



BUCKINGHAMSHIRE
NEW UNIVERSITY

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Research Notes
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Foreword

As 2024 draws to a close, this issue of Research Notes celebrates the advancement of our research culture and infrastructure at Buckinghamshire New University (BNU).

Key to this growth is the appointment in April 2024 of five new Research Professors:

- Fred Yamoah, Professor in Business and Society
- Adetoro Adegoke, Professor in Health Inequalities
- Nela Milic, Professor in Arts Practices
- Qichun (Kit) Zhang, Professor in Inclusive AI
- and Arinola Anneke Adefila, Professor in Social Policy and Equality, Diversity and Inclusion.

In this issue Fred and Arinola share with us their motivations and their aims in relation to their upcoming tenure at BNU, including exciting plans for the future of our research.

In other news the excellent results of the 2024 Postgraduate Research Experience Survey (PRES) attest to the advances we have made in supporting our research students. BNU has placed third nationally for overall postgraduate research student satisfaction and first in five sub-categories. These results not only demonstrate the commitment by BNU to fostering and supporting the next generation of researchers, but they also stand as proof of the value we place on our PhD students and the degree to which we have committed to

improving BNU's postgraduate provision.

To further support the growth of our research infrastructure BNU is working with Elsevier on the implementation of Pure – a current research information system (CRIS), which will aid in tracking the ever-growing number of research outputs being produced by our researchers.

A key demonstration of the growth of research culture at BNU came in July, when we held the Research and Enterprise Conference at BNU's High Wycombe Campus – an event that brought together academics from across all our Schools in presenting on their research and included keynote speeches from Professor Arinola Adefila and Professor Jonathan Houdmont (University of Nottingham). This event attracted over a hundred attendees from both BNU and external institutions, and the full proceedings of the event are included in this issue.

I hope that you enjoy this issue not only as a testament to the growth of research at BNU but also as evidence of our faith in the future of scholarly endeavour at our institution. I hope to see you at both our upcoming series of Inaugural Lectures, and at next year's Conference.



PROFESSOR
FLORIN IORAS
Director of Enterprise and Research

BUCKINGHAMSHIRE
NEW UNIVERSITY

News

The Postgraduate Research Experience Survey 2024

POSTGRADUATE
RESEARCH EXPERIENCE
SURVEY

Buckinghamshire New University (BNU) has ranked 3rd for overall satisfaction in the Postgraduate Research Experience Survey (PRES) 2024, a national survey completed by postgraduate research students at 61 UK higher education institutions, rising five places from last year.

Within the global rankings BNU placed:

- 3rd for Overall Satisfaction (up from 8th in 2023)
- 1st for Research culture
- 1st for Community
- 1st for Progression (up from 2nd in 2023)
- 1st for Responsibilities
- 1st for Support (up from 2nd in 2023)
- 2nd for Research skills (up from 12th 2023)
- 2nd for Supervision
- 4th for Professional development

This was another excellent PRES result, with BNU now maintaining a top ten national position for the last three years. As Professor Damien Page, Deputy Vice-Chancellor at BNU said:

"Such strong results underscore the dedication and excellence of our university community. These findings highlight our commitment to providing an exceptional educational experience and, with the implementation of our [Inclusive Research and Knowledge Exchange strategy](#), we are poised to make significant advancements in high social impact. This strategy will not only enhance our research capabilities but also provide our students with unparalleled opportunities to engage in cutting-edge projects, preparing them for future success."

The PRES results are a testament to the work BNU has put in to improve and expand the resources available to Postgraduate Research (PGR) Students, including upgrades to the available computer equipment, the introduction of SCOPUS, and the opportunities that a planned upgrade to Pure will offer in 2025.

Introducing Pure - BNU's Current Research Information System



Research at BNU is key to fulfilling our primary goal as a university - to transform lives through inspiration, innovation, and the creation of a positive impact on society and communities. We are committed to our strategic aim of developing a dynamic research environment and high-impact research community, and to support this BNU has invested in Pure - a technology-based AI Current Research Information System – to demonstrate our research and academic achievements.

By providing a comprehensive, accurate and reliable picture of the current research profile at BNU the Pure portal will be our gateway to showcasing the breadth and calibre of our academic achievements and impactful research. By increasing our visibility and enabling our researchers and state of the art facilities to be discoverable, we aim to further grow our influence through building strong networks that will facilitate increased opportunities for cross-sector and applied/translational collaboration and partnership working.

BNU Welcomes New Professors

In April 2024 BNU welcomed five new Research Professors to BNU, who will play a key role in accelerating research practice and championing the BNU [Inclusive Research and Knowledge Exchange Strategy](#). In this issue Professor Fred Yamoah and Professor Arinola Adefila share with us their motivations and hopes for their professorial roles at BNU.

PROFESSOR FRED YAMOAH

Professor in Business and Society



I am quite sure being exposed to the school environment from an early age due to my Mum's teaching career served as an indirect motivation to pursue a career in academia - indeed, it almost seemed inevitable, and the key decision point was at which level of the educational ladder to teach. It became clear to me after my master's degree that only higher education would offer me the time and opportunity to research the questions I had during my days as an undergraduate at the University of Cape Coast Ghana and the reality seemed, at that point, to be that there were limited avenues for research roles without a PhD. Meanwhile, I was unable to pursue a PhD Research degree due to my personal circumstances at that time.

Having decided to work in FE college management role in London for eight years and pursuing a Doctor of Business Administration degree alongside, I finally got an opportunity to study for a PhD as a [dunnhumby](#) scholar in 2009 at the University of Kent, Canterbury. This set me on the path to my academic career serving first as a post-doctoral researcher and then taking up various full-time academic position across Universities in the UK including Birkbeck (University of London) and

recently joining BNU's School of Business and Law as a full Research Professor in Business and Society.

Since joining BNU I have been involved in developing several projects and programmes connected with research funding and grant applications, alongside setting up a Research Centre and Knowledge Transfer Partnership (KTP). These are progressive research engagements that will give meaning to the inclusive research and knowledge exchange strategy, and I look forward to realising the positive impact of these projects and programmes on the research culture at BNU.

I bring to BNU a successful research career underpinned by my research interest in sustainability – an interest that cuts across the business-society nexus and measures its consequences on public, private, and civic spheres for sustainable development. Multidisciplinary research with impact as an anchor best represents my research approach, and this aligns well with the current inclusive research strategy of BNU. In addition, my research is consistently recognised as internationally excellent with several contributions published in leading international journals. These competencies and experience will be placed at the disposal of colleagues at the School of Business and Law and BNU community in general.

To aspiring researchers and students I would say that achieving academic career success is liberating as it offers the opportunity to pursue knowledge across disciplines, the freedom to explore different methods and the potential to collaborate with other academics and industry players globally. It is important to emphasise that this calls for self-motivation, passion, discipline and resilience. Considering the current natural resource limitations and climate change challenges, doing business as business as usual will not work, hence the relevance of my research domain of business-society nexus with sustainability as a theoretical lens.



PROFESSOR ARINOLA ANNEKE ADEFILA

PROFESSOR IN SOCIAL POLICY
AND EQUALITY, DIVERSITY AND
INCLUSION



I believe education is the bedrock of flourishing societies and a key driver for both socialisation and knowledge production. High quality education requires continuous evaluation which interrogates how the architecture and systems of organising learning are aligned with societal values and functions. I was excited about developing broader, functional access to education when I joined academia, and I continue to be inspired and challenged by the way our current knowledge ecosystem interacts with society. We face significant hurdles as we attempt to integrate lifelong and lifewide learning into formal processes. The advent of artificial intelligence and acknowledgement of differing forms of knowledge production obliges us to think creatively about how we learn, unlearn, and relearn in the future. My academic career has evolved along the axis of examining the processes, policies and behaviours which are used to validate and legitimise knowledge production.

In my research I have been working on examining ways to integrate sustainable development education (SDE) into the knowledge ecosystem. I have been fascinated by natural phenomenon and how we can continue to use resources sustainably to support human flourishing.

My current projects focus on SDE including how indigenous trees, like the baobab and hemp, have supported economic, psychosocial, and cultural life over many centuries. There are many principles we can use to support lifelong learning. This has led to a range of transdisciplinary projects, interrogating the oral histories which conceal conservation and sustainability principles and developing ecopreneurship. I am currently completing the editing of a book about indigenous African trees alongside colleagues from Botswana, Finland, Ghana, Namibia, Senegal, and South Africa later this year.

