



23 – 25 March 2021

Poster

Presentation

Abstract

Booklet

List of
DCAD21
Poster
Presenters:

Ainul	Mardiah
Ashem	Egila
Christabell	Amoakoh
Claire	Lyons
Constantin	Radu
David	Beauchamp
Elif	Oran
Ffion	Thomas
Han	Zhang
Jason	Hoepfl
Jhonny Ismael	Bautista Quispe
Kate	Barnett-Richards
Louisa	Petts
Louiza	Mavrovounioti
Majdi	Fanous
Marwah	Shnaiter
Omotola	Folorunsho
Ratna	Yuliani
Ruchita	Mehta
Sivasharmini	Ganeshamoorthy
Sofie	Power
Sophie	Russell
Sophie	Mowle
Thomas	Cloake

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An initial review of spiritual needs in cancer patients: The difference among nations

Aim: to map the spiritual needs of cancer patients to develop a culturally appropriate spiritual intervention for cancer patients. Therefore, it will increase patients' wellbeing and decrease psychological issues.

Method: A systematic review was conducted on the Medline database.

Result: Six hundred twenty-nine articles from 1999- 2019 were screened, 23 of which were included for review. The studies are from China, Japan, Taiwan, Spain, the USA, Israel, Korea, and Germany. The themes of spiritual needs are meaning-making, finding hope, praying, reading a holy book, and dealing with psychological and physical deterioration.

Conclusion: The majority of cancer patients have spiritual needs. The difference between patients from secular and religious nations is the need to perform religious rituals. For instance, prayer is a more dominant spiritual need in religious nations than secular countries, particularly advanced cancer patients. While finding meaning is more common in secular countries than religious nations.

Ainul Mardiah

Poster Presentation

Thursday 25 March

12.00 – 14.00

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Tackling sustainability in oil and gas supply chains in developing countries

Ashem Egila

Poster Presentation

Thursday 25 March

12.00 – 14.00

Increasing urban migration has put a tremendous demand on the oil and gas supply chains in many developing countries. Consequently, high demand has created significant disruption in the supply chain because of infrastructural deficiency and lack of adequate investments. These impact the environment, social and economic segments of sustainability, often with varying degree of severity.

This research approach involves analyses of sustainability-related risk perception amongst oil and gas industry stakeholders, including employees, government agencies, suppliers, and communities. Subsequently, interviewing stakeholder groups to corroborate any emerging trends from environmental, social, and economic risk factors analysis to enable more insight into the sustainability practice within the oil and gas sector.

This research intends to improve the risk response and mitigations strategy while building awareness and collaboration among oil and gas key stakeholders to implement sustainability risk management policies and enhance resource allocation.

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My Community is my Livelihood

Christabell Amoakoh

Poster Presentation

Thursday 25 March

12.00 – 14.00

From empirical evidence, minority groups, specifically, the Black Minority Ethnic (BME) community, face socio-economic exclusion due to high levels of unemployment and relative poverty, stemmed from inequities in systems and structural racism. There is an emerging trend of policy-makers supporting community business initiatives as a positive benefit to society, and considering them as valuable agents in social, economic, and environmental regeneration. Existing literature predominantly focus on case studies on third sector organisations, minority entrepreneurship and other forms of social and community entrepreneurial activities aligned with minority groups as a whole, however none explicitly or implicitly relate to BME groups involvement in community businesses. Although one would consider BME groups as warranting attention due to their socio-economic status. My research will investigate the existence and knowledge of community businesses within BME groups, and how they address socio-economic inequality in 'left behind' neighbourhoods.

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The Power of Names: Could Geographical Indications Help Make the UK Wine Industry More Sustainable and Just?

The industrial agricultural system has caused many social, economic and environmental crises, therefore a fundamental change in agricultural thinking and practice is needed. It has been suggested that agroecology provides a viable pathway to transform the food system. Agroecology is a science, practice and movement that aims to make the entire food system sustainable and just. Geographical Indications (GIs) could be used to support agroecology; GIs are a certification scheme that recognise, regulate and protect place-based products. The UK has launched its own GI scheme as a result of Brexit. This moment of political upheaval provides an opportunity to examine, and potentially change, UK GIs. This project will examine if the principles and practices of agroecology could be effectively integrated into the new GI system. The UK wine industry is the primary case study for the research, as the UK's fastest growing agricultural sector there is significant potential for impact.

