



UNIVERSITY OF
LIVERPOOL

School of
Environmental
Sciences

POSTGRADUATE RESEARCH CONFERENCE 2024



THE ORIGINAL

REDBRICK

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Locations:

Day 1 - Jane Herdman Building, (Map Library & Lecture Theatre, 1st floor),
The Caledonia Pub (Pint of Research Social)

Day 2 - Hilton Liverpool City Centre (The Grace Suite)

Event link:

<https://www.liverpool.ac.uk/environmental-sciences/pgr-conference/>

Registration link:

Day 1 - <https://forms.gle/HYp5Ra2Dcs2DSsqUA>

Day 2 - <https://forms.gle/Pjbbq9JhThywTi7d8>

Voting link:

<https://forms.gle/VNK8ePRZbqR5BkwWA>

Zoom link to join virtually:

Join Zoom Meeting:

<https://liverpool-ac-uk.zoom.us/j/99988695348?pwd=cE03WUxYUldBTzNhaXY4dHZOUmd2QT09>

Welcome from PGR Director

We are happy to welcome you to our Annual PGR conference, an event that has been a milestone in our School since its creation. Previously, this conference was embedded in our PGR annual progression. Now, it is an event that brings us together, from different disciplines, to learn from each other and showcasing the exciting research undertaken across the school.



On behalf of the PGR committee and myself, I deeply thank the organising committee for their time, effort and creativity in managing our SoES PGR conference 2024. On the first day, Monday, we will welcome external speakers to explore life after a PhD, from an industry and academic perspective, as well as how to develop your work network and communicate your research. This will take place on campus. The second day, Tuesday, is dedicated to talks and posters, at a venue outside of our campus, the Hilton Hotel. To expand the reach of our PGR community, we have enabled remote access to the entire Day 1 program via Zoom link. This means that PGRs and academic staff can present and attend the program from wherever they are located.

Dr Fabienne Marret-Davies
SoES PGR director

Postgraduate Research Conference Organising Committee

- Cara Westerberg Mattu
- Akos Balog
- Trang Thu Nguyen
- Matthew Thompson
- Olivia Riley
- Christopher Russell
- Pavitra Kumar

PGR Committee

- Dr Fabienne Marret-Davies
- Prof Andy Biggin
- Prof Andy Morse
- Dr Chris Follett
- Dr Ruth Cheung Judge
- Prof Rich Dunning

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- Claire Rimmer
- Sean Doran

Management Services

- Lindsay Davies
- Rebecca Prescott
- Matthew Davies
- Jamie Hughes
- Alison Barkley

Postgraduate Research Conference Organising Committee 2024

Cara Westerberg Mattu

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Cara is a second-year PhD student in the Department of Geography and Planning. Her work focuses on the experiences and realities of Indigenous Maya youth and women in Belize, focusing specifically on their understandings of wellbeing, autonomy and what it means to live well derived from participatory action research frameworks. More broadly, her research interests span across global development themes, decolonizing methods and teaching practices, and community-led action. She also enjoys the Caribbean climate experienced during her research trips and being creative in her spare time.

Akos Balog

a.balog@liverpool.ac.uk

Akos is a second-year PhD student in the Geographic Data Science Laboratory at the University of Liverpool. His work focuses on agent-based modelling of retail centers in the Liverpool City Region. His PhD aims to understand the intricate functions and forms of retail centers across the region, particularly how they are recovering from the Covid-19 Pandemic. More broadly, his research interests span across mobility, transport, and retail as well as across a wide variety of quantitative research methods.

Trang Thu Nguyen

t.nguyen11@liverpool.ac.uk

Trang is a second-year PhD student in the Department of Geography and Planning. Her research focuses on social stratification on the imaginations, aspirations, and transnational experiences of Vietnamese international students in the UK and how they exercise their agency to navigate power dynamics. The study has the scope

to contribute to key theoretical debates across geography and other social sciences around the internationalisation, global politics and economics of higher education and the lived experiences of immigration politics for international students.

Matthew Thompson

mthomp95@liverpool.ac.uk

Matt is a second-year PhD student in the Geographic Data Science Lab at the University of Liverpool and a member of the GroundsWell Consortium. His research focuses on the role of green and blue spaces in enhancing community wellbeing and environmental health from a human health perspective. His initial project involved clustering the quality of green spaces in England into distinct defining groups. Matt aims to expand these into his second paper to identify which specific features of these quality indicators most effectively enhance mental health and wellbeing. His research interests expand further than geography with previous ecological experiences, promoting a multi-disciplinary aspect to his research.

Olivia Riley

sgorile2@liverpool.ac.uk

Olivia is a first-year PhD student in the Geographic Data Science Lab at the University of Liverpool. Her research focuses on risk communication during natural disaster events and the role that social media plays within a crisis. More specifically, social media's influence on risk communication before, during and after the 2021 volcanic eruption in the La Palma, located in the Canary Islands. Her PhD aims to navigate the intricacies of various risk communication styles, while assessing the effectiveness of social media in filling these gaps in communication.

Christopher Russellc.j.russell@liverpool.ac.uk

Christopher is a fourth-year PhD student and part of the Dual-PhD programme with National Tsing Hua University in Taiwan. He is part of the Geography and Planning Department here at Liverpool, where his research focuses on understanding the impacts of high-speed rail (HSR) on inter-regional development and industrial clusters. His research takes a particular interest on tacit knowledge flows and the mobility of knowledge carriers in enabling regional balancing and increasing innovation rates. Therefore, Christopher focuses on Taiwan and its HSR as a case study, which forms a western corridor connecting major cities and high-tech Science Parks, from the north to the south, to within a one-day working area. Results are aimed to provide insight for future HSR projects so that costly infrastructure plans can learn and benefit from the lessons of Taiwan.

Pavitra Kumarpavitra.kumar@liverpool.ac.uk

Pavitra Kumar is a Postdoctoral Research Associate in the Department of Geography and Planning. Kumar's research focuses on applying artificial intelligence (AI) to coastal dynamics to investigate uncertainties in coastal protection strategies. His research site is Morecambe Bay, UK, where he uses AI models trained on field and simulation data to monitor coastline changes and the effects of implementing coastal protection measures like the sand engine. Kumar is currently working on automating AI model development for public use. He is creating an online platform that allows individuals with minimal or no background in AI modelling to train their AI models for predicting desired coastal parameters. This platform also serves as a coastal data hub where the public can access existing data or contribute their own data.

CALL FOR VOLUNTEERS!

BECOME PART OF THE POSTGRADUATE CONFERENCE ORGANISATION COMMITTEE 2025

The PGR Conference would not be possible without the student organisation committee.

We need you to be involved in organising the event next year!
Please email envspgr@liverpool.ac.uk if you are interested.

This year's organisation committee can also be contacted if you have any question about what the role involves.

Speaker statements

Keynote 1

Dr Iacopo Carnacina

Dr Carnacina is a Reader in Water and Environmental Engineering at the School of Civil Engineering and Built Environment, having joined Liverpool John Moores University in 2017 as a Senior Lecturer. He teaches courses across various levels, focusing on water engineering, sustainable infrastructure, and river and basin management. Prior to this role, Dr Carnacina was a Lecturer and Researcher in River Engineering at UNESCO-IHE Institute for Water Education, within the department of Water Science and Engineering. Dr Carnacina earned his master's degree in Hydraulic, Transportation, and Territory Engineering from the University of Pisa, Italy, in 2006. He went on to complete his Ph.D. in Civil Engineering at the University of Pisa's "Leonardo da Vinci" doctorate school in 2010. His research interests include local erosion around hydraulic structures such as bridges, river training structures, and dams, as well as large-scale numerical flood models and flood protection strategies.

Keynote 2

Prof James Lea

Prof James Lea is a Professor in Glaciology and a UKRI Future Leaders Fellow in the Department of Geography and Planning at the University of Liverpool. He has previously served as a Lecturer/Senior Lecturer/Reader in Glaciology in the same department from 2015 to present. Prof Lea's expertise lies in investigating the dynamics of marine-terminating ice sheet margins and their role in past, present, and future sea level changes. He employs various methods in his research, including

remote sensing, numerical modelling, and fieldwork. Prior to his tenure at the University of Liverpool, Prof Lea worked as a Postdoctoral Researcher in Glaciology at Stockholm University, Sweden, in 2014–15. He earned his Ph.D. from the University of Aberdeen in 2014, where he specialized in glaciology. Additionally, Prof Lea holds an M.Sc. in Quaternary Science from Royal Holloway/UCL, completed in 2010. His broad-ranging interests encompass contemporary glacial processes as well as the reconstruction and simulation of former ice masses.

Panel Session 1 **(Industry Progression after PhD)**

Dr Katy R. Mahoney

Dr Katy R. Mahoney is the Director of Rodetal Ltd, a position she has held since 2016. She is also the Head of the Researcher Coaching Programme at Researcher Coaching, part of the Rodetal Ltd family, where she has served since 2017. Dr Mahoney is deeply passionate about the development of people, especially in the realm of academia and research. Her work focuses on delivering professional development training to researchers in universities worldwide, drawing on her extensive experience to understand effective training strategies. She earned her Ph.D. in Human Geography from Coventry University in 2006 and her BA (Hons) in Human Geography from the same university in 2003. With her expertise and commitment to enhancing the training and development of researchers, Dr Mahoney has made significant contributions to the academic community.