I value lifelong learning and I am excited about working with colleagues at BNU to design a range of learning environments and learning resources for the 22nd century. In an environment saturated with various forms of knowledge production, we need to be strategic about the innovative pedagogies we use for supporting learning that enhances learners' potential to flourish. The projects I am working are transdisciplinary in nature and situated in communities of practice as I believe education ought to transverse sociocultural learning spaces in order to enable collaboration and social action that tackle the wicked problems of our time. Education liberates - and it is important to make sure BNU is leading innovative research which inspires our students and communities.



BNU Inaugural Lecture Series

2024 - 2025

BNU's series of Inaugural Lectures started this October with the first exciting session of the series - *Beyond the sirens: The unique and evolving nature of paramedicine*, delivered by Professor Will Broughton, Director of Education in the School of Health and Social Care Professions and a Professor of Paramedicine.

In this lecture Will explored the dynamic and multifaceted field of paramedicine and challenged the traditional perception of paramedics as mere 'ambulance drivers'. The lecture delved into the history, evolution, and expanding roles of paramedics, highlighting their significant contributions to the healthcare system.

Inaugural lectures are a celebration of our academics' outstanding research excellence and an achievement of contributions to their field of research. These celebratory events enable the BNU community to come together to give conferment to academics who have achieved the accolade of Professorship and Associate Professorship.

The series of lectures gives a unique opportunity for both members of the university and the public to learn about each professor's field and their innovative research work.

Following this event, the next inaugural lecture will take place on November 13th 2024, where Professor Sabuj Mallik, the Head of School for the School of Engineering and the Built Environment, will deliver a session on *Advancing Reliability in Electronic Packaging: Navigating the Shift from Lead to Lead-Free Soldering*.

Inaugural Lectures are open to all and are free of charge. For more information please visit the [Inaugural Lecture page](#) on the BNU website.



The BNU Research and Enterprise Conference 2024

Empowerment Through Research: Bridging Academia and Society

In July 2024 BNU welcomed researchers, scholars, and community members to the Research and Enterprise Conference – a thought-provoking event centred on fostering collaboration between academia and society. The Conference included presentations by academics from across BNU's diverse schools covering issues such as community empowerment, access to research, interdisciplinary collaborations and ethical research alongside workshops and panel discussions.

Chaired by Vice-Chancellor Professor Nick Braisby and with keynote speeches by BNU's Professor Arinola Adefila and Professor Jonathan Houdmont of the University of Nottingham, the event attracted over 120 attendees - a fifth of which joined us at BNU from external institutions.

In this issue of Research Notes you can find the Conference Proceedings from the event - short summaries of the presentations made by BNU staff across the areas of Art, Design and the Creative Industries, Life Sciences, Social Sciences and Technology alongside presentations from BNU's Postgraduate Research Students. These proceedings are accompanied here by images taken by BNU student photographers - we hope they will bring the event to life for those who were not able to join us on the day.

Also included in these proceedings are examples of striking entries taken from the *Research on a Postcard* competition included as part of the event – a competition that encouraged our academics to creatively summarise their research using a single image and short textual summary. To view the entries for this competition, please visit the [BNU Research Website](#).



120 Attendees



2 Keynote Speakers



20 Presentations



38 Research Posters exhibited



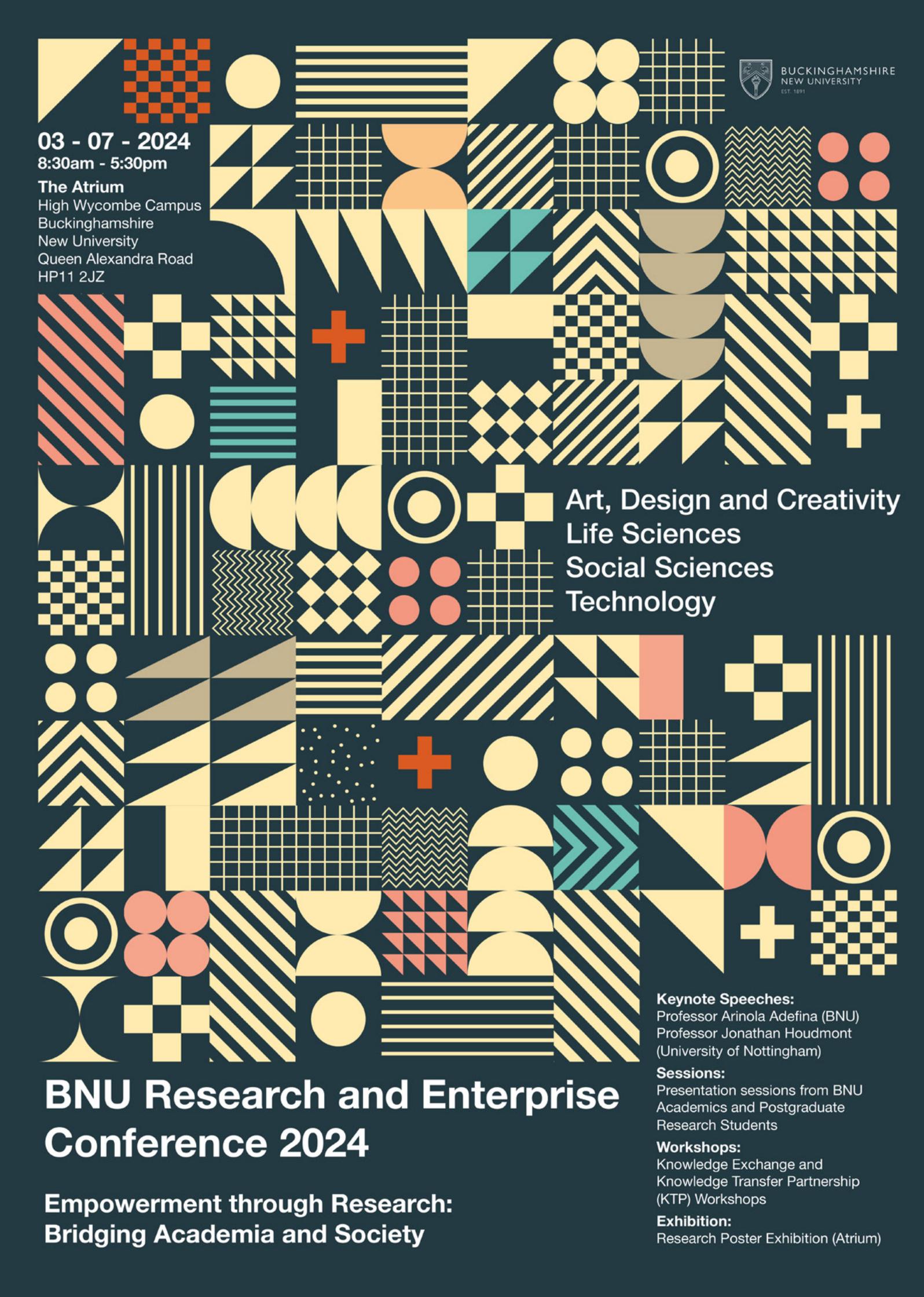
34 Research on a Postcard entries

03 - 07 - 2024

8:30am - 5:30pm

The Atrium

High Wycombe Campus
Buckinghamshire
New University
Queen Alexandra Road
HP11 2JZ



Art, Design and Creativity
Life Sciences
Social Sciences
Technology

BNU Research and Enterprise Conference 2024

Empowerment through Research:
Bridging Academia and Society

Keynote Speeches:

Professor Arinola Adefina (BNU)
Professor Jonathan Houdmont
(University of Nottingham)

Sessions:

Presentation sessions from BNU
Academics and Postgraduate
Research Students

Workshops:

Knowledge Exchange and
Knowledge Transfer Partnership
(KTP) Workshops

Exhibition:

Research Poster Exhibition (Atrium)



Art, Design and the Creative Industries

An Empirical Investigation of the Process and Practice of Animatronics for Teaching Undergraduate and Postgraduate in Higher Education Sector

DR JOHNNY ISSAPOUR
SENIOR LECTURER

(School of Art, Design and Performance)

Animatronics is a multi-disciplinary subject that embraces both art and science. It is acknowledged as a new discipline and attracts a wide audience; in academia and discussion terms, this creates a problem as to where to place the subject, and how to define its key principles. This research investigates the practice and principles of animatronics design to discover where it came from, what it encompasses and how it might develop to tackle the technical and creativity issues for teaching at both undergraduate and postgraduate levels. The value of the investigation is the platform it provides for process and practice, and the understanding this offers as a baseline from which to move forward.

As there is increasing demand for professional level of creativity, knowledge and skills within multidisciplinary subjects such as animatronics design and production, this research defines

animatronics as an independent interdisciplinary subject that draws diverse professionals from different disciplines together through its creative approach and its emphasis on visual communication methods.