Claire Lyons

Poster Presentation

Thursday 25 March

12.00 – 14.00

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A greener and healthier future sustained by Power Electronics

Constantin Radu

Poster Presentation

Thursday 25 March

12.00 – 14.00

Global warming worries the entire world. The fossil combustion used in the transport system releases a high amount of carbon dioxide causing environmental damages. Therefore, important investments in renewable energy are made by Governments.

One of Coventry University's research themes, called Creativity Cultures, supports the electric vehicle's integration into the rural infrastructure. An experiment made in Warwickshire, in a rural area, between 2014-2016, showed that the "range anxiety", referring to the battery's reduced capability to last for enough mileage, turns to be the major problem.

In response to this problem, the current research focuses on Power Electronics improvement, which aims to help the vehicle's battery by improving the efficiency of the used energy.

So, lower losses and higher output power bring a higher performance of the vehicle. Great vehicles made possible by Power Electronics sustain a greener and healthier environment for our families.

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Communicating COVID: Messages from the Downing Street briefings

David Beauchamp

Poster Presentation

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12.00 – 14.00

Our project will build a collection of institutional texts (a corpus) to gain deeper insights into how institutes and public bodies attempt to direct public behaviour throughout the COVID-19 pandemic. Research areas and methods include:

- 1) The socio-political positioning of institutions and public through language choice: Corpus analysis, critical discourse analysis, phraseology.
- 2) Language change over time in response to events: Corpus and statistical analyses to chart language use in relation to external factors.
- 3) Effectiveness of communication to a range of diverse communities: Vocabulary lists, readability measures, identification of non-standard English.

Our corpus will be constructed to represent and analyse a number of variables, including:

- spoken/written
- monologic/dialogic
- national/regional
- gender
- chronology
- political stance

This poster presents work in progress showing the planned and completed development of the corpus design as well as indicative analyses. It is hoped that the findings will contribute to the understanding and effectiveness of public communication.

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Design and Computational Fluid Dynamics Simulation of a Hydrodynamic Bearing

Elif Oran

Poster Presentation

Thursday 25 March

12.00 – 14.00

Fossil fuels lead to serious water pollution and while the habitat of sea creatures is reduced, human health is indirectly put in serious danger. As a solution, the demand will be increased in the future for technologies working with very high efficiency and powered by clean energy resources, it is estimated that the new electrical outboard motor will gain great importance with its environment-friendly characteristics. This paper introduces a new concept and design of an electric outboard motor that generates water jet of high momentum by its downstream nozzle. The efficiency of the new motor has been analysed using Computational Fluid Dynamics (CFD) as a successful tool to evaluate the flow performance. The design configuration to achieve minimum power and maximum efficiency are presented. The new concept will allow long-range use that is the vital problem facing the current electric outboards.

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Saving the Ash Tree

Ffion Thomas

Poster Presentation

Thursday 25 March

12.00 – 14.00

European ash tree populations are being decimated by an invasive fungal disease called ash dieback. Ash trees make up 12% of the UK's trees and 70 million trees are at risk of dying from the disease. This will have a devastating effect on wildlife, our landscapes, and the environmental services trees provide, such as storing carbon, holding water in the landscape, and providing a habitat for hundreds of species. I am investigating whether the health of the soil in which ash trees are growing influences the severity of the disease. Organisms in the soil such as fungi and bacteria support tree health, so I am researching whether adding sustainable materials to the soil, such as biochar (charcoal used in an environmental context) and compost can increase soil biodiversity, thus improving soil health, and potentially helping ash trees withstand ash dieback disease.

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A trust database will shape digital steel manufacturing to respond to COVID-19

Han Zhang

Poster Presentation

Thursday 25 March

12.00 – 14.00

Global supply chain has faced extreme challenge in the outbreak of COVID-19. The disruption in steel supply chain presents supply-demand imbalance. Three main issues persist in steel supply chain namely: products provenance verification, information flow transparency, and finance transaction efficiency. It is urged to shape a digital supply network to optimize organizational structure by leveraging advanced technologies. A trust database facilitates a digital trade system. Thus, it will boost a resilient supply chain in the steel industry to contribute to sustainable development in combating the COVID-19 pandemic or another disaster. To capture every state of the trade and understand every point and quantify that, transaction cost analysis (TCA) theory is deployed in the research. Three critical pillars of TCA are transparency, data capture and automation which apply the transparency and data capture into an optimization problem by utilizing a trust database.