Dr Elizabeth Adams

Dr Elizabeth Adams is a coach, consultant,

and facilitator at Scafell Coaching, where she has been working since 2021. In this role, she has collaborated with individuals and teams from a variety of sectors, including higher education, the third sector, and private companies ranging from microbusinesses to multinational corporations. Her coaching expertise encompasses a range of topics such as leadership, career development, networking skills, work-life balance, collaboration, and workplace relationships. Dr Elizabeth served as the Researcher Development Manager at the University of Glasgow from 2008 to 2021, where she played a key role in supporting and training researchers. She earned her Ph.D. in Molecularly Imprinted Polymers from the University of Strathclyde in 2006 and completed her MSci in Biomolecular and Medicinal Chemistry from the same university in 2003. Elizabeth's dedication to mentoring and developing people has made her a valuable resource for professionals across a range of industries.

Meghan Grant

Meghan Grant is currently a 2nd year PhD researcher at the University of Liverpool. Her project titled 'Fatness and the Urban Environment' explores fat experience through the lenses of racism, class, and health. Her aim is to understand the way fatphobia, racism and classism intersect with the way that cities function in a UK context. Meghan graduated in sociology from the University of Leicester in 2013 and was awarded a Masters in Social and Public Policy from the University of Leeds in 2016. Prior to her PhD beginnings, she was a Policy and Research Officer in the Involvement and Participation Association, and a Regeneration Researcher for Brent Council. Currently, alongside her PhD studies, she co-hosts 'Bending Boundaries',

a podcast about equality and diversity within PhDs.

Dr Thea Wingfield

Dr Thea Wingfield is a Senior Advisor at the Environment Agency, where she works on applying systems thinking, participatory and transdisciplinary methods to water monitoring strategy and commissioning. Before completing her PhD in 2020, she worked at the Environment Agency as a Hydrologist and Water Resources Planner. She was then pulled back into academia and completed her PhD at the University of Liverpool, undertaking research which focused on investigating the barriers and enablers of using nature-based solutions or natural flood management. She has extensive international research experience in Uganda, Laos PDR, the Amazon, Peru, Lancashire and North Yorkshire. Her current role has her involved in the '25 year Environment Plan', which shares a vision for the environment to be 'mapped and managed more as a system', echoing a growing consensus that systems thinking is required to handle the complexity of interlinked environment and social problems faced worldwide.

Panel Session 2 (Academic Progression after PhD)

Dr Fabien Cante

Dr Fabien Cante is a Lecturer in Urban and Development Geography at University College London (UCL). His research focuses on how marginalized residents influence urban spaces across Africa, Europe, and the Americas. He is particularly interested in the intersection of peace and conflict on the urban periphery, technologies of urban life, and the cities of the Black Atlantic. Dr Cante earned his Ph.D. from The London

School of Economics and Political Science (LSE) in 2017, and he holds an MSc in Urban Studies/Affairs from UCL, completed in 2013. Dr Cante is committed to amplifying knowledge generated through everyday experiences on the global urban margins, particularly for the insights it offers into potential alternative futures. Dr Cante's expertise and research contribute significantly to the field of urban and development geography.

Dr Patrick Ballantyne

Dr Patrick Ballantyne is a Postdoctoral Research Associate in Geographic Data Science, working with Prof Alex Singleton. Patrick's research sits at the bridge between the computational and social sciences, with research interests in Retail Geography and Social and Spatial Inequalities. In particular, Patrick is passionate about developing tools and research which foster equality in the city, with a strong emphasis on ensuring all communities have equitable accessibility to everyday services and amenities, fostering more economically and environmentally sustainable retail spaces so that everyone has access to a vibrant space of consumption, and the use of Spatial Data Science techniques and methodologies for delivering such objectives.

Prof Levi Gahman

Prof Levi Gahman is a Professor of Emancipatory Politics and Environmental Conflict in the Department of Geography and Planning at the University of Liverpool. His career began in the Caribbean and Central America, where he spent half a decade focusing on international development, political geography, and participatory methods. His work is centered around collaborating with grassroots movements and frontline organizers who are defending land, dignity,

and self-determination in the face of structural violence, state abandonment, environmental conflict, and the lasting effects of empire. His written work also touches on topics such as settler colonialism, masculinity, gun culture, and deaths of despair in the United States. He holds a Ph.D. in Interdisciplinary Studies, an MA (Distinction), a BA (Honors), and a BSc degree. Additionally, he is a Fellow of the Higher Education Academy (FHEA), highlighting his commitment to teaching and academic excellence.

Dr Sutapa Chattopadhyay

Dr Sutapa Chattopadhyay is a geographer currently serving as an Assistant Professor at St. Francis Xavier University in the departments of Women's and Gender Studies and Development Studies. Her research interests encompass migrations, sexuality-precarity-illegality, development politics, movements, political ecology, and indigeneity. Dr Chattopadhyay conducts research on topics such as migrant incarceration, borders, and autonomy in Rome, as well as indigenous food sovereignty issues in Andhra Pradesh. Prior to her current role, Dr Chattopadhyay was an Assistant Professor in the Department of Geography at the University of Minnesota Duluth, United States, from 2006 to 2010. Through her interdisciplinary approach, Dr. Chattopadhyay provides valuable insights into the intersections of geography, development, and social justice.

Dr Connor Shiggins

Dr Connor Shiggins is a Postdoctoral Research Associate in Glaciology in the Department of Geography and Planning at the University of Liverpool. His research focuses on remote sensing and laboratory experiments to gain a deeper understanding of the ice dynamics in the polar regions. Dr Shiggins completed his Ph.D. in Glaciology at the University

of Liverpool in 2023, where his work utilized cloud computing and digital elevation models to automatically identify icebergs at the margins of the Greenland Ice Sheet. Before earning his Ph.D., Dr Shiggins obtained his Master of Science in Geography from Keele University in 2019. His research is distinguished by

its innovative approach to leveraging technology to study ice dynamics, contributing to the understanding of polar regions and their impact on global systems. Dr Shiggins' expertise and dedication to advancing glaciology make him a valuable asset to the scientific community.



DAY ONE – 13 May, Jane Herdman Building / The Calendonia

10:30 – 10:50 COFFEE, BREAKFAST AND REGISTRATION (20 minutes)	
10:50 – 11:00 WELCOME AND INTRODUCTION (10 minutes)	
11:00 – 11:30 KEYNOTE 1: Networking throughout your PhD	
Dr Iacopo Carnacina – Reader in Water and Environmental Engineering, School of Civil Engineering and Built Environment, Liverpool John Moores University	
11:30 – 12:30 PANEL SESSION 1: Industry Progression after your PhD	
Chaired by: Pavitra Kumar – Department of Geography & Planning	1h
Dr Elizabeth Adams (ONLINE) Coach, Consultant, and Facilitator at Scafell Coaching	
Dr Katy R. Mahoney (ONLINE) Head of Researcher Coaching Programme, Rodetal Ltd.	
Meghan Grant PhD Researcher, University of Liverpool	
Dr Thea Wingfield Senior Advisor, Environment Agency	
12:30 – 13:30 Lunch break (1 hour)	
13:30 – 14:35 PANEL SESSION 2 (Academic Progression after your PhD)	
Chaired by: Olivia Riley – Department of Geography & Planning	1h 5m
Prof Levi Gahman Professor of Emancipatory Politics & Environmental Conflict, University of Liverpool	
Dr Sutapa Chattopadhyay Assistant Professor at St. Francis Xavier University, Canada	
Dr Patrick Ballantyne Postdoc in Geographic Data Science, University of Liverpool	
Dr Fabien Cante (ONLINE) Lecturer in Urban and Development Geography at UCL	
Dr Connor Shiggins Postdoc in Glaciology, University of Liverpool	
14:35 – 14:50 Coffee break (15 minutes)	

14:50 – 15:20 STUDENT LED ENGAGEMENT ACTIVITY

15:20 – 15:50 KEYNOTE 2: Public Speaking and Presenting Research

Prof James Lea – Professor in Glaciology, UKRI Future Leaders Fellow,
Department of Geography and Planning, University of Liverpool

15:50 – 16:00 CLOSING REMARKS

16:00 – 16:40 Pizza (40 minutes and then head to The Caledonia)

17:00 – 19:00 PINT OF RESEARCH SOCIAL – The Caledonia

Ron Mahabir

Lecturer in Geographic Data Science, University of Liverpool

Peter North

Professor of Alternative Economies, University of Liverpool

The PGR Conference Committee Presents:

PINT OF RESEARCH

Thirsty for Knowledge?
Join Us for a Science Sip!