In addition, this research investigates the ongoing development of animatronics skills and knowledge required. Because of the novel nature of animatronics, its future will rely on dramatic performance and artificial intelligence. Animatronics models require the 'wow factor' to maintain the public's interest, or to grow closer to new applications in biomechanics, robotics, AI and amphibiotics.



Art, Design and the Creative Industries

Sonic Materialities: Investigating Sound, Space and Architecture

DR GERARD GORMLEY
SENIOR LECTURER

(School of Creative and Digital Industries)

Focusing on three case studies, this research explores my practice-based methodologies in uncovering the explicit and implicit sonic dimensions inherent in spaces, buildings, and sites. Through a series of experimental processes, I engage with sound in relation to its surrounding environment, facilitating a dialogue between sound, space, and architecture. Whether through iterative recording and playback techniques or the transplantation of sounds across disparate locations, my work endeavours to reveal the dynamic interplay between sound and its material context.

Central to this exploration is an investigation into the transformative potential of sound within architectural settings. By imbuing spaces with resonant qualities derived from their sonic histories, I explore environments wherein sound becomes not merely an auditory experience, but a tangible presence intimately intertwined with the physicality of its surroundings.



Art, Design and the Creative Industries

Radical Provocative Safety at 924 Gilman Street

PAUL FIELDS

ASSOCIATE PROFESSOR OF POPULAR MUSIC

School of Creative and Digital Industries

Closely associated with punk, Berkeley California's 'Gilman Street' is one of the world's most famous underground music venues and the primary catalyst in the early careers of well-known bands such as Green Day and The Offspring. Gilman Street is a non-profit community-based project that relies on volunteers, puts on shows for all age groups, and was an early adopter of formal safe space policies. As part of this patrons are encouraged to participate in the democratic process, with a suggestion box whose contents are announced at events. Microphones are also left on between artists' performances, enabling attendees to question artists on things like the lyrics to their songs.

Although the policies' intended beneficiaries are those from marginalised identities, Gilman's policies have met resistance from fans for various reasons. This research analyses Gilman's safe space policies with a specific focus on the ways 'blue letter law' can become elastic as discretion or inconsistency is used in its application, and whether evidence of this can be seen in Gilman's safe space policies. In April 2024 I visited Gilman Street to conduct semi-structured interviews with artists, promoters, attendees, and conduct participant observation, with my research representing results of these discussions.



Art, Design and the Creative Industries

Therapeutic Sound Design in Serious Games

DR SAFA THARIB
SENIOR LECTURER

(School of Creative and Digital Industries)

DR ESTABRAQ MAKIYAH
LECTURER

(School of Creative and Digital Industries)

Our project aims to develop gamified AI enabled games to assist individuals with social interaction difficulties, while also serving as a social research platform which is utilised in this study for therapeutic sound research. By combining advanced AI techniques for realistic NPC dialogue with sound frequency therapy, the game will simulate lifelike social interactions and embed therapeutic soundscapes.

This innovative approach addresses significant societal challenges, enhances social skills, and promotes mental well-being. Our methodology includes rigorous testing, user feedback, and pilot studies, ensuring the game's effectiveness as a therapeutic tool and contributing to broader academic discourse in AI and digital mental health.

DR SHAOJUN BIAN
SENIOR LECTURER

(School of Creative and Digital Industries)

EUNICE BAMGBOYE
ICS INNOVATIVE SOLUTIONS

In collaboration with Leeds City College's Luminare programme, we engaged in a comprehensive partnership to ensure the project's success and relevance. Our collaborative efforts involved regular consultations and feedback sessions with educators and support staff to understand the specific needs and challenges faced by disabled and neurodivergent students aged 16 to 25. This input was critical in shaping the design and functionality of the AI-integrated, slice-of-life game. We conducted user testing sessions with Luminare students, incorporating their feedback to refine the game's features and ensure it met their expectations and requirements.



Life Sciences

Enhancing Early Breast Cancer Diagnosis Prediction Through Multidimensional Data Integration

**MUHAMMAD SIHAN
HAROON**
RESEARCH ASSISTANT

This research focuses on the predictive modelling task of the WiDS Datathon 2024. It emphasises the importance of timely cancer diagnosis and utilises a robust dataset of approximately 39,000 patient records, including demographic, diagnosis, treatment, socioeconomic, and environmental data. The primary objective is to develop accurate predictive models using advanced machine learning algorithms like Random Forest, Gradient Boosting Machines, Support Vector Machines, and Neural Networks.

The dataset is divided into training and test sets, allowing for the development and evaluation of reliable models. The target variable, 'DiagPeriodL90D', indicates whether a cancer diagnosis occurred within 90 days, presenting a

DR SHAHADATE REVZY
SENIOR LECTURER

(School of Creative and Digital Industries)

binary outcome for modelling. Key models evaluated include Random Forest, Neural Networks, Logistic Regression, and Gradient Boosting, with Gradient Boosting emerging as the top performer due to its highest accuracy and reliability.

The research aims to enhance early detection strategies and improve patient outcomes through personalised healthcare approaches. It holds significant implications for advancing cancer diagnosis protocols, optimising healthcare delivery, and informing public health policies to promote early cancer detection and prevention. Overall, this study seeks to leverage multidimensional data to improve the early diagnosis and treatment of breast cancer.



Life Sciences

Numeracy to Drug Calculation: A Study to Measure the Effectiveness of Using Different Modes of Learning for Formative and Summative Assessment for Drug Calculation

DR NANDINI DAS
GRADUATE TEACHING ASSOCIATE
(School of Nursing and Midwifery)

DEBBIE-KATE SALVO
LECTURER
(School of Nursing and Midwifery)

The delivery of numeracy skills for nurses may not always reflect real-life scenarios accurately, and First Year nursing students tend to struggle to connect theoretical knowledge with the practical application of drug calculations in clinical settings. This research explores modes of learning as tools of learning and assessment. It evaluates the effectiveness of both traditional and online learning approaches in identifying learning difficulties that arises from both types of assessment. Drawing from interviews with first year undergraduate nursing students, this study captures their experience of undertaking their assessment using two different formats such as SafeMedicate and paper-based exams.

Scores from these two methods of assessment have been compared to assess the effectiveness of SafeMedicate in improving numeracy skills of student nurses.

A mixed-method approach has been adapted to contextualise students' experience of using different formats whilst triangulating the data. Data collection has been in 2 phases to capture the experience of two different cohorts before and after their clinical placements. Findings from Phase One indicate that SafeMedicate has not been effective in improving the numeracy skills of student nurses, although interviews with students have elicited a mixed response regarding the effectiveness of using SafeMedicate. Data collection for Phase Two is currently underway.



Life Sciences

3D Kidney Blood Vessel Segmentation with Automated U-Net Ensemble Classification

DR SHAH SIDDIQUI
RESEARCH ASSISTANT

(School of Creative and Digital Industries)

DR SHAHADATE REVZY
SENIOR LECTURER

(School of Creative and Digital Industries)

The project aims to improve medical diagnostic instruments and techniques, reducing the burden on medical practitioners and improving medication effectiveness by focusing on early detection of kidney disease symptoms for better therapeutic effects. The project also advances medical image analysis and machine learning, fostering scientific innovation and multidisciplinary collaboration. The project's desired impact on society is the improvement of patient health and quality of life by increasing public awareness and emphasizing early detection.

The focus of our initiative is the public health issue of kidney disease, including acute kidney injury (AKI) and chronic kidney disease (CKD). As manual annotation to diagnose vascular kidney disease (KD) is time-consuming our research is based on the

PROF. ALEXANDER GEGOV
(UNIVERSITY OF PORTSMOUTH)

'SenNet + HOA' competition dataset, using this to provide a more effective and accurate way for 3D kidney blood vessel segmentation.

The aim of the study is to optimise the detection process by sophisticated machine learning approaches and ensemble classification in models (for example Deep ResNet, Enhanced ResNet and Systematic ResUNet). The study will not only enhance the detection of KD by the high accuracy of the diagnosis, but also benefit society by reducing human labour, which in turn could help to improve the accuracy in medical image analysis.



Life Sciences

Time to Donate: Research Study to Explore the Enablers and Barriers to Stem Cell and Blood Donation for Ethnically Diverse Communities

DR GULEN ADDIS
ASSOCIATE PROFESSOR

(School of Nursing and Midwifery)

DR SIMON LEE-PRICE
SENIOR LECTURER

(Student Achievement and Success)

MARGARET RIOGA
DIRECTOR OF STUDENT SUCCESS

(Directorate of Student Success)

Blood and stem cell donation for ethnically diverse communities is important as they are underrepresented in most developed countries. This especially represents an issue where ethnically minority communities differ from the majority population in terms of blood or tissue typing. Despite the urgent need for donors from these demographics donation rates are disproportionately low, often resulting in distress, trauma, and, ultimately, fatalities among patients.

