyday life. It attempts to reconstruct and understand the civilian experience of a garrison town during a period of often brutal civil war. Adopting innovative ways of reading the past, it incorporates soundscapes and 'history from below' in a way which shines a spotlight on the masses rather than the elite during Nottingham's difficult transformation from market and county town to fortified stronghold.

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Nano-size multimodal probes for tracking therapeutic cells to the liver

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Cell based therapies are progressively revolutionizing modern medicine, offering the ability to repair and rebuild diseased or damaged tissues. To facilitate a wider fundamental understanding of their action we need to track cells both in model systems and in the body. We are developing new metal-based probes to track the localisation, distribution and fate of therapeutic T cells in tissues, notably to treat Autoimmune Hepatitis (AIH). Gold nanoparticles (AuNPs), functionalized with Luminescent transition metal complexes that label these cells rapidly and allow them to be tracked at high resolution and using different imaging modalities will be presented.

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Protein Arginine Methyltransferases -5 (PRMT5) a new LMO2 interacting partner in T-cell acute lymphoblastic leukaemia

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T-cell acute lymphoblastic leukaemia (T-ALL) is a cancer of the blood system often caused by chromosomal abnormalities that frequently result in overexpression of transcription factors. LMO2 (LIM-only 2) is one of these transcription factors, playing an important role in the regulation of normal formation of blood cells and leukaemia. Protein Arginine Methyltransferases-5 (PRMT5) is enzyme, which is catalysed post translational modification and involved in activation or repression of gene expression, DNA replication, and cell growth. It has been found to be involved in leukaemia through modification of proteins. Our lab has previously found indications, through the use of pulldown assays followed by mass spectrometry, that PRMT5 may be an interacting partner of LMO2 in T-ALL cell lines. This provides a potential target of PRMT5 in these cells. Understanding the LMO2 and PRMT5 interaction is important for understanding regulation of transcription and DNA replication in human T-ALL for developing new targeted therapies.

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Computational Analysis Of Pressure Swing Adsorption Applied To Integrated Gasification Combined Cycle Power Plants

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Pressure Swing Adsorption (PSA) is a well-established industrial process, used mainly for hydrogen purification and natural gas processing. PSA uses high pressures to adsorb gases that are selective for the adsorbent applied in the process and obtain purified gases (light products) at the end of a fixed-bed reactor. Then, the pressure in the bed is decreased to atmospheric pressures to desorb the previously adsorbed gas (heavy products). Recently, PSA has been considered as a potential technology for carbon capture and storage. The main challenge when implementing PSA for carbon capture is that both light and heavy products must have high purity and recovery levels (over 90%). The aim of this study is to analyse the applicability of carbon capture using PSA in an Integrated Gasification Combined Cycle (IGCC) power plant using gPROMS® Process Builder software. IGCC power plants present ideal conditions for the implementation of the PSA process.

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Evaluating A Novel Communication Device For Patients In The Intensive Care Unit: A Mixed Methods Feasibility Study

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A number of patients in the intensive care unit (ICU) have difficulty communicating due to their requirement for airway and breathing support. A novel communication device, named ICU-CHAT, has therefore been developed. The study used an exploratory sequential mixed methods feasibility study design, to evaluate the usability and user acceptance of ICU-CHAT. The study recruited ICU patients, their communication partners (CPs) and nursing-staff. In Stage-1, participants completed a usability assessment with ICU-CHAT, followed by questionnaires. Semi-structured interviews were completed in Stage-2. Eleven patients, ten nurses and nine CPs were recruited. Ten out of the eleven patients were able to use the ICU-CHAT with some degree of success, however, some patients found the device frustrating. ICU-CHAT was safe and feasible to introduce to the ICU. Qualitative data revealed emotive responses and implications associated with impaired communication, supporting the need for further development of communication devices in the ICU.