13TH MAY 2024 @ 5PM

The Caledonia Pub
22 Caledonia St, Liverpool L7 7DX

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DAY TWO – 14 May, Hilton Liverpool City Centre (The Grace Suite)

09:00 – 09:10 WELCOME FROM PROF DOUG MAIR (Dean)	
09:10 – 10:45 SESSION ONE	
Chaired by: Christopher Russell - Department of Geography & Planning	1h 35m
09:10 – 09:50 Third Year talks (40 minutes)	
09:10 – 09:20	Chiedozie Collins Ogbuagu (Earth Sciences)
09:20 – 09:30	David Bareham (Human Geography)
09:30 – 09:40	Yu Zeng (Environmental Science)
09:40 – 09:50	Chloe Gray (Physical Geography)
09:50 – 10:05 First Year talks (15 minutes)	
09:50 – 09:55	Alexander Petrov (Planning)
09:55 – 10:00	Alice Varley (Human Geography)
10:00 – 10:05	Ambrosine Clark (Marine Biology)
10:05 – 10:45 Third Year talks (40 minutes)	
10:05 – 10:15	Dawid Rybak (Volcanology)
10:15 – 10:25	Dina-Leigh Simons (Ocean Sciences)
10:25 – 10:35	Farida Khuril Maula (Planning)
10:35 – 10:45	Claudia Akolam (Environmental Science)
10:45 – 11:10 Coffee break (25 minutes)	

11:10 – 12:10 SESSION TWO	
Chaired by: James Murphy – Department of Geography & Planning	1h
11:10 – 11:35 First Year talks (25 minutes)	
11:10 – 11:15	Chang Luo (Earth Sciences)
11:15 – 11:20	Chengwang Wang (Earth Sciences)
11:20 – 11:25	Rodgers Iradukunda (Human Geography)
11:25 – 11:30	Xuefeng Wang (Planning, ONLINE)
11:30 – 11:35	Che Wilks (Human Geography)
11:35 – 12:05 Third Year talks (30 minutes)	
11:35 – 11:45	Hafi Munirwan (Planning)
11:45 – 11:55	Matthew Howard (Human Geography)
11:55 – 12:05	Lyuboslav Petrov (Human Geography)
12:05 – 13:05 Poster Session (~15 posters – 1 hour)	
13:05 – 14:00 Lunch and networking (55 minutes)	

14:00 – 15:20 SESSION THREE	
Chaired by: Pavitra Kumar – Department of Geography & Planning	1h 20m
14:00 – 14:40 Third Year talks (40 minutes)	
14:00 – 14:10	Jade Hrintchuk (Earth Sciences)
14:10 – 14:20	Haojia Wang (Environmental Sciences)
14:20 – 14:30	Huxuan Dai (Environmental Science)
14:30 – 14:40	Freddie McKendrick (Ecology)
14:40 – 15:00 First Year talks (20 minutes)	
14:40 – 14:45	Yuxuan Ou (Planning)
14:45 – 14:50	Taran Leeks (Cultural Geography)
14:50 – 14:55	Robert Clarke (Earth Sciences)
14:55 – 15:00	Olivia Riley (Human Geography)
15:00 – 15:20 First Year talks (20 minutes)	
15:00 – 15:05	Laura Baugh (Earth Sciences)
15:05 – 15:10	Jonny Timperley (Ecology)
15:10 – 15:15	Jonathon McEvoy (Geology)
15:15 – 15:20	Jiewen Li (Planning)
15:20 – 15:40 Coffee break (20 minutes)	

15:40 – 16:20 SESSION FOUR	
Chaired by: Akos Balog – Department of Geography & Planning	40m
15:40 – 16:00 First Year talks (20 minutes)	
15:40 – 15:45	Domino Jones (Earth Sciences)
15:45 – 15:50	Emilia Sindila (Earth Sciences)
15:50 – 15:55	Musarrat Zaman (Planning)
15:55 – 16:00	Lilly Crellin (Human Geography)
16:00 – 16:20 First Year & Third Year talks (40 minutes)	
16:00 – 16:05	Jamie Hartup (Ecology)
16:05 – 16:10	George White (Glaciology)
16:10 – 16:20	Mohammad Meidiansyah (Planning)
16:20 – 16:40 Coffee break and tallying votes (20 minutes)	
16:40 – 17:00 Close and prizes/awards (20 minutes)	

Alexander Petrov

The influence of city planning policies on the effectiveness of historic brownfield sites regeneration processes in UK cities with developed real estate markets: a qualitative investigation

The industrial past of many big cities is reflected through an impressive amount of land occupied by former factories. Thus, the industrial heritage and urban regeneration topic have been the focus of much policymaker and academic attention over recent decades.

The research aims to determine whether and to what extent former industrial areas' regeneration policies influence businesses that conduct regeneration projects and with which impact on local residents, city economies and sustainability. This project seeks to improve the quality of collaboration between private and public sectors in the process of historic industrial brownfield regeneration through the planning policies' effectiveness. This is supported by the main research questions: How does the public sector impact the regeneration of historic industrial brownfields led by the private sector? Can this impact be tailored to better meet the needs of the private sector? What are these needs? Is such an adjustment feasible or advisable?

Alice Varley

Understanding social and spatial inequalities in common mental health disorders

The UK faces significant challenges with common mental health disorders, including anxiety, depression, and post-traumatic stress disorder (PTSD), affecting 1 in 4 people annually, and 1 in 6 people weekly in England. These are distributed unevenly in different areas and populations, with more deprived areas shouldering poorer mental health. The life expectancy for those accessing mental health services in the Liverpool city region is around 20 years lower than the UK average. This project aims to use routinely collected patient-level health records for Cheshire and Merseyside to examine the determinants of mental health disorders, looking at demographic and socioeconomic factors as well as geographical variation, uncovering patterns beyond deprivation. It will also compare the levels of mental health need with service provision and access across different neighbourhoods, with the aim to identify and suggest additional evidence-based interventions tailored to the area and population.

Ambrosine Clark***Establishing methodologies for testing the sensitivity of marine invertebrates to substrate-borne vibrations***

Natural vibrations are used by animals to communicate, to sense predators, detect prey, forage and reproduce. Vibrational communication assists both invertebrates and vertebrates to retrieve information from their surrounding environment. However, anthropogenic activities that are in direct contact with the seabed (such as pile-driving and mining) produce both sound in the water column and vibrations in the seabed. Exposure to vibrational noise has the potential to harm bottom-dwelling species in a similar way to water borne noise, potentially eliciting behavioural or physiological changes, or even causing physical damage. Research regarding substrate vibrations and marine invertebrates is in its infancy, with the vibrational sensitivities of most marine species relatively unknown; there is therefore a pressing need to understand the use of vibrations, since their usage defines how animals interact with their environment, as well as how human activity might interfere with natural biological processes. Here, we outline our project plan which will utilise different experimental setups to investigate the sensitivities of marine invertebrates to substrate-borne vibration. Preliminary studies will be done under controlled laboratory conditions to compare vibrational sensitivities, between and within taxa, through repeatable and reproducible methodologies. Overall, we aim to understand the effects of vibrational noise on key marine invertebrates and highlight the need for a shift in underwater noise research, to recognise vibrational noise in addition to water-borne sound.

Andrea Nasuto***Understanding Immigration Sentiment on Online Social Media: A Multifaceted Approach***

In an era of global connectivity, social media platforms serve as dynamic arenas where immigration sentiment proliferates and shapes societal discourse. My doctoral research employs a multifaceted methodology to delve into the intricate landscape of online immigration sentiment. Initially, it scrutinizes patterns of sentiment polarization, identifies key content sources, evaluates the speed of anti- and pro-immigration content dissemination, and dissects the influence of automated bots in information diffusion. Subsequently, leveraging geo-located data embedded within social media, this research explores the spatial and temporal dynamics of immigration sentiment at a granular spatial global scale. Lastly, the research delves into the drivers of anti- and pro-immigration sentiment, examining socio-economic factors, social capital, and mobility patterns across diverse geographical contexts. Through this comprehensive approach, we aim to enrich our understanding of contemporary immigration discourse and its societal underpinnings.

Andrew K Palmer***In and out of place: Diverse experiences of perceived exclusion in UK greenspace settings***

Green spaces offer significant health and wellbeing benefits for people from all walks of life. However, research suggests that some individuals, particularly those from ethnic minorities, experience barriers to access including perceived exclusion, which involved direct and indirect exclusionary practices and perceptions of otherness. In a study conducted in Bristol UK, we explored these experiences through interviews, diary methods, and thematic analysis with fifty-three people from ethnic minority backgrounds. The findings reveal a spectrum of perceptions and experiences within greenspaces. Some participants feel comfortable and at ease, while others experienced discrimination and exclusion which was associated with the identity and individual characteristics and context. Additionally, we found that some individuals demonstrated a sense of empowerment and continued to shape their own nature encounters. We analyse these findings and offer recommendations for future policy and research, drawing on Bourdieusian ideas of practice to provide a dynamic and nuanced perspective of the issues at hand.

Bayan Shabeeb***Environmental impact assessment and management of produced water in the southern Iraqi oil fields***

Produced water from oil and gas extraction is one of the largest waste products in the world. It consists of a multifaceted mixture of hydrocarbons, salts and other pollutants. Discharges of produced water into the environment can significantly impact soils, waters (surface and ground), air, health and ecosystems. Therefore, water management in an environmentally sustainable manner is essential. The oil fields in southern Iraq are among the most significant in the world because of their vast reserves. These fields produce a large amount of water from oil and gas extraction processes. This PhD research study aims to identify international best practices for dealing with water generated in oil production in an environmentally sustainable manner, focusing on the environmental impact assessments (EIAs) that were produced in the permitting process. The key aim is to explore how water produced in oil fields is taken into account in EIA (and underlying planning applications) of oil extraction activities. Another objective is to critically review Iraqi practices in the light of international best practices. Furthermore, EIA requirements are evaluated for the oil industry in Iraq based on best practice criteria. The research approach is qualitative and involves document reviews, case studies, photographs, site visits, and semi-structured interviews.

Bjoern Matthies***Assessing the resilience of ants in African savannas to changes in mammalian herbivory***

Mammalian herbivory is considered a key consumer shaping African savannas. However, too much herbivory (e.g. large numbers of livestock) or too little herbivory (excluding wild herbivores) can lead to degradation, creating either vegetation communities with low grass basal cover or causing increases in woody cover and loss of grass layer via shading. The response of savanna vegetation to herbivory composition varies greatly between different soil types and vegetation.

Changes in composition of mammalian herbivores results in direct effects on savanna vegetation, but furthermore has indirect effects on the fauna. Impacts of mammalian herbivory on terrestrial invertebrates in savannas remain understudied, but recent studies suggest that impacts vary broadly between different invertebrate taxa.