This research explores the enablers and barriers to stem cell and blood donation for individuals from minoritised and mixed-heritage backgrounds. A mixed method approach is used to gather and compare source data to meet the aim of the study from a population comprised of ethnically diverse adults aged 18 – 65 years old. Phase one included a questionnaire to gather information on the enablers

and barriers for stem cell and blood donation, while phase two utilised follow-up semi-structured interviews with 6-10 participants who completed the questionnaire. The preliminary results from questionnaire (n=15) showed that most of the participants were black, Caribbean or African and Christian. 8 participants (53.3%) are willing to donate while 11 (73.3%) would be happy to accept donation. 40% of the participants are worried that donation may have implications for their health. All were confident about the care offered by NHS Services. All participants indicated that there were no religious and/or cultural reasons that would influence their decision on blood or stem cell donation. A need for training and increased awareness about blood and stem cells donation was expressed by almost all participants.



Social Sciences

“I never knew it was so prevalent”: Experiences and Perceptions of Student Health Visitors Recognising and Responding to Domestic Abuse in Practice Placement Settings

SUSAN PERRYMAN
SENIOR LECTURER

(School of Health and Social Care)

Domestic abuse (DA) is a significant public health issue, with well-documented impacts on individuals and wider society. The effects of DA encompass a range of physical and mental health harms to individuals as well as national economic costs and healthcare and criminal justice system spending associated with domestic abuse. Health visitors as Specialist Community Public Health Nurses (SCPHN) have a key role in supporting and protecting adults and children affected by DA. As part of a course leading to SCPHN registration, student health visitors develop knowledge and skills in identifying and responding to DA whilst working in community settings.

A qualitative study was undertaken aiming to examine the experiences and perceptions of student health visitors recognising and responding to DA in practice placement settings. Semi-structured interviews were conducted with five student health visitors in the United Kingdom (UK).

All participants had engaged in practice activities relating to DA within SCPHN placements, commonly expressing a sense of disbelief at the scale of the issue in practice and reporting difficulties and unease regarding identification and management of DA. Access to support and opportunities to reflect and ‘talk things through’ were found to be important for students regarding this sphere of practice.

The findings contribute to the body of knowledge on DA-related practice within nursing, to the body of wider evidence on DA as a societal issue, and may contribute to practice development and help inform future teaching and educational strategies within SCPHN programmes.



Social Sciences

Impact of Conflict with Russia on Vulnerable Populations: A Study on Women and Children Displaced in Ukraine

DR LEAH FOX
HEAD OF SCHOOL

(School of Aviation and Security)

Conducted in collaboration with Professor Svitlana Filyppova from the Odessa Polytechnic National University (Ukraine) this research addresses critical issues arising from the ongoing conflict in Ukraine. The project explores the severe psychological and humanitarian impacts on displaced women and children, focusing on their trauma, mental health, and access to essential services. We utilised online surveys, focus groups, and interviews with professionals and municipal leaders to gather comprehensive data on the needs and challenges faced by these populations.

The findings reveal widespread psychological trauma including PTSD and anxiety, among displaced individuals, and highlight significant gaps in humanitarian aid and infrastructure. Approximately 70% of participants report severe anxiety and sleep disorders, while 40% face critical shortages in basic necessities. Despite these challenges, there is notable resilience and community support among affected individuals.

This research provides actionable insights into the psychological and social effects of displacement. It underscores the need for enhanced mental health services, effective aid distribution, and robust rebuilding efforts. By highlighting these critical areas, our study contributes to developing more effective strategies for supporting vulnerable populations and fostering long-term recovery and stability in conflict-affected regions.



Social Sciences

A Qualitative Research Study; Exploring the Barriers and Enablers for Progression to Health and Social Care Careers for Disadvantaged / Underrepresented Health and Social Care Students studying in Further Education Colleges

MARGARET RIOGA
DIRECTOR OF STUDENT SUCCESS
 (Directorate of Student Success)

PROF. KAREN BUCKWELL-NUTT
ASSOCIATE PRO-VICE CHANCELLOR
 (Student Experience)

In this qualitative study conducted in Northwest London, researchers explored the barriers and enablers faced by disadvantaged and under-represented Health and Social Care (HSC) learners in Further Education (FE) colleges when accessing HSC careers and Higher Education (HE). The study involved focus groups with 41 learners and individual interviews with three employers and one Alumni student.

Key findings revealed that FE learners were committed to pursuing HSC careers but encountered complex disadvantaging issues. These ranged from socio-economic barriers such as the cost of living and financial impact of studying in HE to systemic cultural barriers including lack of ethnically diverse Executive leaders within healthcare and not meeting the entry requirements for HE study.

DR KAREN HARRISON-WHITE
HONORARY PROFESSOR
 (Brunel University)

SUBA DICKERSON
ASSISTANT PRINCIPAL
 (Harrow College and Uxbridge College)

HSC employers recognised FE colleges as essential employment pipelines, emphasising the need for collaborative efforts to support learners' progression into HSC careers and align with the NHS Long Term Workforce Plan. Employers recognised the need for raising awareness about the range of career pathways in HSC and the importance of placement insight opportunities and promoting belonging for students in placements. HSC FE learners are an untapped pipeline for the future healthcare workforce and there is a need for collaborative working between FE colleges, HSC employers and HE to support the progression of FE learners into HSC careers and HE to meet individual career aspirations and the ambitions of the NHS Long Term Workforce Plan.



Social Sciences

University Staff Experiences and Perspectives of Academic Misconduct Investigation and Vivas

ALAN HOCKLEY
LECTURER

(Student Achievement and Success)

Academic Misconduct (AM) is increasingly common in Higher Education, and the proliferation of commercial essay mills offering essay writing services, along with the advent of AI, has provided additional forms of AM that are difficult to identify and investigate. Most research to date on AM has focused on why students cheat with research into both methods of recognition and of discouragement. However, limited attention has been paid in seeking the perspectives and opinions of university staff closely involved in investigating AM and dealing with students accused of it.

This research investigates the experiences of university staff, both in this country and abroad, of conducting AM investigations and vivas at their institutions. It seeks to gain insight regarding the resulting effect this has on them and on the relationship they have with students accused.

Participants reported a range of approaches regarding policy at their institutions dealing with academic integrity and misconduct, whilst also providing suggestions into areas that felt might be improved upon. Also of note was the impact of

making multiple investigations leading to feelings of exasperation with processes, issues with whether professional integrity was being consistently applied and the emotional consequences of dealing with situations of conflict arising with accused students.

HE institutions need to respond robustly to the challenges posed by increasing levels of AM if public trust is to be maintained in the legitimacy of qualifications awarded. As part of any response, the views and experiences of those who are regularly involved with investigating AM need to be taken into account.



Technology

Advancing Energy Demand Forecasting with Explainable AI

TASNIM AKHTER
RESEARCH ASSISTANT

(School of Creative and Digital Industries)

Our research develops an explainable energy demand forecasting system using advanced AI models, starting with a Random Forest model and later integrating Long Short-Term Memory (LSTM) and XGBoost models. Initially, the Random Forest model was trained on the EPC dataset to predict energy consumption, serving as a baseline. The project addresses the need for accurate and transparent energy consumption prediction in smart homes, crucial for optimising resource allocation amidst current energy crises.

The research focuses on providing accurate predictions and clear explanations to end-users regarding their energy usage. We implemented Shapley Additive Explanations (SHAP) to elucidate the contributions of various factors affecting energy consumption. This approach ensures users understand how features like daily standing charge, unit charge per kWh, and household attributes influence their energy usage. Our LSTM and XGBoost models are trained on the IDEAL

DR SHAHADATE REZVY
SENIOR LECTURER

(School of Creative and Digital Industries)

Household Energy Dataset, comprising data from 255 UK homes, including electric and gas usage, room temperature, humidity readings, and detailed appliance use data.

We developed a user-friendly Streamlit interface, enabling users to input data and receive detailed predictions and explanations, highlighting key factors influencing their energy usage. Despite functional predictions, the significant RMSE difference between LSTM and XGBoost models indicates further refinement is needed for better accuracy and reliability. This research empowers users with insights into their energy consumption patterns, fostering energy-efficient behaviours, and contributing to sustainable energy usage.



