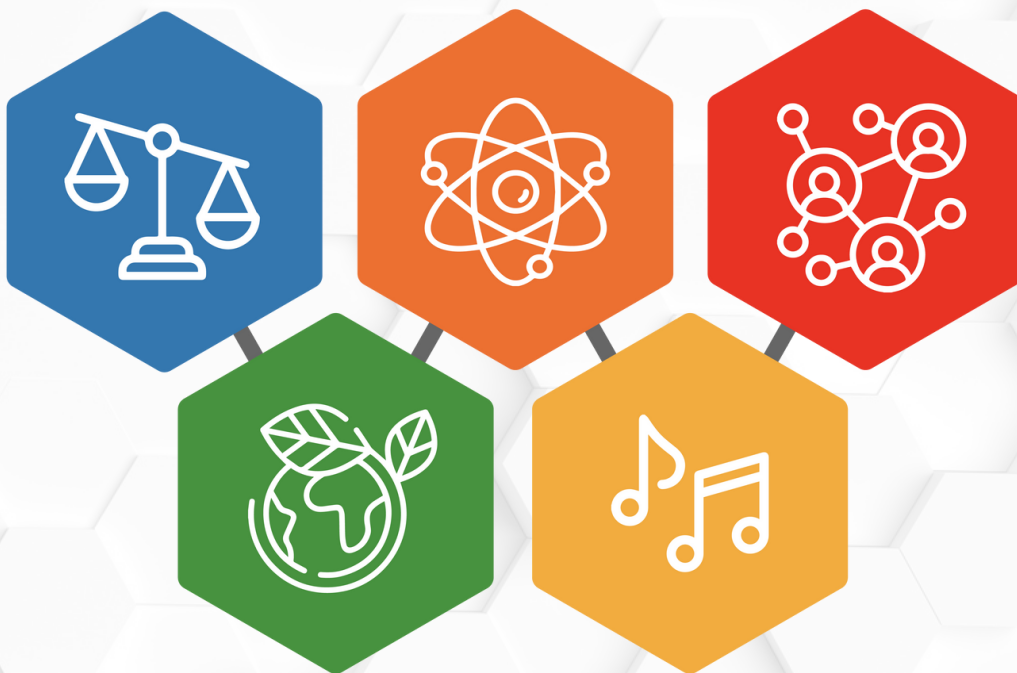


# 2023 PROGRAM BOOKLET



## WOLFSON RESEARCH EVENT

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An interdisciplinary research  
event by students from  
Wolfson College at the  
University of Cambridge

# PROGRAMME

## Day 1: 4th May, 2023 (Thursday)

- 10.00 – 10.45** Registration
- 10.45 – 10.50** Brief welcoming by the chair
- 10.50 – 11.20** Opening speech by Professor Jane Clarke
- 11.20 – 12.30** Oral presentation session 1 (4 presenters)
- 11.25 – 11.40 **Hailun Cui** - *Mechanisms underlying capsulotomy for refractory obsessive-compulsive disorder: neural correlates of negative affect processing overlaps with deep brain stimulation targets*
- 11.40 – 11.55 **Sally Yan** - *From series to cycles: Depictions of parasite development and transmission, c. 1898-1955*
- 11.55 – 12.10 **Min-Kyoo Kim** - *“The ghost of Chernobyl or the spectre of Communism? Documentary, drama and nuclear disaster”*
- 12.10 – 12.25 **Yiran Xu** - *The development model of county tourism in China: A case study of Wuyi*
- 12.30 – 13.30** Lunch + networking
- 13.30 – 15.00** Oral presentation session 2 (4 presenters)
- 13.30 – 13.45 **Anna Dikova** - *How to get your work done and keep your hands clean: Dealing with moral anxiety in Russian state-controlled media*
- 13.45 – 14.00 **Annoa Abekah-Mensah** - *Towards a decolonial politics of receptive generosity: The international contribution order and the worldmaking of the Climate Justice Movement*
- 14.00 – 14.15 **Susie Triffitt** - *Tiktok believers: Did the pandemic enable people to explore religious belief?*
- 14.15 – 14.30 **Jenny Smart** - *Mental illness and the menopause: 'Climacteric Insanity' in the nineteenth century*