Ants are a prominent invertebrate group to assess ecological change in response to disturbance, and general patterns of ant response to grazing have been identified in recent years. However, how different large mammalian herbivore's structure ant communities in herbivory-adapted savannas remains unknown.

Bram Setyadji***Unraveling the conundrum of Indonesian tuna fisheries: Can reflecting on the past illuminate a brighter future?***

Indonesia has a long history of commercial tuna fishing. However, systematic fisheries data collection only started in 1950, with subsequent methodological revisions in 1975 and 2017. These changes in methodology could lead to uncertainty in scientific advice, such as stock status and sustainable harvesting level. Changes in fishing technology such as the introduction of industrial longlines and fish aggregating devices might increase the catchability of tunas. Thus, we studied the effect of data collection systems, year, and fishing technology on catch-per-unit-of-effort of tuna and tuna-like species in western/southern Indonesia over the last seven decades. Catch-per-unit-effort has declined substantially since the 1950s. Imminent actions are required to prevent stock collapse.

Cara Westerberg Mattu

Indigenous Governance versus the Westminster-modelled State: Exploring the Joys, Pains and Dreams of Maya Youth and Women

Despite decades of continued colonial power structures, marginalization, and state negligence, the Maya people of Belize have demonstrated their resilience to these negative structures attempt at disempowerment. At the same time, their health, wellbeing, and livelihoods are constantly being undermined by processes of land dispossession and exploitative development. My PhD research involves an interdisciplinary exploration of Maya-defined concepts of wellbeing and autonomy, in contrast to predominantly Western discourses found to dominate contemporary research and policy. In exploring these concepts, the impacts of state governance and exploitative processes will be uncovered, with a specific focus on the realities of youth and women. This project has employed a methodology co-constructed with Maya Indigenous peoples and uses creative participatory methods and interviews as a way to centre Maya perspectives on issues of wellbeing, autonomy and what it means to live well as Maya people.

Chang Luo

The role of SEZs management and development institutions in the legitimation and coupling process of regional industries

The regional industrial development has been a hot research field for many years, various scholars have tried to examine and analyze this topic from heterogeneous perspectives, where two trends of literature emerged, which are based on global production network (GPN) theory and evolutionary economic geography (EEG) separately. Albeit these two parallel kinds of literature examine regional industrial development through various lenses (global & endogenous), the role of institutions has been emphasized in both trends. In the flourishing content about this topic, studies on special economic zones (SEZs) are relatively rare, otherwise. Against that backdrop, this research explores the role of the management and development institutions of Suzhou Industrial Park (SIP) in its coupling and legitimation process. The following research questions will be answered in this research. How is the coupling and legitimation of SIP expressed by management and development institutions? What kind of impacts have been produced by management and development institutions since the cooperating characteristics of SIP? These questions will be addressed by conducting several qualitative semi-structured interviews with respondents from four key stakeholder groups: management institutions, development institutions, heterogeneous level states, and firms in SIP. This research would facilitate the combination of EEG and GPN theory in the regional industrial development field, on the one hand, and expand the boundary of existing relative studies, on the other.

(Che) Vyacheslav Wilks***Pet Ownership and Health***

The vast amount of textual data within veterinary health records holds immense potential for improving animal healthcare. Classical machine learning approaches, while effective, often struggle with the inherent complexities of veterinary language and the ever-evolving nature of medical terminology. This research proposes investigating the application of LLMs to automate information extraction and analysis from veterinary health records. The LLM's ability to identify key clinical entities (diagnoses, medications, procedures) and relationships between them will be evaluated. This research aims to assess the feasibility and effectiveness of LLMs in extracting structured information from veterinary health records.

The findings hold the potential to significantly advance the field of veterinary informatics. By establishing the efficacy of LLM-powered tools for automated disease surveillance, treatment pattern analysis, and ultimately, data-driven clinical decision-making, this research could pave the way for substantial improvements in animal healthcare delivery.

Chengwang Wang***The impact of the colloid on the marine iron cycle***

As iron regulates marine primary productivity and nitrogen fixation, it is critical to the ocean carbon cycle. In the contemporary oxygenated ocean, iron oxidation precipitates small iron colloids (CFe) that comprise >50% of the dissolved Fe (DFe) pool, commonly considered bioavailable to phytoplankton. CFe may aggregate with organic carbon via the colloidal shunt to form authigenic mineral particles Fe that regulate the DFe distribution. The goal of this thesis is to improve our understanding of the role of colloids in the ocean iron cycle using observations and modelling. Field data from three voyages to the North Pacific will be synthesised with model experiments to assess unexpected interannual changes in the interior iron cycling through dissolved and colloidal phases. Our modelling framework will then be extended to improve the representation of CFe cycling and the interactions with organic carbon to elucidate the governing mechanisms and their sensitivity to global environmental change.

Chiedozie Collins Ogbuagu

Numerical model on the cooling rate of pyroclasts within a volcanic jet

Explosive volcanic eruptions pose a threat to nearby populations and infrastructure. Erupted pyroclasts (i.e., molten droplets) can travel large distances from the eruptive vent to cause a range of hazards. In order to mitigate these hazards from explosive eruptions, there is an increasing need to improve our understanding of the transport dynamics of pyroclasts. In this study, we developed and coupled transport and transient cooling models that account for the instantaneous, in-flight, cooling rates of pyroclasts of different sizes, launch angles and exit velocities. The transport model developed solves equations for a translating spherical body in two-dimensional (2-D) space with the 4th order Runge-Kutta method; the Implicit Finite Difference method was adopted to model cooling by solving the Fourier heat equation for spherical bodies in one dimension. The two models were coupled using a relationship between Nusselt-Reynolds-Prandtl numbers. This relationship provided a range of criteria for estimating the heat transfer coefficient, based on ambient flow conditions, around the pyroclast, at different times during the particle's transport. Our model can describe the trajectory, range and possible textural outcomes of ejected pyroclasts in-flight and upon landing. It can be used to both predict the pyroclast types at set distances from the vent and forensically determine eruptive conditions from deposits of past eruptions.

Chloe Gray

Using a network of low-cost sensors to identify the primary sources of particulate matter pollution in Liverpool and track their dispersion through the city

Particulate matter (PM) in the atmosphere poses significant risks to both humans and the environment, necessitating high quality monitoring systems. However, regulatory-grade monitors, used in government monitoring networks, are cost-prohibitive, resulting in PM being monitored at low spatial resolution. Attempting to address this need for high spatial resolution in PM monitoring is the field of low-cost sensors (LCS) which has experienced large growth in recent years because of the mounting evidence of their ability to offer a feasible solution. LCS can be used to augment existing networks, by filling in the gaps between government monitors, or to establish monitoring systems in areas lacking regulatory-grade equipment due to financial constraints.

LCS data can however be used beyond quantifying PM concentrations, and a small number of studies have demonstrated that LCS data have the capability to be used in source apportionment, which identifies and quantifies individual pollution profiles from ambient air measurements. The studies mentioned focused on single locations or small networks, but this PhD aims to extend that research to investigate whether using a large network of LCS (> 30 sensors) in Liverpool, an area typically understudied regarding PM pollution, can help to distinguish between different PM sources in different locations within the city, and to track the dispersion of these sources within an urban environment.

This presentation will outline the methodology used for fingerprinting PM sources in Liverpool using LCS, highlight the PM sources and particles that have been identified so far and discuss the subsequent stages of the project.

Claudia Akolam***Women Empowerment and Environmental Impact Assessment in Ghana***

Gold mining in Ghana dates to the colonial era when Ghana was called Gold Coast due to huge gold deposits found in the country. Even though gold mining has been of significant economic benefit to the country, it has also caused serious environmental challenges.

Environmental Impact Assessment (EIA) is crucial for examining the possible impacts of proposed projects and it is one of the measures adopted by Ghana to manage the environmental impacts of mining. Women in Ghana are often more affected by environmental changes because of cultural practices that makes them unable to contribute effectively to discussions relating to land and decision-making. It is important to consider women's perspectives in EIA for ensuring their interests and rights protection. Hence, this research argues that considering women's perspective in EIA in the gold mining sector is relevant to ensure a gender inclusive EIA that meets the needs of all affected persons.

David Bareham***Predicting decisions of the European Patent Office's Boards of Appeal using Machine Learning***

This research assesses the feasibility of applying machine learning (ML) methods to the problem of case outcome prediction for appeals from the European Patent Office's (EPO) Boards of Appeal, concerning the grant of a patent application. The task is conceptualised as binary classification in which an appeal can affirm or reverse the prior judgement. Using a range of ML classifiers and textual representations, two experiments were conducted on appeal cases from both the Examining and Opposition Divisions of the EPO. The first experiment uses randomly-sampled data and the second uses year-stratified data, to perform prediction. The results demonstrate the viability of applying ML techniques to predict the outcome of appeals concerning the patent grant procedure, and help to identify patents as a promising legal domain for future research. Furthermore, explainability analysis conducted with SHAP helps to identify a direction for future work concerning more robust explainability.

Dawid T. Rybak***Synchronous intrusion of magma driven fractures: experimental simulation***

Magma drive fracture (dykes) swarms are commonly observed in exposed outcrops of shallow volcanic plumbing systems. A key question is whether their formation is solely a consequence of sequential propagation. If synchronous propagation of multiple dykes under certain conditions is favourable (Bunger, 2013; Jin & Johnson, 2008), can their propagation be detected in nature and observed in outcrops?

We simulate synchronous intrusion and propagation of two dykes by conducting a series of scaled analogue experiments. Two near-parallel dykes are synchronously intruded at varying spacings by injecting water (magma analogue) from a single reservoir into an elastic gelatine solid (crust analogue). Here we employ digital image correlation processing technique to compute evolving incremental strain from tracking the movement of particles seeded in our crustal analogue.