Technology

Empowering Nursing Students through Medical Terminology mLearning with MediLingo

TARYN TAVENER-SMITH
SENIOR LECTURER

(School of Nursing and Midwifery)

NIC LANDON
ASSOCIATE LECTURER

(School of Nursing and Midwifery)

JON JACKSON
SENIOR LECTURER

(School of Creative and Digital Industries)

Medical terminology enables effective communication among healthcare professionals by offering precise meanings regarding patient health. Learning medical language is challenging due to the Greek and Latin word parts used to construct these compound terms. Research suggests that students perceive value in receiving dedicated teaching on the linguistic rules of medical terminology. In response to this problem, our research team has developed an mLearning prototype to help students decode complex medical terminology. The team have conducted a series of exploratory studies to ascertain its impact and nursing students' experiences of using MediLingo to help them learn medical terminology like a language.

MediLingo adopts technology-enhanced approaches to support learning (TEL) and develop student confidence and knowledge of medical terminology. 95% of users agree that MediLingo is beneficial to their learning, while its accessibility is highly valued. MediLingo facilitates learning at university and clinical placement while on-the-go. The quantitative analysis conducted indicated a significant improvement in knowledge of medical terms following the use of MediLingo for a short duration.

Research suggests that specialised tools, like MediLingo, may offer an inclusive solution to support students' acquisition of medical terminology, while providing an innovative digital solution transforming how academics teach medical terminology.



Technology

Empowering Supporters of Vulnerable Households Experiencing Sudden Bereavement Through the Potential Applications of Digital Technology and Artificial Intelligence (AI)

JON JACKSON
SENIOR LECTURER

(School of Creative and Digital Industries)

Sudden bereavement can exacerbate household vulnerability and increase reliance on support from public services and local community networks which can provide short-term assistance in times of crisis. During these times direct interventions enabled by digital technology are potentially undermined due to digital poverty which is still widespread among the UK population. As of 2021, 1.7 million households had no broadband or mobile internet access, and 2.4 million adults were unable to complete a single basic task to get online.

Taking widespread digital poverty into consideration, this research aims to lay the foundations for empowering those who support grieving households, referred to as Supporting Parties (SPs) so that vulnerable individuals and households can still benefit from digital technologies (including Artificial Intelligence) as indirect beneficiaries even if they are experiencing digital poverty.

MELANIE CARTER
ASSOCIATE LECTURER

(School of Creative and Digital Industries)

This research will draw on the experiences of professionals and community volunteers in a post-COVID context to explore the challenges and complexities associated with supporting households with temporary vulnerability through sudden bereavement. This will contribute essential perspectives used to inform the related research question of how, or even if, digital technologies and AI can be used to empower Supporting Parties in their work with a focus on wellbeing and positive social impact.



Technology

Thermo-mechanical Reliability of Electronic Interconnections

DR SABUJ MALLIK
HEAD OF SCHOOL

(School of Engineering and the Built Environment)

DR MOHAMMAD RANA
SENIOR LECTURER

(School of Engineering and the Built Environment)

DR JOSHUA DEPIVER

(University of Derby)

Electronic manufacturing is one of the dynamic industries in the world, in terms of leading in technological advancements. At the heart of electronic assembly lies the soldering technology and the 'solder joints' between electronic components and substrate. During the operation of electronic products, solder joints experience harsh environmental conditions, in terms of thermal and mechanical stresses through cyclic change of temperature, along with vibration and exposure to moisture and chemicals. Due to cyclic application of loads and higher operational temperature, solder joints fail primarily through creep and fatigue failures.

This research investigates the creep-fatigue behaviours of solder joints in a ball grid array (BGA), soldered on a printed circuit board (PCB).

Using finite element simulation, the solder joints were subjected to both thermal cycling and isothermal ageing. Accelerated thermal cycling (ATC) was carried out using temperature range from -40 to $+150$ and isothermal ageing was done at -40 , 25 , 75 and 150 temperatures for 45 days. The solders studied are lead-based eutectic solder alloy and lead-free SAC396, SAC387, SAC405 and SAC305. The results were analysed for equivalent stress, strain rate, deformation rate and strain energy of the solders. Solder SAC396 was found to possess the least stress, strain rate, deformation rate and strain energy damage than the lead-based eutectic solder.



Postgraduate Student Presentations

Breaking and Paris 2024: An Actor-Network Theory Oriented Exploration of Breaking's Olympic Judging System

SONJA CIMELLI

Breaking has recently made its Summer Olympics debut at Paris 2024. The original dance style of hip hop culture, breaking shares commonalities with action and urban sports such as snowboarding and skateboarding which have boosted Olympic youth engagement. Mainstreaming of these subcultures has been impactful, and literature suggests that judging systems are an influential factor in the complex Olympic inclusion process. This research examines the influence of the judging system on breaking's evolution as an Olympic sport in relation to the significance of judging systems on the transition of subculture activity to mainstream sport.

The project is theoretically oriented by Actor-Network Theory (ANT), and the research methods include document analysis, interviews and observation, theoretically complemented by constant comparative analysis. Preliminary findings have exposed the significance of accountability, authority, ethics, identity, and legacy. The relational networks have revealed key stakeholders including the breaking community, the World DanceSport Federation as breaking's governing Olympic

federation, the Organising Committee of the Olympic Games, and the International Olympic Committee. The networks have foregrounded the political associations that have both influenced and been influenced by the judging system through the translation of power. Furthermore, this research has highlighted how the challenges of judging artistic sports are further complicated by the fluctuating relationships involved in the process of integrating sporting subcultures within the Olympic Games.



Postgraduate Student Presentations

Female Football Players Don't Eat Enough! Can We develop an Intervention which changes their behaviour?

PHILIP WOODBRIDGE

With little about the dietary intakes of recreational female football players this research study aimed to assess the nutritional intake, sports nutrition knowledge and risk of Low Energy Availability (LEA) in recreational female football players. Mean energy intake (1730 kcal) was identified as significantly lower than the energy intake targets calculated (2195 kcal) ($p < 0.001$). The mean score for sports nutrition knowledge was $55.6\% \pm 10.6$ with 29.6% identified as having poor nutritional knowledge.

The LEAF-Q questionnaire identified 42.6% of the players as above the threshold for risk of LEA with potential consequences for health and injury. Players at risk of LEA had lower sports nutrition knowledge scores ($53.7\% \pm 9.7$) compared to the non-risk players ($59.3\% \pm 11.3$) ($p = 0.042$). Study 2 involved a sports nutrition education intervention which aimed to improve players sports nutrition knowledge and help them to understand their greater energy intake requirements to support playing and training.

The intervention did not identify statistically significant increases but effect size analysis showed significant increases in knowledge, energy availability and carbohydrate intake. The results can inform development of resources to help players increase their nutritional intakes, reduce the incidence of LEA and improve health and injury rates.



Postgraduate Student Presentations

Investigating the Minimum Effective Dose and Effect of Rebound Exercise in Community-Dwelling Adults with Neurological Disorders: A Pre-Post Interventional Study

ADAORA OKEMUO

Rebound exercise - a therapeutic intervention known for its beneficial effects and appealing features - has shown promise in improving mobility in hospitalised adults with neurological disorders. However, whether similar benefits could be achieved in a community setting remained unclear. To address this gap, a feasibility study was conducted involving 53 participants with neurological disorders who engaged in a 12-week rebound exercise training program for 30 minutes, once or twice weekly. The study found significant improvements in participants' blood pressure, heart rate, balance, walking speed, physical activity levels, and overall quality of life.

This demonstrates the potential of rebound exercise to enhance the physical and physiological functions of individuals with neurological disorders outside clinical settings. The study provides valuable insights that can inform future randomised

controlled trials by exploring the practical challenges and benefits of integrating rebound exercise into participants' daily lives. The findings imply that rebound exercise could be an effective intervention to improve the well-being of individuals with neurological disorders, potentially reducing the strain on healthcare systems and promoting societal well-being.