**14.30 – 16:00** **Poster session 1 (8 posters) + networking**

**14.30 – 15.00** **Viviana Orena** - *Scoping review on COPD patients' non-referral to pulmonary rehabilitation in primary care*

**Alison Owen** - *Norse-Inuit contact in Medieval Greenland*

**Anna Pullinger** - *Development of a stem cell model of the aging heart*

**15.00 – 15.30** **Francisco Wang** - *Racial composition in advertisements and its effects on White consumers' perceptions and purchase intent*

**Éireann Attridge** - *Understanding and managing identity: working-class students at the University of Oxford*

**15.30 – 16.00** **Charlotte Hutchings** - *How are adeno-associated viruses trapped inside cells?*

**James Ashton** - *How do clinically administered MSCs influence the inflammatory cytokine profile and disease progression markers in patients with inflammatory disorders: a systematic review of randomised control trials*

**James Ashton** - *Pre-conditioning mesenchymal stromal cells for chronic wound repair*

**19.15 – 21:45** **Wolfson Research Event Dinner**



## Day 2: 5th May 2023 (Friday)

**11.00 – 11.30** Registration

**11.30 – 12.30** Oral presentation session 3 (4 presenters)

11.30 – 11.45 **Aslan Uddin** - Verifying early Islamic history using new techniques and discoveries

11.45 – 12.00 **Francesca Melle** - *Metal-organic frameworks: a new ally in the fight against pancreatic cancer*

12.00 – 12.15 **Benjamin Goh** - *In Asia, for the world: Six historians and the making of world history at the University of Malaya in the 1950s and 1960s*

12.15 – 12.30 **Muhammad Balarabe** - *Assessing the built environment for physical activity: A comparative analysis of two methods (virtual and field audits) and two cities (Cambridge, United Kingdom and Soweto, South Africa)*

**12.30 – 13.30** Lunch + networking

**13.30 – 14.00** Keynote speaker, Prof. Tolullah Oni

**14.00 – 15.30** Poster session 2 (9 posters) + networking

14.00 – 14.30 **Jiaru Bai** - *A derived information framework for a dynamic knowledge graph and its application to smart cities*

**James Sheppard** - *Building on binary: Integrating creative collaboration within digital design processes in the UK Construction Industry*

**Mark Owusu** - *Analysing the immunity profile of group A meningococcus in Ghana*

14.30 – 15.00 **Nathan Magnan** - *From dust to planets: the role of vortices in planet formation*

**Kenneth Gwee** - *'This Empyrean Substance Cannot Fail': Immortal Bodies and the Poetics of Trauma in John Milton's Paradise Lost (1674)*

**Nimrod Hertz** - *Extending case formulations of Posttraumatic Stress Disorder to idiographic statistical networks*

- 15.00 – 15.30** **Boris Vasilev** - *Combinatorial in silico drug discovery in treatment-resistant Chronic Lymphocytic Leukemia*
- Simran Kaler** - *How do children colour characters?: Analyzing creative responses to imaginings of character in Ezra Jack Keats' The Snowy Day*
- Christopher McDermott** - *Duplicity – A stage play investigating the complexities of human relationships*

**15.30 – 16:45** **Oral presentation session 4 (4 presenters)**

- 15.30 – 15.45** **Oisín Challen Flynn** - *The Imider sit-in, resource extraction and environmental protest in North Africa c.1986-2019*
- 15.45 – 16.00** **Sara Corona** - *Contested landscapes in Sardinia: Heritage and ethnic identity under Italian green resource nationalism*
- 16.00 – 16.15** **Nancy Karreman** - *Understanding the role of the state in dietary public health policymaking: A critical scoping review*
- 16.15 – 16.30** **Michael Elizabeth Gasior** - *Trauma experiences, financial stability, and access to mental healthcare for Arabic-speaking migrants and refugees in the Netherlands*