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Communal Rangelands in South Africa: Implications of Power, Access and Institutions for Sustainable and Inclusive Governance

Communally held rangelands (encompassing pastures, forests and shrubs) provide vital resources and ecosystem services to South Africa's poorest communities. However, histories of dispossession, overcrowding, racialised policy and institutional struggles triggered pervasive rangeland degradation. This poses significant challenges for sustainable governance.

In the democratic era, struggles between old and new institutions (government, traditional authorities, non-governmental and grassroots organisations) are particularly problematic. Contested authority, legitimacy and jurisdiction make it difficult to determine exactly who has local control over resources. This can exacerbate existing inequalities, cause conflict and exclude marginalised groups.

This research will critically assess the ways residents engage with institutions to formally and informally access natural resources – drawing on rights, social norms, kinship networks, capital and other mechanisms. Understanding underlying power dynamics and how residents navigate this complexity to secure access can help explain why the benefits of resources continue to be distributed unequally, and the associated challenges for cooperative governance.

Jason Hoepfl

Poster Presentation

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A sustainable handwashing station for rural schools in Peru

Jhonny Ismael Bautista Quispe

Poster Presentation

Thursday 25 March

12.00 – 14.00

Handwashing is critical to protect people against future pandemics and infectious disease outbreaks. Despite this, nearly 900 million children worldwide lack access to basic handwashing facilities. Although various school handwashing prototypes have been designed and built in the past, they do not guarantee that the limited water resource is reused rather than wasted. The main goal of this project is to develop a portable cost-effective handwashing facility for rural schools in Peru with an on-site sustainable water treatment system using local bio-based materials. Through an interdisciplinary methodology approach, the project will focus on demonstrating the social, technical, environmental, and economic viability of implementing handwashing stations in rural schools to regenerate and reuse the treated water for potable (handwashing) and/or non-potable (irrigation, flushing, cleaning) purposes. Thus, the resulting design will help to increase both access to clean water and pandemic preparedness, contributing to the overall good health of school-aged Peruvian children.

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Contemporary Food Systems in the UK

Kate Barnett-Richards

Poster Presentation

Thursday 25 March

12.00 – 14.00

This poster presents findings from the initial literature review stage of a PhD project exploring the role of millennial consumers in increasing participation in food systems which fit outside of the dominant supermarket based system. It will outline the current state of the dominant supermarket food systems and contrast this with alternative forms of food provisioning to consumers, whilst also exploring some of the political and economic factors which impact upon consumer decision making when purchasing food products. The poster will also outline the direction of future research, particularly focusing around the impact the coronavirus pandemic has played upon millennial consumers abilities, desires, and notions of security in relation to food in the UK.

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The wellbeing of an older dancer: an enquiry into the experience of community dance practice in older adult populations

Louisa Petts

Poster Presentation

Thursday 25 March

12.00 – 14.00

Existing research in dance for the wellbeing of older populations continually recommends broadening study parameters to explore more diverse dance genres other than ballroom and ballet. Varying levels of dance experience should also be considered to further query whether older adults feel like they belong, either individually or as a collective, in dance spaces.

A wide-ranging provision of dance activity for older communities should be commonplace. Thus, this research will explore the psychosocial experience of older adults within community dance classes to uncover what about certain dance genres may be meaningful, and how this motivates their dance participation. This exploration works towards fostering inclusionary attitudes for older populations in dance practice as it promotes a defiant outlook on the stereotypical notions of decline older populations can be societally subjected to. This will allow for an improved access to dance for older populations that is meaningful and aids their wellbeing.

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A method to ensure the safety of power electronics in automobile applications

Power electronics converters are key devices in electrical vehicles, where they can be found in battery charger and motor drive. The converters must operate safely under 120°C. Voltage and current in the converters are related with temperature. So, measuring the voltage or the current we can calculate the temperature of the converter. The temperature is a factor that is related with the degradation of the converter. Therefore, by accurately measuring and knowing the temperature of converters we can secure the safety and reliability of the electrical vehicles. This project intend to design and construct a sensing circuit to calculate the temperature through voltage or current for a converter in an electrical vehicles. The challenge of this project is the accuracy of the measurement results as there is a lot of noise in the environment of the converter.