Postgraduate Student Presentations

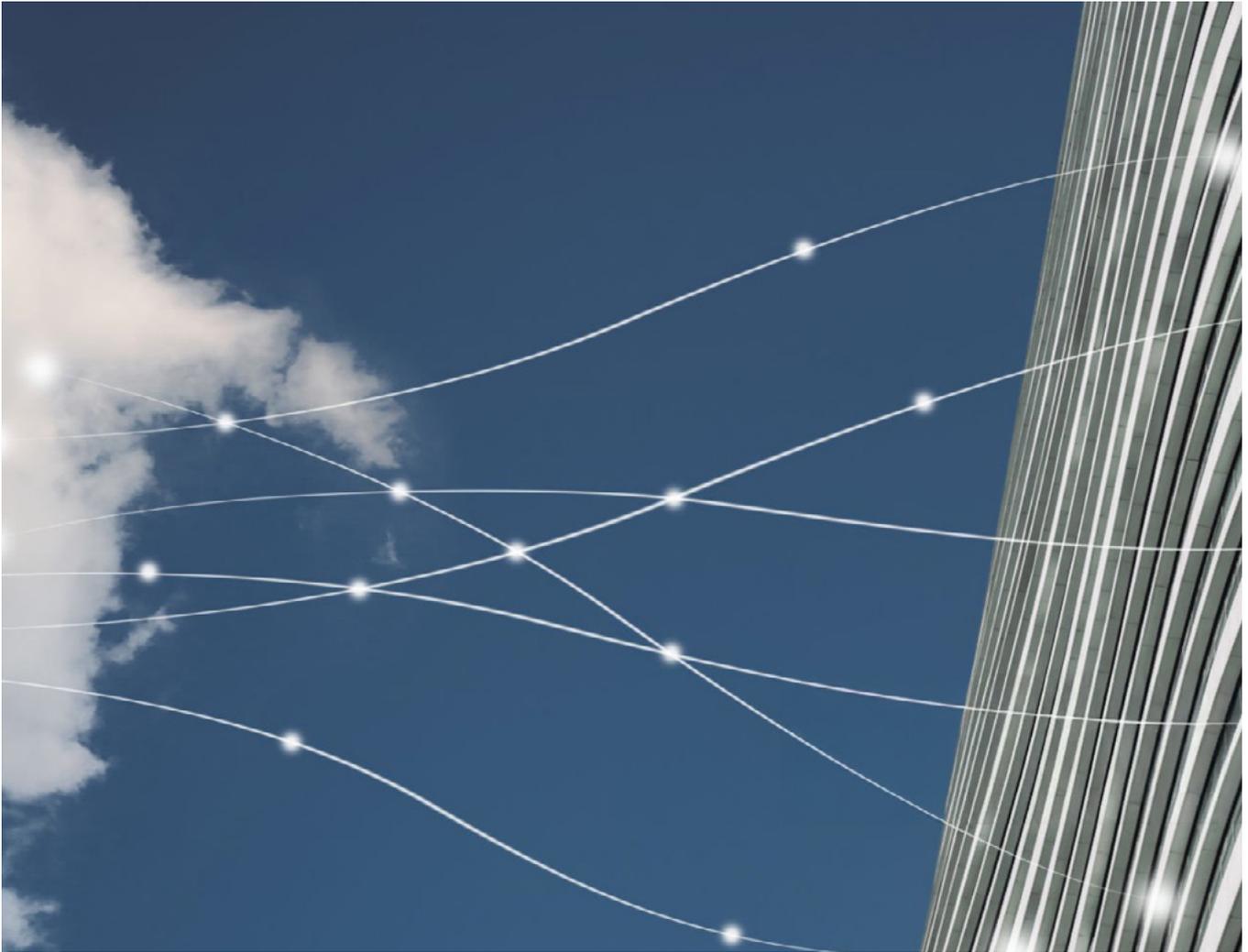
Sustainability Intelligence (SI): Guiding Decisions and Policies for a Transformative Design of the Denim Industrial System

GURPREET SINGH

This research tackles the pressing sustainability challenges within the global denim industry, examining the complex interplay between decision-making, sustainability regulations, and industry practices to create a cohesive framework that promotes sustainable development in the denim sector. Despite various individual efforts, a comprehensive strategy that effectively integrates sustainability's economic, social, and environmental dimensions still needs to be improved. My research introduces Sustainability Intelligence (SI), an innovative and adaptive paradigm that enhances sustainability by redesigning the denim industry's products, processes, and professions.

By conducting interviews, focus groups, and multiple case studies across critical regions in the US, EU, and Asia, the study identified two crucial SI components - *Sustainability Intelligence Navigator* (SIN) and *Sustainability Intelligence Synthesis* (SIS) - that offer guidance to professionals and

policymakers on adopting sustainable practices. This research provides actionable strategies for transitioning the fashion business towards a more sustainable and responsible industrial system, and the proposed framework can potentially drive systemic change and contribute to the broader goal of achieving sustainability in the global fashion system.



Knowledge Transfer Partnerships – Workshop

FRANCESCA MARTIN

KTP MANAGER

The KTP workshop at the conference served as an ideal platform to share what a great opportunity the scheme offers our academic community to demonstrate impact. The workshop delved into what makes a great KTP and how partnerships are formed through interactive, challenging conversations, leading to rich transformative projects for both business partner and the academic team involved.

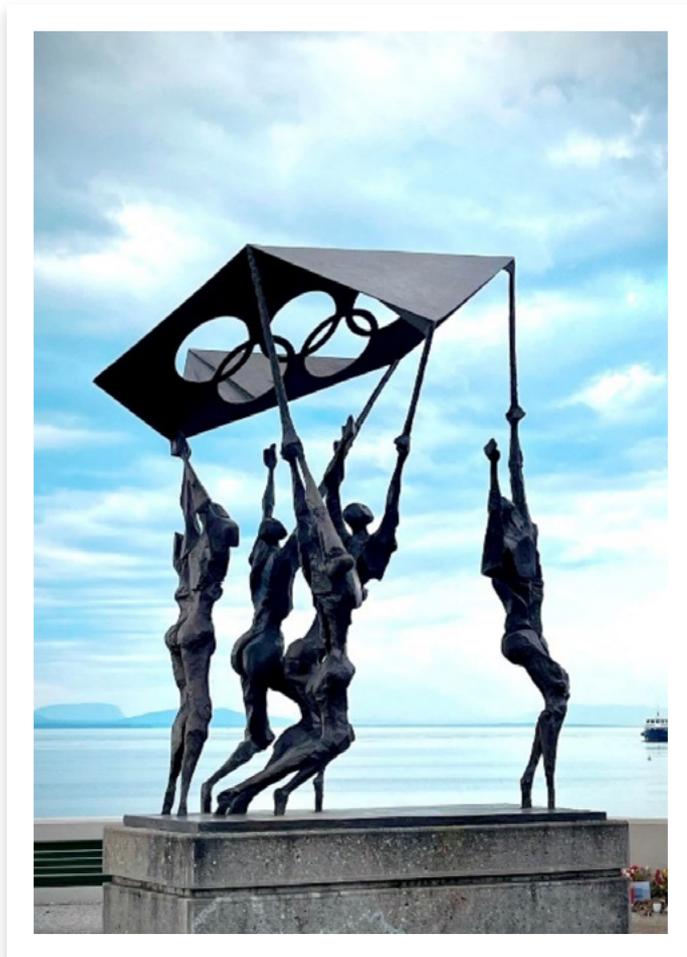
After a summary of how the scheme works, the group had the opportunity to put their own analytical skills to the test. A short exercise allowed delegates to consider a project brief and how they would go about assessing its potential to become a KTP project.

We also welcomed key stakeholders from live KTP projects to share their experience of working on a KTP to bring to life the benefits it provides to all the partners involved. The session was rounded off with an informative overview of one of the University commercial partners – Oxford Innovation – and how they support businesses and academics to realise the commercial potential of their ideas and research outputs.

It was excellent to see the workshop so well attended, and it will be fantastic to see what ideas are sparked and developed as a result of the event.

BNU Research on a Postcard

As part of the Conference, BNU researchers were invited to find an image that encapsulated their research which – along with a short summary – would be included in the Research on a Postcard competition. Included below are a selection of the entries.



Breaking and Paris 2024: Exploring Breaking's Olympic Judging System

SONJA CIMELLI
POSTGRADUATE
RESEARCH STUDENT

In reverence to its Ancient Greek origins, Pierre de Coubertin championed the convergence of sport, art, and culture in the revival of the Modern Olympics. This summer, Olympism will merge with hip hop culture when breaking (breakdancing) debuts as an Olympic sport in Paris, the birthplace of Coubertin. These athletes will fly the flag for hip hop under the banner of Olympism. For breaking, the challenges of Olympic inclusion are further complicated by the controversies associated with judging artistic sports. This research examines the influence of breaking's novel Olympic judging system on its evolution from artistic subculture to mainstream artistic sport.