The observed experimental dyke geometries and variations in ascent velocity could be used as initial, qualitative indicators for possible physical interaction between synchronously propagating dykes.

Dina-Leigh Simons***Assessing rocky intertidal biodiversity in light of climate change using eDNA metabarcoding***

Climate change is affecting marine ecosystems by changing organism fitness and altering species distributional ranges. Intertidal species play an integral role in shaping marine communities, but are highly sensitive to ocean warming. Sustained visual monitoring can quantify changes in intertidal communities, however, possess inherent limitations which can reduce monitoring accuracy. Environmental DNA (eDNA) methods have shown to increase the resolution and scope of biodiversity monitoring across numerous environments, although little work has been completed in the intertidal. By conducting UK-wide sampling, this project applies eDNA metabarcoding alongside visual surveys to assess changes in intertidal biodiversity in light of climate change. The project will address the need to understand the ecological dynamics of climate change impacts to identify management interventions that may assist biosphere resilience to climate change. I will present an overview of the project progress to-date, including current hypotheses, sampling headway, and results from completed work.

Domino Jones

Greenlandic tidewater glacier response to long-term climate change

This project models the advance and retreat of a large, fast-flowing tidewater glacier in southwest Greenland. As long-term perspectives of glacier behaviors inform recent observations and improve knowledge of how future ice sheet retreat will contribute to sea level rise, this model will run over the last 1000 years and forecast sensitivity to future climate change for the next 200 years. This project uses the Ice-sheet and Sea-level System Model (ISSM) to run an ensemble of models calibrated and validated against the well-constrained record of past glacier behaviors. The project will obtain tuned parameter sets that satisfy model performance objectives and investigate sensitivity of parameterisations for basal drag, mass-balance, and calving relationships. Another goal of this project is to transfer optimal model ensemble to other key tidewater glaciers in Greenland. This will contribute to efforts to better understand ice sheet stability.

Emilia Sindila

Using Artificial Intelligence to predict the impacts of climate change on renewable energy power outputs in the United Kingdom

Renewable energy sources are crucial in combating climate change by reducing greenhouse gas emissions from fossil fuels. The United Kingdom (UK) has significantly increased renewable energy's share in electricity generation, aiming for net zero emissions by 2050. Despite this progress, limited research has addressed how climate change affects renewable energy production, particularly in the UK.

This research uses artificial intelligence (AI) to investigate the impacts of climate change on wind, solar, and hydroelectric power generation. The objectives include identifying the effects of recent and future climate predictions on the weather drivers of those three renewable energy sources.

The research is empirical, to examine the effects of climate change on renewable resources. Datasets from ERA5 and CMIP6 will be used. AI will be incorporated to predict the future energy supply for the different renewable energy types and determine how the renewable energy supply could change under different climate change scenarios.

Farida Khuril Maula

Unpacking Community Participation in Slum Resettlement Projects in Indonesia

Many local governments in the Global South are aiming to improve the condition of slums through slum resettlement projects. Although previous research shows that resettlement project has a potential impoverishment risk, but the participation of the community can reduce this risk. It is believed that community participation contributes greatly to the success of resettlement projects. However, not all community participation guarantees a successful public influence on project outcome, because many cases of community participation remain controlled by the government and this government unable to respond to initiatives within the community itself. Government officials holds power to decide which stakeholders are invited to participate and set the rules during the process. This participatory process might strengthen support for policy decisions, but it would not strengthen the legitimacy of those choices as the stakeholders participated in the process are usually predetermined and some are not representative of the community. Under this pressure, civic initiatives and self-governance emerged as a new concept for the community participation. The organising process of civic initiatives and self-governance is characterised by some sort of coordination among the participants to arrange and manage their activities and interaction with one another. In this case, the community has a higher control on how they can participate and contribute to the development. Community has better position to negotiate with the involved agencies related to their opinion on the resettlement project. Research on the emergence of civic initiatives and self-governance in the slum resettlement project is still limited, particularly in countries located in the Global South. Understanding the emergence of civic initiatives and the process of self-governance

in the slum resettlement projects is important to recognise the initiatives that emerges from the community itself.

Thus, this research aims to explore civic initiatives and self-governance in slum resettlement project and how the local government in two different approaches (bottom-up and top-down approaches) of slum resettlement projects embrace (or response) these initiatives to accomplish positive impacts for the society. Several objectives were formulated as follow:

1. Outlining government policies and strategies related to slum resettlements in the national and local context
2. Critically compare the rise of civic initiatives and the characteristics of self-governance in the two case studies
3. Exploring how citizen's motivation affecting the rise of self-governance and decision-making process
4. Formulating recommendation on how to embrace civic initiatives and self-governance on the slum resettlement project.

Freddie Mckendrick***Seasonal variation in nutritional state and its consequences for individual fitness***

The maintenance of homeostasis is a key process in living organisms that has important consequences for an individual's ability to survive and reproduce. Quantifying when homeostatic imbalance occurs is crucial therefore in highlighting sensitive periods for individuals but provides logistical issues when species are unobservable for large portions of the year. Here, we utilise feather corticosterone in black-legged kittiwakes to observe changes in energetic balance throughout the year and its consequences for reproduction and survival. Individuals showed greatest concentrations of feather corticosterone, indicative of poor nutritional state and failure to maintain homeostasis, during the middle of the non-breeding season but this did not influence fitness. In contrast, high feather corticosterone during the breeding and pre-breeding season was negatively correlated with reproductive success and return rates to the colony respectively. Understanding intrinsic and extrinsic drivers of variation in feather corticosterone during these sensitive periods is therefore crucial for predicting lifetime fitness.

George White***Understanding glacier dynamic change and iceberg risk evolution in Greenland***

Tidewater glaciers (TWGs) are the major source of mass loss from the Greenland Ice Sheet (GrIS), with much of this mass loss occurring through iceberg calving. The heterogeneous dynamic response of TWGs to external forcings necessitates in-depth study of as many TWGs as possible in order to accurately model the future contribution of TWGs to sea level change under a range of climate scenarios. One such TWG, Narsap Sermia (NS), is located in the south-east of Greenland and icebergs from NS flow out through Nuup Kangerlua into the Labrador Sea past Greenland's capital city and major port, Nuuk. Understanding what is driving dynamic change at NS therefore not only aids in accurate modelling of sea level change, but also provides an opportunity to forecast iceberg risk and communicate this to both fjord users and port authorities in Nuuk, contributing to risk assessment and future plans for expansion of the port.

Hafi Munirwan

How Do Regulations Facilitate the Self-Organising Community? – A Comparative Study on Local Street Vending in Indonesia

Street vending in public spaces is an informal activity that is all too common in virtually all cities in the Global South. While it creates benefits such as employment opportunities and affordable goods and services, it also creates issues such as disturbing traffic and pedestrian flow, as well as degrading the environment and public utility qualities. While in the past, street vending was seen as a form of urban disorder and was excluded from municipal regulations, the introduction of inclusive cities has led to a shifting regulation that is more tolerant towards street vending activity. However, the regulations adopted by the local municipalities to integrate street vending into the urban development agenda vary, as do their outcomes. Indonesia is one of the countries where street vending is perceived as a problem, with most cities increasing efforts to manage street vending following the introduction of national regulation on street vending empowerment in 2012. In the planning literature, there is an increasing promotion of self-organisation that highlights the capacity of society to organise and manage urban development without or less dependent on state interventions. This research argues that facilitating vendors' community self-organisation capacity is important in the management of street vending and then looks at the interface of regulation and self-organisation. The purpose of this research is to investigate how regulations enable or constrain self-organising communities in the context of street vending management. Bandar Lampung and Bandung, two Indonesian cities where the local government implements different regulations, are selected as the case study. The data is derived through ethnography and interviews with representatives of the government and neighbourhood.

Haojia Wang

Evaluating the plan environmental impact assessment (PEIA) system in China: a systematic analysis of urban planning PEIA effectiveness

Strategic Environmental Assessment (SEA) has been considered as an important decision support framework in the formulation of policies, plans and programmes (PPPs) in many countries and regions. In China, since the 2003 Environmental Impact Assessment Law, Planning Environmental Impact Assessment (PEIA) has become the primary SEA method, focusing on integrating environmental concerns into planning for sustainable outcomes. However, after decades of development of PEIA, its effectiveness remains debated, with studies limited to a few major cities and lacking in evaluation system and indicators. Therefore, the main objective of this research is to systematic analysis the effectiveness of PEIA in China by taking urban planning PEIA in different city as the research object, and to systematically analyse the framework, process, mechanism of PEIA in the city with high effectiveness as an example, to provide guidance for PEIA in other cities and improve the effectiveness of SEA in China.

Huxuan Dai

Communities in Ecosystem Restoration: The Role of Inclusive Values and Local Elites' Narrative Innovations

Ecosystem restoration practices are gaining prominence in coping with the crisis of ecosystem degradation. To improve the long-term effectiveness of restoration activities, community engagement in restoration projects needs to be strengthened. In communities where traditional and local values drive adaptation to environmental changes, a community-engaged restoration approach requires the integration of restoration techniques and local value systems. In two pastoral communities on the Qinghai-Tibetan Plateau, we used the Q method to explore pastoralists' attitudes towards grassland restoration and to understand different levels of community engagement in actual restoration activities. The study revealed eight types of pastoralists with different attitudes, with local elites leveraging transformative restoration action through creating value-inclusive narratives of grassland restoration. We recommend decision-makers recognize the significance of local worldviews and values in facilitating environmental adaptations, and the irreplaceable role of local people in developing value-inclusive narratives. Open dialogues and sufficient communication are needed to facilitate transformative action.