Louiza Mavrovounioti

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Modelling Hydro-Morphodynamic Systems to Assess the Role of Mangrove Forests Against Climate Change Impacts in the Sundarbans Using Bayesian Machine Learning Models

Majdi Fanous

Poster Presentation

Thursday 25 March

12.00 – 14.00

Mangrove forests have constituted a great shield against wave surges at the coastal areas and got great attention especially after the 2004 Indian Ocean tsunami. However, the effects of climate change on these forests, specifically the rise in sea level, are deteriorating the mangrove trees and decreasing their presence along the coasts, thus making such areas more vulnerable. The quantification of the effect of mangrove trees in preventing wave surges is usually done through developing complex numerical models, such as partial differential equations, to simulate the hydro-morphodynamic systems. The aim of this research is to simulate such systems for the Sundarbans mangrove region, at the Bay of Bengal, using Bayesian machine learning algorithms as a surrogate for the expensive partial differential equations. This would help have better understanding for the role of mangrove forests and aid policy makers at taking more effective decisions at fighting climate change.

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Reducing Hydrogen Production Cost

Marwah Shnaiter

Poster Presentation

Thursday 25 March

12.00 – 14.00

Reducing carbon emissions resulted from the transport and power sectors has become inevitable. Hydrogen is seen as the perfect eco-friendly fuel to replace fossil-based fuels since it emits zero pollutants. However, the main current challenge is hydrogen being produced either from non-clean methods or greener approaches but with extremely high production costs. These elevated costs are mainly due to the use of precious metals like Platinum or Iridium as catalysts. The main aim of this study, therefore, is to reduce the consumption of precious metal catalysts by developing an innovative fabrication technique using inkjet printing.

Inkjet printing involves an ejected ink droplet from nozzles onto a surface. This technique has proved its effectiveness in electronics, due to its flexibility, affordability, and minimum material wastage. Thus, this promising technique will be employed in the present research to fabricate non-precious metal catalysts or minimising the precious metal consumption.

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Emerging Contaminants in Surface and Drinking Water

Omotola Folorunsho

Poster Presentation

Thursday 25 March

12.00 – 14.00

The quality of surface and drinking water faces a possible challenge, as activities like the development of new chemicals, their disposal, and the concept of wastewater re-use create new or so-called emerging contaminants (ECs), which cause adverse effects on the environment and human health. These contaminants are released from different sources into waterways and can be found at low concentrations. Thus, making them difficult to detect using conventional analytical tools. Therefore, this research focuses on (i) the development of new analytical methods based on a chemical detection analytical tool i.e. Mass Spectrometer for identification of ECs (ii) the determination of sources and the effects of new ECs and, (iii) understanding the impact of ECs on the quality of surface and drinking water. Ultimately, this project supports the control of ECs in the environment and will advise a more effective, and sustainable water resource management through the creation of EC database.

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Longan leaf potential as a source of antibacterial agents

Ratna Yuliani

Poster Presentation

Thursday 25 March

12.00 – 14.00

Antimicrobial resistance happens when antimicrobial agents are no longer effective to inhibit the growth or kill microbes due to some changes in them. The problem has become a global threat that has taken 700,000 lives per year worldwide. If no action is taken, the death rate could increase to 10 million by 2050. New effective antimicrobial agents are needed to overcome the problem. This research project focuses on finding novel antimicrobial compounds in longan leaf to fight resistant bacteria. Antibacterial activity of longan leaf extract was tested against several bacteria. The results demonstrate that the leaf extract is able to inhibit the growth of the bacteria and kill them. These results provide evidence for the potential of the leaf extract to be used against the ever-growing threat of antimicrobial resistance. This study contributes to find an alternative medicine to treat infections caused by resistant bacteria in order save more lives.

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System Design for Remote Monitoring of Symptoms and Human Activities in Covid-19 Imposed Condition

Covid-19 has catastrophic impact on humanity. As aged population and people with underlying health conditions need continuous health monitoring, it increases the risk of Covid-19 infection in the vulnerable population due to contagious nature of the virus. On the other hand, taking care of Covid-19 patients is threatening to the health workers and carers too. Remote monitoring of Covid-19 imposed condition will significantly contaminate transmission, hospitalization, and mortality with reduced cost. A system design with Multiple Sensors and Artificial Intelligence is proposed in this research project for distance supervision in Covid-19 condition. Proposed surveillance design will be able to detect Covid-19 symptoms such as shortness of breath, cough, and fall. Furthermore, it will also measure blood pressure and call for help. The data will be collected by integrated sensor system and then analysed by Artificial Intelligence to detect any of the above health condition remotely.