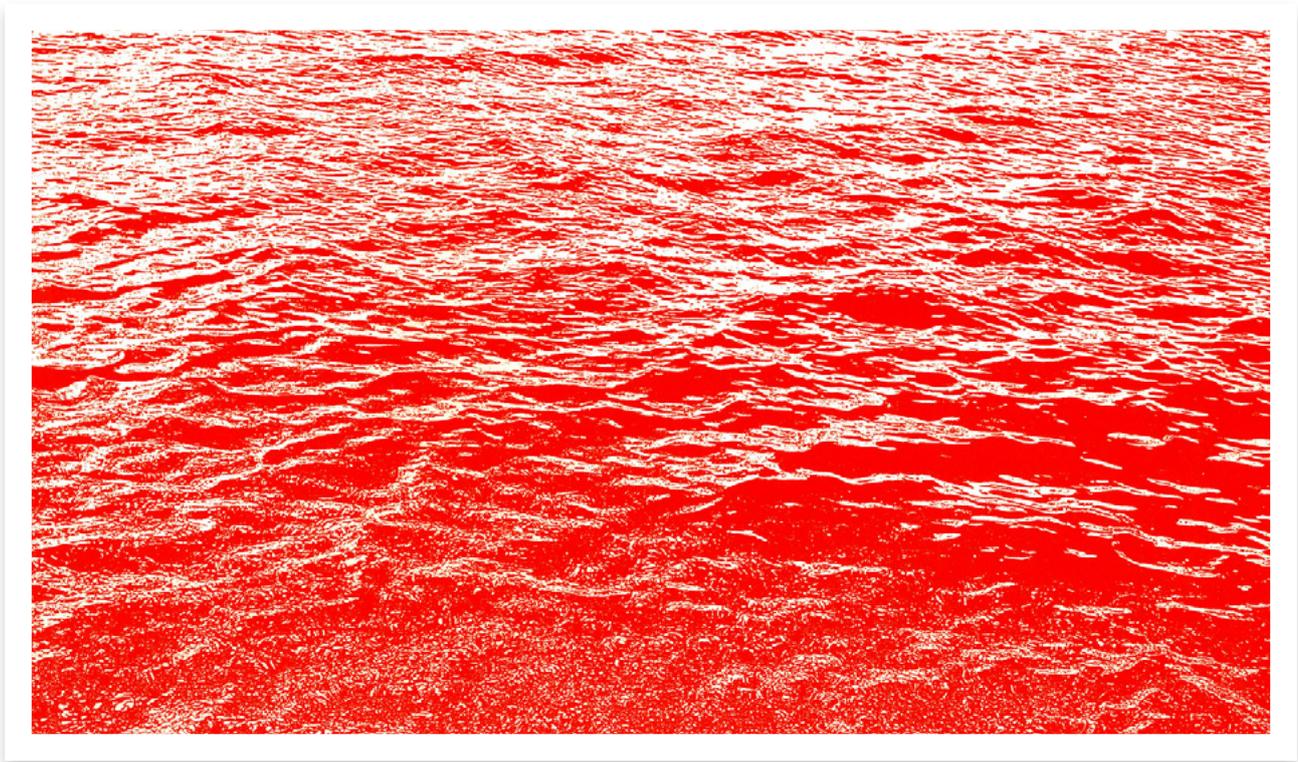
Concrete Dreams of Sound

GERARD GORMLEY
SENIOR LECTURER

(School of Creative and Digital Industries)

Concrete Dreams of Sound explores the possibilities of a music that is born of, and dwells in, architecture. While many musical works explore the acoustic properties of architectural spaces, Concrete Dreams of Sound asks what music could be if it not only reflected architecture but was returned to it; made a part of it; belonged to it. Recorded and produced over a period of several months in 2023, Concrete Dreams of Sound entailed a detailed vibrational and acoustic exploration of The Barbican, an iconic Brutalist complex in London that embeds the utopian

spirit of postwar modernism in architecture. This process entailed making sonic and vibrational recordings using a variety of instruments and sensors that capture airborne vibrations (sounds, echoes, and resonances in air), structure-borne vibrations (recording vibrations through walls, floors and surfaces, including of the Barbican's famous patented concrete), underwater recordings in ponds and water features around the complex, as well as sounds and acoustic reflections in locations throughout the site: stairwells, hallways, alleyways, elevator shafts, basements, and more.



Red Sea

ELISAVET KALPAXI
SENIOR LECTURER

(School of Art Design and Performance)

Red Sea was created in response to the ongoing refugee crisis and the thousands of people who lost their lives at sea in the last 15 years. The work is often presented as a stack of free posters in festivals and exhibitions and is accompanied by 'A Short Story from Lesbos Island', a first-person account of someone who did manage to cross

the sea to Europe in 2016. The story belongs to the *Walking Together: Collection of Short Stories on the Refugees' Right to the City* and was kindly selected by the book's editor, Charalampos Tsavdaroglou, to accompany the work.



Dogs: An Inert State

ALEXANDRA MURPHY
SENIOR LECTURER

(School of Art, Design and Performance)

Upon viewing these dogs, they appear to be alive in as much as the photograph represents them this way. However, in taking a closer look, one realises that these noble creatures are in fact, inert behind museum glass - taxidermy specimens on display as part of a unique Natural History Museum collection at Tring. These portraits form part of my research

into psychoanalyst Sigmund Freud's most speculative metapsychology - that of the death-drive. Through this project, I propose that the relationship between the photograph and the taxidermy specimen represents a metaphorical double defiance of death.



A New Model for Creative Collaboration as Practice Based Research

MESSUA POULIN-WOLFF
LECTURER

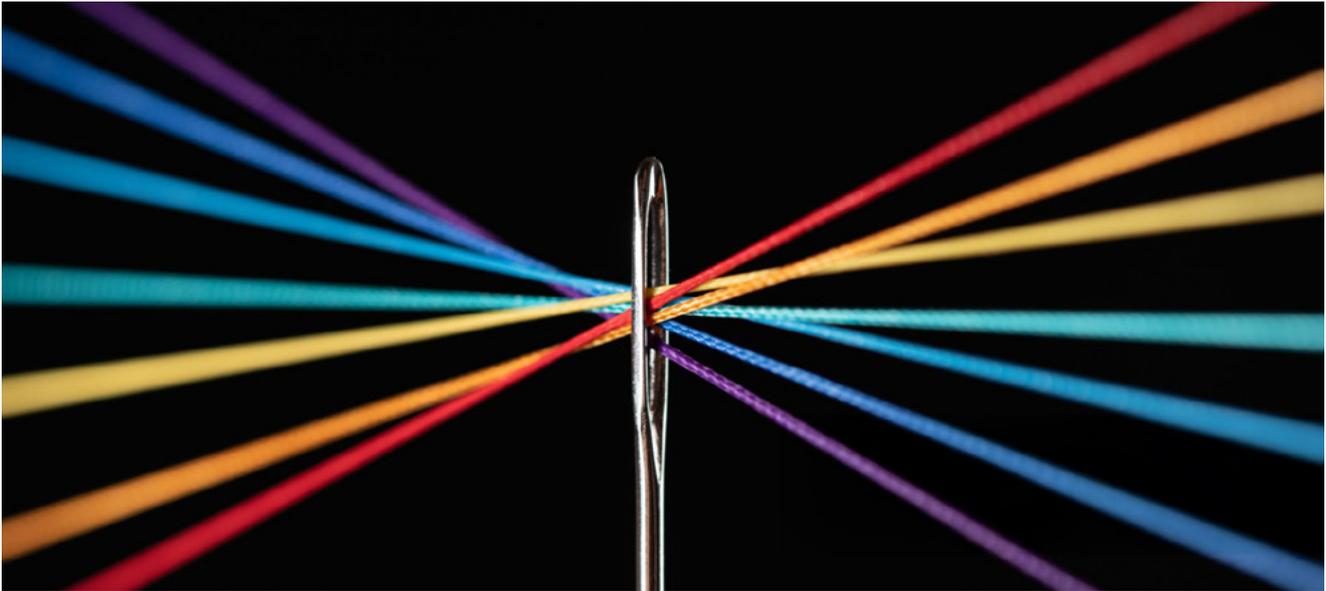
(School of Art, Design and Performance)

JON PLACE SENIOR
LECTURER

(School of Art, Design and Performance)

The research starts with an encounter with false colour imagery from satellite and drone map data provided by Dr Joseph Fennell from the Open University. The project employed a cross-disciplinary approach to data visualisation incorporating design thinking and bespoke interactive, collaborative processes to investigate how a creative engagement with false colour imagery might develop a model for future interdisciplinary collaboration. For a week, the student research assistants and academics worked together responsively, reactively, and playfully in an intensive week-long workshop to explore and ponder the potential to create a replicable framework to facilitate future collaborative possibilities.





Knowledge Transfer Partnerships

Knowledge Transfer Partnerships (KTPs) remain a key route to demonstrating impact at BNU. The KTP scheme, which has been running for nearly 50 years and is partly funded by Innovate UK, is an ideal platform for business-academia partnerships to demonstrate the power of applied knowledge.