Ibrahim Tahiru

(No Title Supplied)

Submarine fan strata are commonly described and interpreted assuming a nested, hierarchical organisation of elements, from beds, to lobe elements, lobes and lobe complexes. However, describing outcrop and subsurface strata following a particular conceptual method or model is never evidence in itself that the model or method accurately reflects the true nature of the strata. To develop better understanding of and methods for robust hierarchy identification and measurement we developed two metrics, a clustering strength metric that measures how much clustering is present in the spatial distribution of beds on a submarine fan, and a hierarchy step metric that indicates how many clustered hierarchical elements are present in the bed spatial distribution. Both metrics are applied to two quantitative fan models. The first is a very simple geometric model with 10 realisations ranging from a perfectly clustered hierarchy to a indistinguishable-from-random arrangement of beds. The second model, Lobyte3D, is a reduced-complexity process model which uses a steepest descent flow routing algorithm, combined with a simple but physically reasonable representation of flow velocity, erosion, transport and deposition thresholds, to generate detailed 3D representations of submarine fan strata. Application of the cluster strength and hierarchy step metric to the simpler model demonstrates how the metrics usefully characterise how much order and hierarchy is present in the fan strata. Application to four Lobyte3D models with increasingly complex basin-floor topography shows no evidence for true hierarchy, despite clear self-organisation of the model strata into lobes, suggesting that either Lobyte3D is missing key as yet unidentified processes responsible for producing hierarchy, or, perhaps more likely, that hierarchal interpretations are not realistic.

Jade Hrintchuk***Using crystal alignment in a magma intrusion to investigate magma flow in an Australian volcanic fissure eruption***

Volcanic fissure eruptions form long and narrow cracks in the Earth's surface which are fed by vertical sheet intrusions (dykes) of magma, with the potential to pose widespread social, economic and environmental hazards. To understand magma flow during these eruptions, we can investigate the alignment of crystals in cooled, solidified dykes which fed historic eruptions. In particular, plagioclase crystals can be used as magma flow indicators as they may align with the flow direction within the dyke's ascending magma. Here we use optical and scanning electron microscopy and electron backscatter diffraction (EBSD) to measure the alignment of plagioclase in samples from the Little Mount dyke in the Budj Bim volcanic fissure complex, Australia. EBSD data show the plagioclase crystals share both shape and crystallographic preferred orientations. Understanding the flow behaviour of magma in historic fissure eruptions enables us to prepare for future eruptions worldwide and reduce their impacts on society.

Jamie Hartup***Quantifying and conserving West Papuan wetland forests***

New Guinea is the most floristically diverse island on Earth with exceptional numbers of endemic species (Cámara-Leret et al., 2020) and the third largest area of tropical rainforest. Indonesian Tanah Papua, the western half of New Guinea, features vast forested floodplains which potentially harbour substantial below-ground carbon stocks in the form of peat. However, the distribution and drivers of floristic diversity and carbon stocks in these forests remain poorly understood. This matters because, although they are less degraded than similar ecosystems in neighbouring South-East Asia, Tanah Papua's wetland forests are underrepresented in protected areas (Parsch et al., 2022) and at increasing risk from conversion to oil palm plantations (Austin et al., 2017). I am planning to up-scale new and existing field-data from Tanah Papua with remote sensing to better understand these forests, the threats to them, and explore pathways to sustainable development through Sago palm (*Metroxylon sagu*) agroforestry.

Jiewen Li***Children as ‘Adults in development’:
Creating a New Framework for Child-friendly
Cities for Planning and Evaluate it Applicable
in Chinese context***

With the escalating pace of global urbanization, there are 4.4 billion people who live in cities today, nearly a third of them are children. After decades of efforts to achieve Child-friendly Cities (CFC), children's rights are still frequently disregarded or intentionally marginalized within the context of urban development. The overall aim of the dissertation is to reveal the problems of the existing frameworks for CFC, and then to create an effective framework for planning based on the new concept of children as 'adults in development'. It involves four parts. First, the current frameworks for CFC are reviewed and the issues are identified. Second, a new framework would be developed considering these issues of the concept of children. The third objective is to test the application of the new framework in specific context from different spatial scales. Finally, the recommendations for CFC would be given based on the evaluation results.

Jonathon McEvoy***Depositional and diagenetic controls on fluid
flow in fractures in a potential Geological
Disposal Facility in the Mercia Mudstone
Group, UK***

The Triassic Mercia Mudstone Group (MMG) has been proposed as a potentially suitable host rock for a UK Geological Disposal Facility (GDF) for safe, long term storage of nuclear waste. The MMG is a proven top seal to UK oil and gas reservoirs, but is inherently heterogeneous. A complex depositional and diagenetic (burial related) history has led to a varied vertical and lateral distribution of lithologies, containing complex geomechanical, petrographic and geochemical characteristics, which could fundamentally control fluid flow to and from a GDF. Many MMG successions are represented by a heterogeneous distribution of fractures; key local conduits for the flow of potentially radionuclide-bearing fluids. A thorough understanding of these heterogeneities is required to ensure safe, long term storage of harmful radionuclides. This research is combining a variety of field and experimentally-derived datasets with legacy data from the hydrocarbon industry to characterise the depositional and diagenetic heterogeneity of the MMG.

Jonny Timperley

Developing acoustic monitoring of invertebrates: can current challenges be overcome?

The use of sounds or vibrations to monitor biodiversity is a promising sampling method which can provide ecological data whilst causing little habitat disturbance. This technique is now commonly used to assess aquatic and above-ground terrestrial taxa, yet few studies surveyed belowground systems or invertebrates. Therefore, most belowground and invertebrate research is currently conducted using traditional fieldwork techniques, which are often time consuming, expensive, and have spatial/temporal limitations. This project aims to: (1) explore the potential of acoustic monitoring of belowground invertebrates; (2) determine if acoustic data can reflect true diversity by comparing to traditional field sampling; (3) determine the potential of using acoustics to map invertebrate diversity in savanna habitats; and (4) determine whether belowground diversity differs across disturbance gradients, and levels of carbon storage and vegetation in savanna habitats. This research aims to develop a widely applicable technology to increase understanding of belowground systems and invertebrates.

Laura Baugh

Unravelling the true climate effect of peatland restoration

Rewetted peatlands are associated with the production of methane (CH₄). However, the majority of studies predominantly focus on terrestrial measurements and fail to include water bodies. This project will be measuring greenhouse gas emissions with a focus on CH₄ emissions of ebullitive pathways. There will be two main core sites; Risley moss (this is the first research of its kind on this site), and the Migneint, Snowdonia. Both sites have newly rewetted areas (1-2 years old) and older areas (10+ years old). One of the aim's is to see if CH₄ emissions vary across the age of rewetting. Sampling will also be conducted across as many rewetted sites across the UK as possible, including sampling in Sweden. The results of this project will be used to inform future policy to limit CH₄ emissions of future rewetting projects as well as filling in data gaps from IPCC reporting from 'flooded land'.

Lilly Crellin***Exploring External Influences on Sentence Severity Across England and Wales***

In recent years, England and Wales has seen a substantial 38% inflation in sentence severity for indictable and triable offences. Previous research has concentrated on factors including sentencing standards and political discourse for explaining increased punitiveness. This project will expand on this reductionist approach to consider a broader range of characteristics ignored in the literature, such as changes in the mix of cases processed through the courts, activation of suspended sentences and public opinion on sentencing practices. Utilising Ministry of Justice data, the project will employ multivariable regression models and time-series analyses to identify how these issues are associated with sentencing severity. It seeks to enhance understanding of sentencing policies, aligning with the goals of its external partner, the Sentencing Academy. This project is dedicated to advancing the fundamental role of sentencing in ensuring a free, just, and secure society, as emphasised in the UK Government's 2020 White Paper.

Linnet Jessell***Can polar seabirds really adapt to climate change?***

Globally, environments are becoming increasingly variable, presenting challenges for the species that inhabit them. These changes in environmental conditions can reduce and redistribute prey availability which in turn, often elicit changes in foraging behaviour. As the variability of environmental conditions differs spatially, the individual- and population-level behavioural responses are also predicted to vary, but this is not currently well understood. Here, using data on black-legged kittiwake colonies across the north Atlantic and Arctic, we quantify differences in foraging trip duration between colonies with respect to variability of sea surface temperature (SST) conditions. We found evidence that trip duration is linked to SST conditions, with birds making longer foraging trips in colder SSTs. We also found that SST range is linked to trip duration, with birds making longer foraging trips in less variable environments. This study improves our understanding of how differences in behaviour may be adaptive in a changing climate.

Lyuboslav Petrov***Can a study of retrofit help recreate the eco garden cities of tomorrow? A case study drawing on the experiences of Murdishaw in Runcorn New Town***

This PhD traces the housing condition of Murdishaw, the ambitious 1970s estate expansion part of Runcorn New Town. With many critiquing the municipal idealism characterising its initial spirit to what became managed decline and 'an estate that should have been', I explore the more recent emergence of retrofit and its significance for responding to these crises. A multi-sited interview programme was designed to engage with the residents of Murdishaw Matters, Gorsewood Green CIC and the Four Estates social enterprise, and explore sentiments through a renewed study of 'retrofit as change'. The interview program was then extended to retrofit and neighbourhood officers from the local housing associations (HAs) to explore their role of 'placemakers' and community enablers of pop up events and spaces that are now used to develop a 'Murdishaw Model' - a blueprint for transition to a 21st century garden city.