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Putting the 'social' in 'social anxiety disorder': Exploring external contributors to this mental health issue in women

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Originally receiving little attention from the psy sciences, social phobia was first classified as a disorder by psychiatry in the 1900s. Since then, interest in this mental health issue has grown, and it now exists in UK and US psychiatric handbooks as 'social anxiety disorder'. However, its sociological underpinnings remain largely unprobed by the psy sciences. Addressing this gap, my research examines the interaction between gender and social anxiety disorder using an approach informed by antipsychiatry and feminist responses to antipsychiatry. Briefly, the 1960s' 'antipsychiatry' movement conceptualised mental illnesses, especially schizophrenia, as rational responses to an insane society, while feminist analyses have been performed on other mental health issues which disproportionately affect women, notably eating disorders. In synthesising these approaches, my work intends to correct the existing psy science literature by exploring external structural factors, such as heteropatriarchy, which may contribute to social anxiety disorder among women.

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Assessing the Buriganga River Pollution of Bangladesh: Past, Present and Future

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Buriganga River (BR) is the major waterway and one of the major ground water recharge basin for Dhaka (capital of Bangladesh). Around 20 million people of Dhaka city directly or indirectly depend on the river for industrial and household use. The BR system is positioned close to confluence of the Padma (Ganges) and upper Meghna Rivers. Although the river water is known to be heavily contaminated by industrial wastes and sewage from the city, the recent movement of the leather processing industries from the bank of the BR to bank of the Dhaleshwari River (upstream of BR) poses new environmental risk. There are no scientific records of contamination in the new site but local newspapers reported significant pollution. This work reports on the current situation and future work to identify the extent of the contamination and the effects on the surrounding environment, together with its contribution to global ocean contamination.

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Developing a clinically implementable method for metabolite quantification using Magnetic Resonance Spectroscopy

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Magnetic Resonance Spectroscopy (MRS) is fast becoming a powerful tool for measuring the metabolic profiles of localised regions of tissue. Interest in MRS has been galvanised by its sensitivity to abnormalities in the chemical environments of diseased human tissue, despite apparent normal appearance in images. This makes MRS a convenient and non-invasive biomarker modality for identifying neurodegenerative disorders such as Alzheimer's Disease. However, despite its advantages, metabolite quantification is challenging since concentrations depend on physical parameters which are often not measured, potentially leading to inaccuracies. These parameters include magnetic properties of water molecules and metabolites, water content variations across the localised region, and the inclusion of partial volume effects which arise when a signal is acquired from a volume containing a mixture of tissues. We aim to develop a novel and clinically implementable method for achieving accurate metabolite quantification.

Dyslexics are Different

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Dyslexia is a universal reading difficulty. It can be found in all countries, cultures and languages: Arabian, European, Chinese, etc. However, everybody is different. Dyslexic individuals are different too. They face different problems while reading. Some of them may not understand what is written, while others may omit, transpose or alter letters while reading a word. And the same at the word level. The aim of this research is to overcome these problems by providing each dyslexic individual with the appropriate learning to improve his/her reading. This may also result in improving other aspects of their difficulties: such as spelling, self-esteem, etc. To do this, the research will follow three stages:

- Diagnosing a dyslexic child to identify their dyslexic type,
- Developing a training system to provide a series of learning exercises tailored to the needs of the individual dyslexic child.
- Evaluating the proposed system in terms of learning and satisfaction.

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'[I]f I had been born Henry instead of Mary, my life would have been very different': Modern art and Mary Swanzy (1882-1978)

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What is modern art? Is it a story of artists in Paris radically breaking from tradition, one built on the mythology of the independent male artistic genius? What happens when you disrupt this story? These questions are fundamental to my research, revealing dominant narratives of modern art. Mary Swanzy was born in Ireland and travelled the globe, from Belarus to Samoa. As an Anglo-Irish woman who exhibited in these places, Swanzy blurs the static narrative of who developed modern art and where.

My goal is to use Swanzy as a feminist case study to undermine the stories of modern art and its gendered tropes in exhibition culture, art production, and subject matter. I argue that modernism and modern art cannot be fixed to singular story or place. Re-entering modernism from a feminist perspective allows me to re-evaluate its mythologies and blur its boundaries, making messy the answers to these questions.