**16.30 – 17:00** **Awards and closing remarks**

- 17.30 –** **Hubs event:** Join us at the networking reception after WRE 2023 to meet student researchers, ask questions, and explore potential collaborations. You'll also have the chance to connect with representatives from Wolfson's interdisciplinary research hubs and societies focused on science, humanities, gender, global health, sustainability and conservation, and race, ethnicity, and cultural heritage.

# WELCOME MESSAGE

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Welcome to the Wolfson Research Event 2023! We are thrilled to have you join us for this remarkable gathering of brilliant minds, forward-thinking individuals, and enthusiastic researchers who are dedicated to fostering interdisciplinary collaboration and the pursuit of knowledge.

In the words of the great philosopher Bertrand Russell, "Three passions, simple but overwhelmingly strong, have governed my life: the longing for love, the search for knowledge, and unbearable pity for the suffering of mankind." This quote perfectly encapsulates the spirit of the Wolfson Research Event, which aims to bring together those with a shared passion for knowledge, empathy for humanity, and a desire to make a difference in the world.

This year, we have curated an exceptional program filled with inspiring keynotes, thought-provoking panel discussions, and dynamic poster sessions. We believe that each of these events will spark conversations that challenge existing paradigms, inspire innovative solutions, and shape the future of research across various disciplines.

As you immerse yourself in this vibrant academic community, we encourage you to engage in open dialogue, ask questions, and actively participate in the exchange of ideas. The power of this event lies in the diverse perspectives and unique insights that each of you brings to the table. It is our hope that you leave Wolfson Research Event 2023 with newfound knowledge, lasting relationships, and a renewed sense of purpose in your respective fields.

We would like to extend our gratitude to Wolfson College, the organizing committee, and speakers, who have worked tirelessly to ensure the success of this event. Your dedication and support have made it possible for us to create an unforgettable experience for our attendees.

Once again, welcome to the Wolfson Research Event 2023! We wish you an engaging, enlightening, and enjoyable experience, as we all strive to embody the passions that drove Bertrand Russell and continue to inspire researchers around the world.

Warm regards,  
Wolfson Research Event 2023 Organizing Committee

# KEYNOTE SPEAKER

# DR. TOLULLAH ONI

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Dr. Tolullah Oni completed her medical training at University College London, postgraduate medical training in the UK and Australia, a Masters in Public Health (Epidemiology) at the University of Cape Town, and her research doctorate in Clinical Epidemiology at Imperial College London. She spent 11 years conducting research in South Africa, where she also completed her public health medical specialty training. She established, and leads (as an Honorary Associate Professor) a Research Initiative for Cities Health and Equity (RICHE) at the University of Cape Town, conducting transdisciplinary urban health research focused on generating evidence to support the development and implementation of healthy public policies in rapidly growing cities, with a focus on Africa.

Her research activities include Systems for Health projects: investigating how urban systems (e.g., housing, food) can be harnessed for health; and Health Systems projects: integrated health systems responses to changing patterns of disease and multimorbidity in the context of urbanisation.

She has published over 80 manuscripts in high-impact journals and has given presentations at international academic (urban health, HIV, TB) and non-academic meetings, including the United Nations High Level Political Forum for Sustainable Development, New York; and the World Economic Forum (WEF) Annual Meeting, Davos 2018.