Mary Murray***Working out the wobbles: Extracting ancient geomagnetic field strength from non-ideal recorders***

Finding the strength of the ancient geomagnetic field provides a unique window into deep earth processes in deep time. However, paleointensity experiments are notoriously challenging with high failure rates. Even samples with promising rock magnetic characteristics can present non-ideal behaviour in traditional Thellier-type double heating experiments. We show via phenomenological modelling that multidomain effects can result in failure of pTRM checks and large curvature ('sagging') Arai plots without any alteration, due to non-reciprocity of blocking and unblocking temperatures, while still recording valuable paleomagnetic information. We also predicted significant improvement of paleointensity success rates if the applied lab magnetic field is aligned with the direction of natural remanent magnetisation of the sample. Early experimental results between sister samples treated with parallel and antiparallel lab fields shows significant improvement in Arai plot behaviour for some samples, but others remain strongly curved. This represents an advance in extracting geomagnetic information from non-ideal samples.

Matt Mason***Who sees migration-related political ads on their news feed? An analysis of immigration-related political advertisement on Facebook across Europe***

Political campaigning is increasingly moving onto social media, where advertisers are able to microtarget messages to users based on their demographics and location. This has prompted concern that online political advertising could drive further polarisation and entrench online echo chambers. Within this context, I analyse advertisement data from Meta (formerly Facebook), specifically immigration-related advertisement by European political parties. Migration has become one of the most salient issues across Europe in recent years and one of the most polarising. I use data from the Meta Ad Library to understand the demographics and location of users that see migration-related advertisements. I examine the types of areas and users most likely to see these advertisements, and the types of parties that target them. By doing so, I explore the potential for this new type of advertisement to drive further opinion polarisation between demographic groups and geographic areas on the topic of immigration.

Matthew Howard***The Spatial Inequalities of Over Indebtedness***

With rising costs of living, the financial burden placed on households across the United Kingdom is becoming unmanageable for many. Using novel data in the form of county court judgements (CCJs), this project aims to help demonstrate the spatial distribution of over indebtedness in the UK. The relationship between debt and deprivation in England and Wales is explored generally before regression models are used to identify a smaller subset of metrics. A high-risk classifier was then implemented to show how this small subset of deprivation metrics can accurately identify the areas of the UK facing the greatest case rates. The final regression model explained over 80% of the CCJ rate variations, and when used in a classifier for identifying 'high risk' areas, identified 80% of them successfully, with minimal false positives. The model success has implications for wider debt and deprivation discourse, and the relationship between the two.

Matthew Thompson

Categorising greenspaces using metrics of quality through K-Means clustering algorithms

Greenspaces are integral for the holistic wellbeing and health of urban communities. Despite this, the majority of studies focus on the quantity, over quality of greenspaces. High quality greenspaces can provide safe, healthy and enriching environments to benefit the holistic wellbeing of communities, yet the criteria defining such quality remains insufficient in literature. This study aimed to highlight metrics reflecting greenspace quality across England, considering the intersection between the environmental attributes, social indicators, natural and built infrastructure. Using a K-means clustering algorithm, the study categorised 49 quality metrics for greenspaces (n = 122313) in the OS Open Greenspace dataset. These categories function as detailed opportunities to understand the value greenspace provides. The limitations of the metrics used further reflect the understudied and limited data available for identifying the quality of these spaces effectively. The study highlights the potential to further evaluate greenspace quality and identify opportunities for research-driven improvements in observing greenspace quality.

Maya Middleton-Welch

Falling Behind on Bills for Basic Necessities in the UK: Quantitative Analysis

This study will explore populations who have fallen behind on payments for household bills between 2009 and 2021. Falling behind on household bill payments is a particularly harmful form of debt (Salter, 2014) and can affect the ability of individuals to access basic necessities such as housing and energy (Lane et al, 2018). There is currently limited empirical understanding about the extent to which UK populations have been affected by this form of indebtedness in the UK over time. This study will investigate how the total number and percentage of UK individuals who have been affected by this form of indebtedness has varied over time. It will also explore how the likelihood of a person belonging to a household that was behind on household bills has varied across different demographic and socioeconomic groups over time. The analysis will involve the utilisation of descriptive analysis techniques and longitudinal regression methods to analyse data from the Understanding Society Main Study data (University of Essex, Institute for Social and Economic Research, 2023).

Mohammad Meidiansyah

Does public participation matter in rural development? A case study from Indonesian village fund

This study investigates how power dynamics in the context of public participation influence decision-making in deliberative forums for rural development outcomes in the Global South. Based on the literature, rural community participation in development has the potential to encourage inclusive development that provides better results; however, these goals are often hampered by power dynamics. These power relations usually arise from local elite groups who have influence in the community. The intervention of local elites who use power in the process of community participation is then considered to be a factor inhibiting progress. However, what if the intervention of local elites who take advantage of this power actually produces better outcomes in terms of rural development? This research aims to investigate whether the influence of power dynamics in rural development in the context of public participation is a factor inhibiting progress or can actually improve the quality of outcomes produced for better rural development. Stakeholder interactions, institutional frameworks, and socio-cultural norms, including leadership patterns and respect for local elites, will be studied thoroughly in this study. It is hoped that this will identify how these factors contribute to determining more effective rural development deliberation outcomes. Study analysis by observing deliberative meeting forums and conducting semi-structured interviews with various stakeholders involved is the approach used in this qualitative research. The research findings offer valuable insights into strategies and approaches that can promote more inclusive and transformative community participation while also improving the quality of rural development in the Global South.

Musarrat Zaman

Urban Heat Resilience Planning Framework for Mitigating Surface Urban Heat Island (SUHI) Effect in Dhaka City, Bangladesh

The rise of Land Surface Temperature (LST) due to climate change has severe impact on the urban areas that leads to Surface Urban Heat Island (SUHI) effect. It has become a major challenge for the cities especially which are densely populated and rapidly urbanised like Dhaka to minimise the heat impact and heat related risks. The successful implementation of heat resilience planning has become an urgent issue for this city. Addressing SUHI is a complex issue and it requires a holistic approach that integrates urban planning and governance system in local level. This research will evaluate the effectiveness of different heat mitigation strategies in terms of the land use pattern, urban morphology and micro climate by using remote sensing and geo-spatial analysis and will propose a heat resilience planning framework by incorporating stakeholder's involvement in governance level. It will provide a comprehensive guideline for heat resilience policy for Dhaka city.

Nicolas Del Canto

Office to Residential conversion in England through Permitted Development Rights: what are the main trends and what factors explaining the geographical distribution?

In 2013, a planning modification extended Permitted Development Rights (PDR), enabling Office-to-Residential (OTR) conversions without full planning permission. While existing literature discusses the quality of converted dwellings and the planning dimensions, less attention has focused on the geographic distribution of PDRs. Thus, this research question is what are the main trends and what factors explaining the geographical distribution? Utilising Spatially Constrained Multivariate Clustering (SCMC), I identified clusters in England to comprehend conversion trends. Multiscale Geographic Weighted Regression (MGWR) highlighted office rated value as the key variable. Overall findings indicate that more than 80,000 dwellings resulted from OTR conversions in England through PDR. These conversions did not occur randomly; instead, they tend to cluster in specific areas of the country, specifically in Outer London and neighbouring Local Authorities in the Southwest. Although the office rated value is suggested as the most decisive explanatory factor, qualitative research is necessary to strengthen these findings.

Olivia Riley

Impact of social media on risk communication before, during, and after the La Palma eruption (Canary Islands)

The increasing prevalence of communication through technology has transformed disaster risk communication, particularly evident in the context of volcanic eruptions. My research will focus on the 2021 eruption of Cumbre Vieja on the island of La Palma in Tenerife, leveraging social media platforms such as X as data sources. By employing a mixed methods approach that includes qualitative methods such as content analysis of social media posts and quantitative methods such as social network analysis, the aim is to comprehensively analyse the multifaceted aspects of risk communication dynamics before, during, and after the volcanic event. This integrated approach aims to offer a holistic understanding of the dissemination of information, the involvement of various actors and their network formations, and how perceptions evolve within affected communities and among stakeholders. Ultimately, this research will contribute to the development of more effective disaster risk communication strategies and interventions.

Robert Clarke***Geochemical Impact of CO₂ Injection on the Geomechanical and Petrophysical Properties of Caprock***

Global emissions of carbon dioxide (CO₂) must be reduced to prevent the catastrophic effects of anthropogenic climate change. Carbon capture and storage (CCS) is a proposed solution involving the sequestration of captured CO₂ in geological formations. Caprocks are low permeability lithologies that act to prevent stored fluids escaping to the surface. Because CO₂ must be stored over geological timescales (100,000+ years), it is critical that caprocks maintain their geomechanical integrity following exposure to acidic CO₂-brine mixtures. Previous work has suggested that acidic CO₂-rich fluids can corrode caprock leading to permeability increase. This study aims to reveal how the mineralogical composition of caprocks impacts their susceptibility to mineral dissolution and precipitation, and subsequent permeability alterations, following CO₂ injection at representative reservoir pressure-temperature conditions.