Ruchita Mehta

Poster Presentation

Thursday 25 March

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Computational Approaches to predict Gene Regulatory Network

**Sivasharmini
Ganeshamoorthy**

Poster Presentation

Thursday 25 March

12.00 – 14.00

In recent years, climate change is a significant problem that has huge impact on agriculture. To respond to this changing environment, plants modify its genetic expression. Therefore, it is vital to understand transcriptional regulation to cope with diverse environment. Gene Regulatory Networks (GRN) represents the blueprint of transcriptional regulations under different circumstances. To overcome this problem, it is essential to predict GRNs in different circumstances such as increase in temperature and pathogen affects. Hence, this study aims to construct predictive GRNs using statistical and machine Learning techniques. Finding of this study, highlights the parts in the network where changes in the genes and regulatory relationship contributes to the functional changes in the gene regulation. This study promotes traditional breeding and genetic engineering for plants to survive in this dynamic environment.

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Home-based exercise for adults with overweight or obesity: a rapid review

Sofie Power

Poster Presentation

Thursday 25 March

12.00 – 14.00

The rising number of people in the United Kingdom living with overweight and obesity has highlighted a need for continued preventive strategies, such as increasing physical activity and reducing sedentary behaviour. However, the COVID-19 pandemic has limited access to these strategies, contributing to the increase in people living with excess weight. Individuals with overweight and obesity are at a higher risk of contracting COVID-19 and experiencing less favourable outcomes including hospitalisation, advanced levels of treatment and death.

This rapid review will search four databases, using search terms and Boolean operators, to collate details on participant demographics, exercise programmes, health and fitness outcomes, adherence and directions for future research.

Conceptualising the details of previous home-based exercise programmes will provide much needed direction for developing guidelines and content to construct and implement effective, substantiated, home-based exercise programmes at scale.

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How well are Exercise Interventions Reported in People with Chronic Heart Failure?

Sophie Russell

Poster Presentation

Thursday 25 March

12.00 – 14.00

Exercise interventions are an important part of treatment for many patients with chronic heart failure. In most cases, exercise interventions over extended periods of time are the best way of lowering the cost of treatment for health providers. We assessed the reproducibility of exercise interventions through assessing how well the intended intervention methodology was reported. Studies were assessed using the Consensus on Exercise Reporting Template (CERT) to assess the quality of reporting. From a total of 181 exercise interventions in 143 studies, the mean CERT score was 10 out of a possible 19 with no intervention report scoring the maximum. Exercise intervention reporting in chronic heart failure is poor and, with insufficient knowledge of the intervention, translation into clinical practice may be limited. This may lead to inadequate exercise prescription and impact on the benefit to patients. Authors could publish their protocols and provide additional reporting information in supplementary materials.

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“Football-
it’s in your
blood” –
Lived
experiences
of
undertaking
recreational
football for
health in
adults aged
over 60

Physical inactivity is prevalent in older adults and contributes to age-related decline in function, health, wellbeing and quality of life. Strategies to promote physical activity in this population are essential to improve health outcomes and offset the economic burden associated with an ageing population. Recreational football for older adults has shown promise for promoting health benefits. This novel study utilises the Behaviour Change Wheel to discover the lived experiences of older adult recreational footballers and find which behaviours can encourage change in this population. Fourteen participants (67±5.1 years), who had previously taken part in a recreational football intervention, shared their perceptions from participating in a recreational football programme during two focus groups. Themes of capability, opportunity, and motivation were identified in the transcripts. The key findings were the need for physical and social opportunity and reflective motivation, which can inform future recreational football interventions and public health programmes.

Sophie Mowle

Poster Presentation

Thursday 25 March

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Improving open fracture care through computer modelling of pedestrian lower limb trauma

Despite recent improvements in road safety, pedestrian trauma remains a significant problem. The lower limb is the most frequently injured body region during pedestrian collisions. Open fractures are limb-threatening injuries sustained from high-energy mechanisms such as road traffic accidents. They are challenging to treat, often requiring extensive reconstructive surgery. Classification systems exist to help with communication and treatment decisions. However, their use in clinical practice is restricted by disagreement between observers and inaccurate outcome prediction. Recent advances in computer engineering have led to the development of sophisticated models capable of accurately predicting injury patterns resulting from road traffic accidents. Combining contemporary computer modelling techniques with clinical and accident data will create a clinically relevant assessment tool designed for in-hospital use. Early identification of high-energy injuries using the tool will improve patient outcomes by directing complex management decisions and identifying those at increased risk of complications.

Thomas Cloake

Poster Presentation

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