# ORAL PRESENTATIONS

Thursday 4th May, 2023



Wolfson Research Event 2023



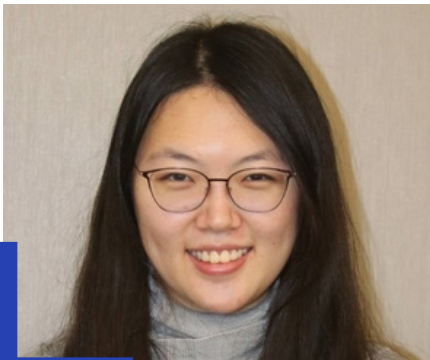


## Hailun Cui

Hailun Cui is in her final year as PhD student in Psychiatry. Before joining Prof. Valerie Voon's lab in Cambridge, she studied medicine and undertook her Master's training in neurology at Shanghai Jiaotong University School of Medicine. She's interested in cognitive, behavioural, and functional modifications of invasive or non-invasive neuromodulations in psychiatric disorders. Her PhD research focuses on studying the psychological and neurofunctional changes underlying the symptomatic relief of neurosurgical ablations in treatment-resistant obsessive-compulsive disorder (OCD).

### **Mechanisms underlying capsulotomy for refractory obsessive-compulsive disorder: neural correlates of negative affect processing overlaps with deep brain stimulation targets**

**Abstract:** Ablative procedures such as anterior capsulotomy are potentially effective in refractory obsessive compulsive disorder (OCD). Converging evidence suggests the ventral internal capsule white matter tracts traversing the rostral cingulate and ventrolateral prefrontal cortex and thalamus is the optimal target for clinical efficacy across multiple deep brain stimulation targets for OCD. Here we ask which prefrontal regions and underlying cognitive processes might be implicated in the effects of capsulotomy by using both task fMRI and neuropsychological tests assessing OCD-relevant cognitive mechanisms known to map across prefrontal regions connected to the tracts targeted in capsulotomy. We tested OCD patients at least 6 months post-capsulotomy (n=27), OCD controls (n=33) and healthy controls (n=34). We used a modified aversive monetary incentive delay paradigm with negative imagery and a within session extinction trial. Post-capsulotomy OCD subjects showed improved OCD symptoms, disability and quality of life with no differences in mood or anxiety or cognitive task performance on executive, inhibition, memory and learning tasks. Task fMRI revealed post-capsulotomy decreases in the nucleus accumbens during negative anticipation, and in the left rostral cingulate and left inferior frontal cortex during negative feedback. Post-capsulotomy patients showed attenuated accumbens-rostral cingulate functional connectivity. Rostral cingulate activity mediated capsulotomy improvement on obsessions. Other fMRI tasks did not show any post-capsulotomy effects. These regions overlap with optimal white matter tracts observed across multiple stimulation targets for OCD and might provide insights into further optimizing neuromodulation approaches. Our findings also suggest that aversive processing theoretical mechanisms may link ablative, stimulation and psychological interventions.



## Sally Yan

Sally completed her Bachelors in Science in Biosciences at Rice University in Houston, TX in the United States. In her year at Cambridge, she is pursuing a MPhil degree in the history and philosophy of medicine, and she is particularly interested in examining infectious diseases and public health from the perspectives of the humanities. Afterwards, she hopes to use these multidisciplinary insights as she begins her medical education in the U.S.

### **From series to cycles: Depictions of parasite development and transmission, c. 1898–1955**

**Abstract:** The parasite life cycle diagram—a representation of parasite development and transmission—is now iconic in medical textbooks (see figure 1). Historians of medicine, such as Worboys (1996), argue that the parasite life cycle distinguished the field of parasitology in colonial territories from bacteriology in imperial metropolises. However, despite increasing attention to the role of images and diagrams in the history of science (Daston and Galison 2007; Bigg 2016), the historiography has neglected to discuss images of parasite development and transmission. By examining English-language textbooks, I trace depictions of the development and transmission of four parasites that cause important tropical diseases. Although historians previously assumed that the parasite life cycle diagram appeared in tandem with the scientific discoveries of parasite development and transmission at the turn of the 20th century (Hopwood et al. 2021; Worboys 1996), I show that the iconography of the parasite life cycle diagram did not proliferate until the 1940s. To explain this delay, I argue that earlier depictions of parasite developmental series were anchored in the discipline of embryology and that the proliferation of the parasite life cycle diagram is linked to the emergence of the discipline of ecology. Therefore, I offer an important correction to the historiography of tropical medicine and of images in science. Furthermore, it denaturalizes the image of the parasite life cycle as an inevitable result of scientific discoveries and, thus, allows us to imagine alternative visualizations.