With two live KTP projects well into their second year of operations and the first Accelerated Knowledge Transfer (AKT) project at BNU concluded, now is a great time to reflect on what KTPs mean for BNU. One of the four strategic pillars in BNU's latest Thrive 28 strategy is to Deliver Knowledge and Skills, with a key deliverable defined as increased Enterprise income. In this respect, KTPs are an ideal opportunity to support the university's strategy attracting in the region of £100k per project each year in income for BNU. While it's easy to see the relationship between KTP and financial contribution, it's also important to recognise the much broader and long reaching impact these projects have.

Our project with the Oasis Partnership is a great example of wider impact. Through the project the charity are discovering new and innovative ways to raise income to support the growing demand for the services they provide to the local community. Recently it has been fantastic to see the first events being held at their new venue as part of the Café Model the KTP set out to establish as one route for income generation. The partnership with Oasis has been wide reaching across the University and there are more exciting projects planned.

We were also delighted to be awarded funding in early 2024 from Innovate UK to support the university's first AKT project in partnership with local manufacturing firm Foam Engineers. The overall objective was to help Foam Engineers to understand the technologies associated with Additive Manufacturing - namely 3D printing. This project was intended to contribute to guiding the business towards a decision about how these technologies could be adopted and incorporated into its existing manufacturing processes to support innovation, reduce environmental impact, and grow the business's productivity. Steve MacWhirter, the Managing Director of Foam Engineers, summarised their experience of the project:

"Foam Engineers greatly enjoyed this innovative AKTP relationship with BNU, as it says on the tin – advancing our knowledge and giving us inspiration to lead Foam Engineers in new and exciting directions, working with customers to incorporate techniques/solutions uncovered by the Associate and the BNU Team during the project."

Overall this AKT project has been an ideal platform to develop new knowledge and form a lasting relationship between BNU and Foam Engineers.

As we start the new 2024/25 academic year, BNU will look to grow its KTP portfolio, tapping into the fantastic industry connections already established across the university. With many exciting conversations already underway we look forward to sharing more about our KTP activity over the coming months.



BNU offers congratulations to the following students on the completion of their PhD studies:

- **Chai (Kief) Leung Ho**
The Impact of Non-Curriculum-Based Interventions on the Quality of Life (QOL) of Children and Young Persons with Special Educational Needs and Disabilities (Difficulties).
- **John Knight**
'It's Overwhelming, Looking at a Brief...': Exploring Non-Traditional First Year Students' Experience of Engaging With Assignment Briefs as Part of Summative Assessment Practices
- **Uchenna Nweke**
Effectiveness of Religious Legitimizing Agencies in Enhancing Accountability and Organisational Performance of Independent Churches in the Face of Rising Secularism and Public Scrutiny"

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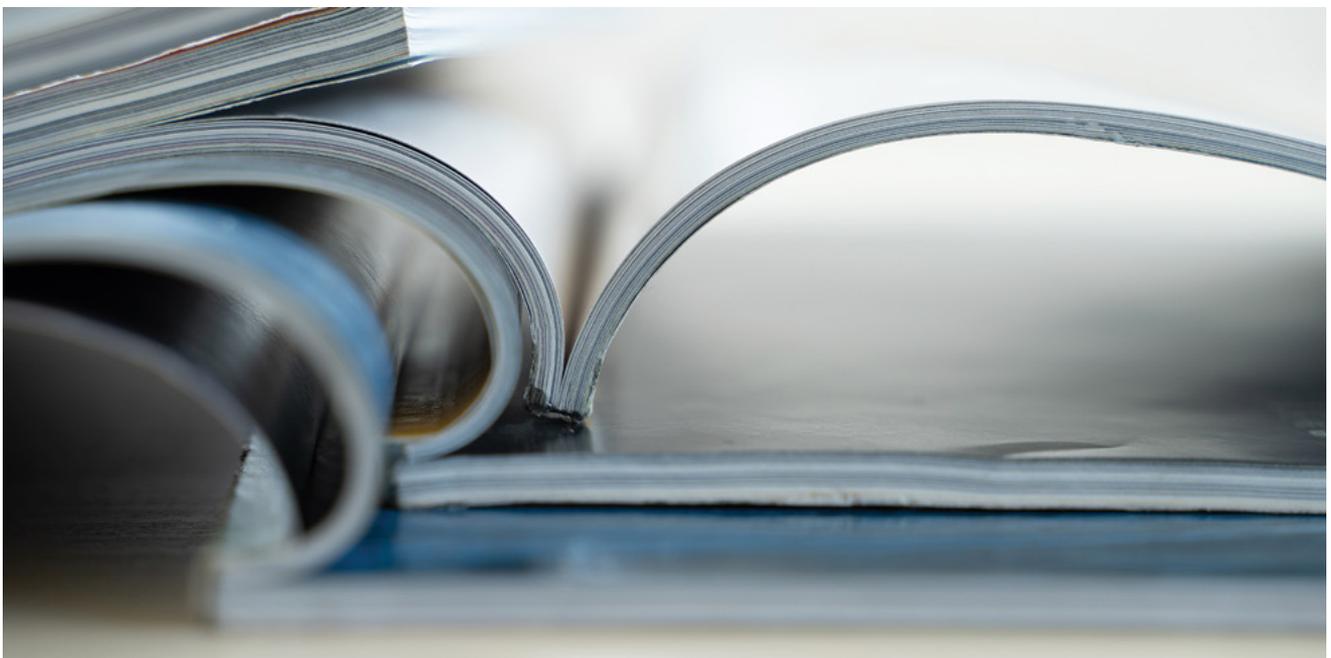
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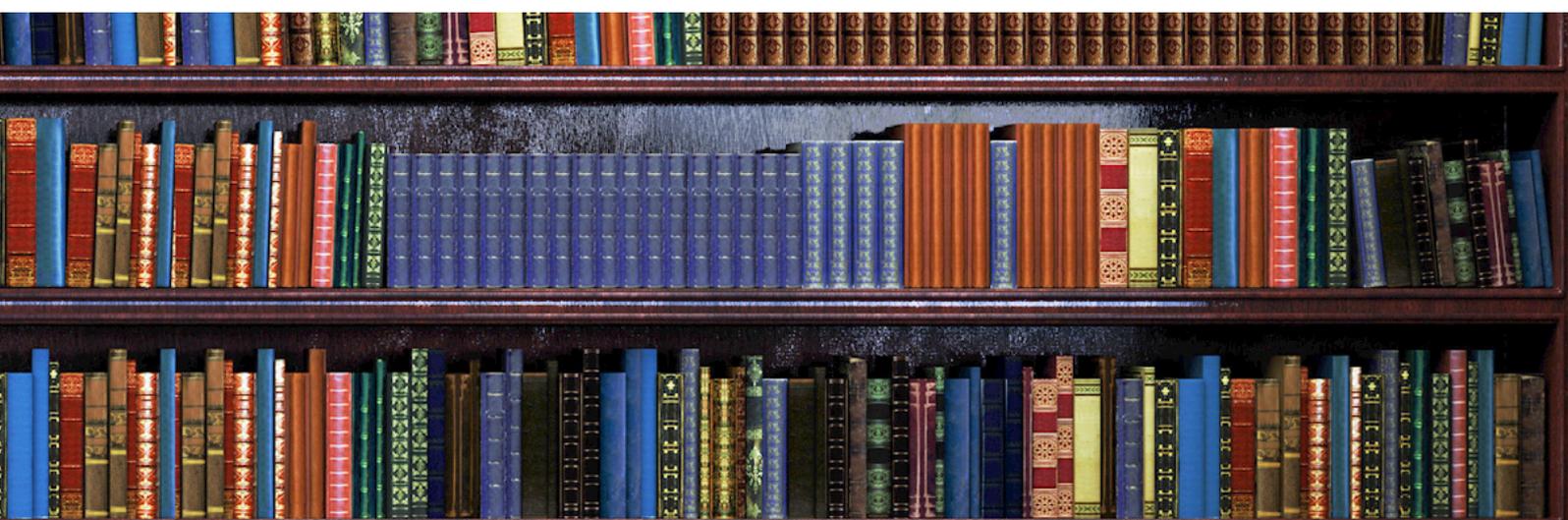
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Cover Image: Chris Sallans

(Senior Lecturer, School of Health and Social Care Professions)

The image relates to Chris's research (*An Exploration of the Lived Experience of Women with an Informal / Formal Diagnosis of ADHD Who Self-Medicare to Manage Symptoms and the Support and Services Available in South Buckinghamshire*) and for more information on this please visit [Social Care Today](#).

Images from the Research Conference provided by Georgia Deane and Hannah Deane.

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