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Branded Entertainment - The Fine Line Between Pleasure and Manipulation

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Branded entertainment is a sophisticated implementation of product placement, where the brand is characterised as an intrinsic storyline component, starting with the intention of developing a story to promote a brand or product. One area of branded entertainment applications lies within films with examples coming from collaborations where the sponsoring brand funds the creative product and include films such as The Lego Movie. Primarily, branded entertainment aims to strengthen consumers' attention towards brands as media proliferation and audience fragmentation have made it difficult for brands to reach their consumers. However, in contrast to traditional advertising, branded entertainment enters the consumer's mind in a more subconscious manner and the consumer may not recognise that the content is branded. Thus, this research project aims to contribute to the domains of society, culture and public policy; examining the overall ethical concerns of branded entertainment regarding the deceptive influence its content has over consumers.

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Railway track monitoring using a non-intrusive portable device

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This project is based on the application of a portable Inertial Measurement Unit (IMU) to monitor train and track behaviour in passenger trains. It is an autonomous system with a set of sensors including GPS, acceleration and rotation rate in three dimensions, capable of functioning for more than 20 hours without needing to charge. To use it, the operator only needs to leave it on the floor, facing the travel direction of the train. The main objectives of the project are travel comfort evaluation, cross level adaptation and speed estimation, obtained with rather simple calculations. Further objectives are track and train evaluation and live monitoring, requiring more powerful tools and techniques and meaning a general improvement of the project. The expected impact of the project is a reduction of cost and time in maintenance activities, as it is used with in-service trains without need for dedicated scheduling.

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Keep Calm and Reappraise the Stress: Examining the Effectiveness of Biological Reappraisal on Anxiety Responses

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Assessment of performance can be stressful, which can reduce confidence and elevate anxiety. Informing individuals that stress responses can help them perform better (biological reappraisal) could improve confidence, resulting in anxiety responses being seen as helpful. The present research explored whether biological reappraisal changes interpretation of stress responses to produce greater confidence, subsequently altering the interpretation of anxiety when doing a performance-based task. 161 females were randomly assigned to one of the following groups: arousal evoking (instructions highlighting changes to arousal), biological reappraisal (reinforcement that arousal responses can help performance), or control (no instructions) conditions. They then completed a maths task. Anxiety and confidence were assessed pre-and post- task. All groups experienced similar decreases in confidence and increases in anxiety during the task, however the reappraisal group interpreted their anxiety as more positive. This suggests that reappraising stress can help individuals see anxiety as less hurtful towards performance in stressful situations.

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Mind the Gap! Why are Black Caribbean girls underachieving in secondary education?

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Recent statistics reveal 65% of Black Caribbean female students achieved A*- C in GCSE English and Maths compared with 88% of Chinese female students. The discourse of underachievement for Black Caribbean female students has been a common feature of secondary education in the UK for decades, yet there are few studies undertaken. Instead, the overcrowded debate often leans towards boys. My research aims to explore the complexities of underachievement by ethnicity, focusing on Black Caribbean female students. My purpose is to ascertain the combination of factors that contribute to this discourse as well as drawing comparisons with high achieving Chinese female students. My findings shall determine factors that contribute to achievement for Black Caribbean female students and will recommend sustainable solutions to raise the achievement of Black Caribbean female students in secondary education in the UK.

Toward Successful and Impactful Innovation: The Case Study of the Qatar Foundation

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Innovation projects are surrounded by numerous factors, which are capable of influencing its performance/outcomes. Therefore, it is important to understand what influences the innovation process and how an innovation project should be managed to increase the odds of its success. This study aims to identify and evaluate the role of the internal antecedents of innovation and management of innovation in driving successful innovation outcomes at the organisational level. This study will contribute to the body of knowledge by investigating the interrelationships between innovation drivers and innovation process, by providing a comprehensive framework that will explain the interrelationships of the different aspects of the innovation process. Also, most research focuses on developed countries and on a single type of innovation. Therefore, the Qatar Foundation case study will fulfil the need for more empirical studies focusing on developing countries and on multiple types of innovation since it relates to numerous industrial settings.

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