## Min-Kyoo Kim

Min-Kyoo is a first-year PhD student at the Centre for Film and Screen at the University of Cambridge. Previously, he studied for a BSc in International Relations at the LSE and a MPhil in Film and Screen Studies at Cambridge. His research interests lie in photographic and moving image representations of the nuclear, with a particular focus on the intersection of nuclear proliferation with racial, colonial and gender politics.

### “The ghost of Chernobyl or the spectre of Communism? Documentary, drama and nuclear disaster”

**Abstract:** In 2022, Russia’s bombardment of Zaporizhzhia, Ukraine – home to Europe’s largest nuclear power plant – threatened an uncanny return of the Chernobyl disaster. At the same time, the U.N. launched its #Atoms4Climate project, endorsing nuclear energy as a solution to the environmental crisis; the likes of Bill Gates (2021) have also assured the safety of nuclear, claiming that it “kills far, far fewer people than cars do.” In critical response, this presentation interrogates the media (mis)representation of nuclear disaster, by comparing Vladimir Shevchenko’s documentary, *Chernobyl, Chronicle of Difficult Weeks* (1986) against the HBO drama *Chernobyl* (2019). I argue that Shevchenko’s irradiated footage embodies a true, haunting testimony to the fallout at Chernobyl. Through Lippit’s (2005) concept of “atomic writing”, I read the film’s deformities as an unnerving, audio-visual encounter with the nuclear; I also note that documenting this disaster exposed Shevchenko to fatal radiation poisoning, which further attests to how nuclear danger could never be “fully contained within a frame” (Schuppli 2020). By contrast, I assert that the HBO series *Chernobyl* sanitises this threat. Drawing upon Derrida’s (1984) insight that “all phantasms are projected” onto the spectre of Communism, I explore how *Chernobyl*’s narrative veils over the nuclear danger with its prevailing criticism of Soviet ideology. I thus observe, along with Laugier (2019), *Chernobyl*’s erroneous implication of nuclear safety under Capitalist authority. Concluding this comparative reading, I indicate how fictionalised treatments of nuclear disaster often perform mistruths, effecting the “domestication of the ultimate threat of nuclear destruction” (Schwab 2020).



## Yiran Xu

Yiran did his undergraduate degree in economics at University College London. He is currently studying for a master in Development Studies and working on issues concerning the development of China.

### The development model of county tourism in China: A case study of Wuyi

**Abstract:** The Chinese government has been shifting its focus to county development. Counties belong to the third level in China’s administrative hierarchy, acting as an intermediary between cities and villages. Their development will be able to alleviate the heightened competition for resources in the cities and continue pushing for urbanisation in China. Tourism promotion is an essential means to achieve county development, but there is scarce literature on China’s county tourism development, particularly the role of county government in tourism promotion. While the central government has been playing a guiding role in constantly setting out the overall direction of tourism development, the lack of policy specifications in its guidelines has left sufficient room for county governments to design their respective development policies. I use Wuyi county as a case study to examine how the local government achieved tourism development through the lens of development policies and institutions. The thesis analysed primary and secondary data collected from government archives, local newspapers, and published books documenting Wuyi’s tourism development history. The result indicates that institutional adaptability and a gradualist approach to policymaking contributed substantially to Wuyi’s success in tourism development. However, it should be cautioned that Wuyi’s development strategies lack sufficient participation by local communities in the decision-making process, which may affect the sustainability of the current model.