Rodgers Iradukunda***Quantitatively Capturing the Cumulative Effects of Spatial Inequalities: Toward a Multidimensional Framework***

In the discourse of inequalities, conventional economic metrics often oversimplify the complex nature of inequality, focusing predominantly on income and wealth. However, recent interdisciplinary scholarship underscores the multifaceted dimensions of inequalities, spanning social, infrastructural, political, cultural, and environmental realms. While existing frameworks offer valuable insights into deprivation, they predominantly operate as static, snapshot measures, overlooking the dynamic and cumulative nature of inequalities over space and time. This PhD research proposes a novel approach to quantitatively capture the cumulative effects of spatial inequalities, drawing upon a multidimensional perspective. By transcending indicator-based frameworks, the study aims to develop dynamic tools capable of tracking the evolving nature of spatial inequalities, considering how various forms intersect and accumulate to shape individuals' experiences and well-being within communities. Ultimately, this research seeks to inform more effective policy interventions aimed at mitigating the pervasive and interconnected inequalities shaping our societies.

Samuel Jones***Controls on the Gas Permeability of the Triassic Mercia Mudstone Group, UK***

The Mercia Mudstone Group (MMG) has been identified as a potential host rock for the UK's Geological Disposal Facility in northwest England. Consequently, detailed fluid transport properties of this host rock must be understood before site selection can be finalised. One issue with the Mercia Mudstone Group is its heterogeneity, on a variety of scales, from millimetre to basin scale. This heterogeneity arises due to the range of depositional environments and burial depths in different regions. Samples with differing depositional and diagenetic features will behave differently when stress is applied; for example, pressure sensitivity and directional dependence of permeability vary extensively between different samples. This study collates data from different analytical techniques including light optical and SEM examination, XRD analysis, mercury intrusion and permeability measurements. This combination of methods is crucial to understand the main controls of permeability, and how the host rock will behave under subsurface conditions, especially those influenced by the storage of radioactive waste.

Scott Akhtar-Lewis***Exploring reactions under stress in the mantle using mineral***

The effects of pressure and temperature on the phase transformation of olivine to wadsleyite and then ringwoodite within the mantle is well understood. However, the extent to which stress affects this phase transformation is not clear. Understanding how stress influences the kinetics of the olivine to spinel phase transformation and the mechanism in which it does so at grain scale, will have broader implications for mantle dynamics. Deformation experiments using Mg_2GeO_4 have been used as an approximate analogue for fayalite as it transforms from olivine to ringwoodite at lower pressures and temperatures rather than the conditions found at d410 (Vaughan, 1981). Experiments were conducted at a range of confining pressures 0.8 - 1.2 GPa at a fixed temperature of 900 °C and a strain rate of 10^{-6} /s. Samples were then characterised down to the level of individual interfaces using Electron Backscatter Diffraction (EBSD) to understand the physical mechanism of the reaction and the kinetics that govern it.

Taran Leeks

Turning the tables: fighting furniture poverty through social enterprise

This project, developed collaboratively between the University of Liverpool and Liverpool's Furniture Resource Centre (FRC), explores how FRC fights furniture poverty – the inability to afford or access furniture and furnishings that facilitate a decent quality of life – the ability to participate in the norms of society and the material dimension of austerity.

The project examines diverse economic perspectives, the role of social enterprise, and circular production to understand how furniture and furnishings in the home facilitate a decent quality of life within society's norms. Critics of social enterprises see them as an inadequate response to continued destitution in an austere society or even complicit in it. However, they have also been conceptualised as valuable emergent or generative spaces, grassroots innovation niches or 'transition labs' pioneering novel ways of delivering services and meeting needs—in this case, providing furniture to people who don't have it.

A diverse economies perspective suggests how these competing pressures affect how social enterprises act in concrete ways that cannot be specified in advance from above, but need to be unpacked through empirically-based, detailed, or 'thick' descriptions of the ethics, everyday practices and activities of specific social enterprise embedded in places – emphasising their creative potential in solving problems.

This project will undertake embedded, ethnographically informed participant observation, working alongside, watching, talking to and interacting with FRC staff to create thick descriptions of the bundles of practices, activities and arrangements of collecting, repairing, distributing and selling furniture (including emotional and environmental impact).

Trang Thu Nguyen

Aspirations, Hopes, and Experiences of Vietnamese International Students

International students (IS) constitute a significant portion of global migrants, and their tuition fees play a crucial role in sustaining the operations of higher education institutions in the UK, with a focus on "internationalization". However, there are paradoxical policies in the UK; while they rely on IS fees to boost income, they also have increasingly stringent visa restrictions on IS. There are critical perspectives on IS in existing literature, including concerns about stereotyping IS as a homogeneous group of privilege, overlooking their diverse backgrounds. Additionally, critics have raised concerns about the ongoing dominance of Western and Anglo-American nations in the uneven flow of international students from the "Rest to the West". The research aims to explore the stratified imaginaries and aspirations of Vietnamese IS and how they exercise their agency to navigate educational, class, and employment opportunity dynamics. The project employs qualitative research methodologies, including a multi-sited ethnographic approach across research sites in the UK and Vietnam, incorporating participant observations and interviews.

Yu Zeng***Urbanization and community structure: the impact of habitat transformation on competition and predation in avian assemblages***

Human-driven habitat transformation named urbanization, has become a dominant force shaping ecosystem dynamics, and usually causing the loss of habitat for wildlife. Moreover, specialists are substituted by generalists along the urbanization gradients resulting in biotic homogenization driving the niche packing of the communities. According to the niche theory, more intense competition would be expected between species if they are more similar and it would be expected to be mediated by the habitat productivity. In this study, we conducted a two year-round experiment, adopting transect method recording the behaviours in avian communities along urbanization gradients in 30 sites in Suzhou, China. Urbanization rate and productivity were quantified within a radius of 1 kilometers circle each sites using satellite images. Niche overlap and competitive behaviours significantly increased along urbanization gradients, supporting the niche theory. Productivity reduced the impact of urbanization on the niche structure and competition intensity in avian community.

Yuxuan Ou***Urban Investment Bonds and Local Government Financing in China***

The urban development model in China is complex and a key component of this complex model is the funding model, or the public finance system, of local governments. In recent years, a phenomenon has been attracting more and more attention that China's rapid economic development comes with growing local government debt. Recent studies proposed that local governments cover the increasing gap between development responsibility and limited fiscal revenue through issuing Urban Investment Bonds (UIBs), a bond issued by local government financing vehicles (LGFVs). This research explores the relationship between the fiscal gap, the gap between fiscal expenditure and general budget revenue, and Urban Investment Bond issuance, and explores the implicit government guarantee beyond the pricing of Urban Investment Bonds. The results show that local governments would have stronger incentive to issue UIBs as the fiscal gap increases and that UIBs carry implicit guarantee and have credit spreads smaller than normal corporate bonds.

Zhaoqin Shi

The Impact of Imperfect Land Property Rights on Rural Development: A Case Study of Rural China

The lack of effective property rights arrangements is a key impediment to sustainable economic development in developing countries. Since the late 20th century, developing nations worldwide have embarked on land titling initiatives to address informal rural land ownership, seeking to delineate property rights and facilitate economic growth in rural areas. However, empirical observations reveal that while these land titling movements offer legal safeguards to rural land property rights, they haven't entirely aligned with the economic outcomes anticipated by property rights theories. The gap between actual rights and legal rights over property constitutes one of the reasons for the unsatisfactory outcomes of land property rights reforms. To further discuss the causes and impediments of institutional transformation in developing countries, it is imperative to grasp the intricate interplay between the actual rights over land and the legal rights over land, as well as the intricate dynamics of special land property rights that arise in non-formal property rights countries following land reforms and rural development. This research will take rural China as a case and examine the impact mechanisms of special land property rights that arise in non-formal property rights countries following land reforms on rural development activities. The PhD study and research may make contributions to the field and knowledge. The research can help gain a deeper understanding of land property rights regimes in transition, expanding the theory of property rights, and providing valuable insights for guiding policymaking, not just within China but also on a broader international level.

Zijun Guo

An analysis of blue and green spaces across Suzhou and its association with subjective well-being and recreational activities

Globally, the population residing in densely populated urban areas is steadily increasing (United Nations, 2015). While urbanization offers numerous advantages for health and well-being (Dye, 2008; Godfrey and Julien, 2005), it also brings about health risks, including air and water pollution leading to respiratory issues (Liu et al., 2017; Samet et al., 2000; Taylor et al., 2004; Tong and Chen, 2002). Moreover, densely populated cities can induce cognitive and emotional stress, thereby impacting mental health and well-being negatively (Gong et al., 2012; Peen et al., 2010). However, urban environments also encompass natural elements, and some of these hazards can be alleviated by enhancing air quality, promoting physical activity, and reducing stress, all of which are vital inputs in enhancing health (Hartig and Kahn, 2016; Hartig et al., 2014). Urban planning in China has historically emphasized health and well-being through meticulous planning and design. Recent studies have indicated a positive correlation between blue and green spaces and the physical health of residential populations. However, the majority of research on the relationship between neighborhood environments and residents' health has focused on developed nations, with scant research available in mainland China, particularly concerning blue spaces and residents' well-being. Based on the above, this study examines the quantity and quality of blue and green spaces in the residential environment and the subjective well-being and recreational activities, taking the main urban area of Suzhou, Wuzhong, and Gusu districts as a case study. The complex relationship between subjective well-being, recreational activities, and blue and green spaces was examined using a machine learning non-linear regression model (Weichenthal et

al., 2016). Multivariate regression models were employed to explore the influence of the elements (density, quantity, land use diversity, and destination accessibility) in the residential greenspace on subjective well-being and physical activity (Jabbar and Mohd Yusoff, 2022). Furthermore, structural equation models with multiple mediators were applied to analyze the mediating effects of living behaviours (such as travel behaviour and social interactions). These results can deepen our understanding of the relationship between the residential blue and green spaces, health behaviours and subjective well-being, and recreational activities of populations in the Chinese context, and promote the health of the residents by providing blue and green space and resources encouraging healthy behaviours.

Notes

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