## Anna Dikova

Anna did her undergraduate degree in Russian Literature at the Higher School of Economics in Saint Petersburg with a minor in Social Anthropology. At Cambridge, she is studying for a master in Social Anthropology under the guidance of Prof. David Sneath, researching Russian Orthodox proselytism in Hong Kong.

### How to get your work done and keep your hands clean: Dealing with moral anxiety in Russian state-controlled media

**Abstract:** Russian state-controlled media journalists have to deal with the impossibility of exercising liberal journalistic ethics. Such restrictions make their ethical life of a particular interest for those interested in various forms of avoiding the state of demoralization and preserving agency. To study the ethical life of Russian state-controlled media journalists, I have conducted six-months participant observation as an intern in the Russian editorial office of Russia Today (August 2020–January 2021).

After having finished participant observation, I've conducted 23 semi-structured interviews with journalists from medias supporting the regime. Some of my informants simply chose to exit this field, and the others who stayed had developed a new professional ethical paradigm suited to changed circumstances. This ethical paradigm allows Russian journalists to avoid experiencing a decrease in agency and feeling unethical. Censorship and self-censorship form restrictions that threaten agency of my informants. And it is precisely self-censorship that becomes the practice of self in the Foucauldian sense, a method of moral improvement that underlies a new moral paradigm that allows agency to be preserved. Practicing self-censorship, journalists construct themselves as an ethical subject in a paradigm where "truth" is not important at all, and an "honest person" is not a person who speaks the truth, but a loyal person, a person who does not commit betrayal.



## Annoa Abekah-Mensah

After initially studying Politics and Economics upon leaving school, and beginning to pursue a career in Investment Banking, Annoa decided to change track and applied to study Human, Social and Political Sciences at Cambridge. Now in her final year, she specializes in Postcolonial and Decolonial Politics with a particular interest in ethnographic research methods. During her first year at Wolfson College, she launched the Shade in Cambridge podcast with two other students, and is now pursuing a career in journalism and mass media, securing a number of internships in podcasting and audio news.

### Towards a decolonial politics of receptive generosity: The international contribution order and the worldmaking of the Climate Justice Movement

**Abstract:** The current historical moment has seen the resurgence of social movements and protests around the world, motivated by various grievances including racism, climate and poverty. While seemingly separate causes, in the Global South, some movements have mobilized around more radical discourses, transition discourses, which argue that the majority of ecological and social crises are inseparable from the practices and structures which constitute the 'modern' world, and weave economic, social, cultural and ecological aspects of change together into transformational proposals for the whole planet. As discourse meets practice, a transitional politics, and a resulting transition movement is emerging. However, as the prevalence of protests in the Global North increases, one could argue that a transitional politics is also emerging here. As such, this paper examines the Global North climate action movement and argues that it is evolving into a transition movement. I argue that the movement has expanded its locus of activism, moving from single-issue climate action to intersectional climate justice and developing its own transition discourse. I also argue that it has established linkages with Global South transition discourses to challenge existing epistemic structures and envision alternative ways of living, producing a transitional politics. Finally, this paper considers the future of the climate justice movement and political activism in the Global North, hypothesizing that as the climate justice movement continues to overlap with related causes, they will also shift towards a transitional politics, ultimately resulting in a coalition of movements, unified in their call for transition.



## Susie Triffitt

Susie did her undergraduate degree at the University of Oxford in Philosophy and Theology. After graduating, she worked for two years in the City, before starting an MPhil in Social Anthropology at Cambridge. She is now doing her PhD at the Divinity Faculty, undertaking an ethnographic study of Christianity and the Pandemic in Britain. She is the holder of the Edward Bailey Studentship and founder of the Cambridge Anthropology-Theology Network.

### Tiktok believers: Did the pandemic enable people to explore religious belief?

**Abstract:** COVID-19 dramatically changed how religious communities could congregate and practice their faith together. This paper will show how religion moving online facilitated increased engagement by the “belief-curious”, a term I use (following the language of identity politics) to describe those who are not “out” as religious but are exploring their faith identity. It does so by taking Alpha and other online religious resources as its ethnographic focus. Alpha is a successful evangelistic course and has been undertaken by over 24 million people in over 160 countries. Alpha reluctantly went online in 2019 and its attendance tripled. During the 2021 lockdown, I undertook fieldwork to understand this pandemic growth. Speaking to interlocutors across Britain, it became clear that Alpha’s ‘move online’ facilitated religious engagement for those who for practical and social reasons had been unable to engage before. Instead of pandemic suffering pushing people towards or away from faith, the technologies which the pandemic forced upon religion brought the “belief-curious” out of the woodwork. Those unable to go to church previously due to disability, care responsibilities, or the ineptitude of local establishments, were now able to negotiate religious exploration from home, often with a community miles away. Most interestingly, those who felt uncomfortable exploring faith due to social pressures were able to engage privately. I develop this initial research now through my PhD projects which explores other ways people have engaged with religion or converted online, including through Tiktok.



## Jenny Smart

Jenny completed her undergraduate degree in History at the University of Warwick and her PGCE at the University of Cambridge. Most of her career was spent in teaching, with an interlude in personnel management. She completed an MSt in History at Cambridge in 2022 and is currently studying for a PhD in History, supervised by Professor Samantha Williams, examining climacteric insanity in the nineteenth and early twentieth centuries.

### Mental illness and the menopause: 'Climacteric Insanity' in the nineteenth century

**Abstract:** Female life-cycle insanity in the nineteenth century has been widely researched, and several recent studies have focussed particularly on puerperal, or childbirth, insanity. Yet climacteric insanity, that is insanity associated with the female menopause, has received very little academic attention, even though it rivalled puerperal insanity in terms of asylum admissions from the mid nineteenth century onwards and was extensively discussed in nineteenth-century medical texts and journals. This research aims to partially redress this lacuna by exploring the phenomenon of climacteric insanity from the opening of county asylums in the mid nineteenth century up to 1914. It uses the patient records of the two geographically contrasting county pauper asylums of Derbyshire and Norfolk, as well as nineteenth-century medical texts and journals. It examines the disorder’s emergence as a category of insanity, its prevalence and diagnosis, the social characteristics, behaviours and symptoms of the women admitted, and their care, treatment, and outcomes. It considers the age group affected by the disorder, and the extent to which climacteric insanity was a convenient label for middle-aged female patients. It also explores how the disorder was understood by both lay people and medical practitioners. This study aims to contribute to scholarship by expanding our understanding of the growing medicalisation of women’s minds and bodies and the professionalisation of medicine and psychiatry in the nineteenth and early twentieth centuries, and of the place of older working-class women in Victorian and Edwardian society.

# POSTER PRESENTATIONS

Thursday 4th May, 2023



Wolfson Research Event 2023



## Viviana Orena

Viviana received her bachelor's degree in physiotherapy at the Universidad Mayor (Chile, 2012). She then obtained her master's degree in epidemiology at Pontificia Universidad Católica de Chile (Chile, 2017). She is currently pursuing a PhD in Public Health and Primary Care at the University of Cambridge. She is interested in investigating factors affecting the participation of COPD patients from minority ethnic and socially deprived groups in pulmonary rehabilitation. She is also interested in environmental factors affecting respiratory health. She has several years of research and teaching experience in research methodology at undergraduate and postgraduate level. She is from Wolfson College and was the WRE 2022 workshop officer.

### Scoping review on COPD patients' non-referral to pulmonary rehabilitation in primary care

**Abstract:** There is lack of access due to non-referral for pulmonary rehabilitation (PR). The aim of this review was to map the rates, characteristics and barriers associated with non-referral of patients with chronic obstructive pulmonary disease (COPD) eligible for PR in the primary care setting. Methods: Scoping review of primary research using the Joanna Briggs Institute methodology. Embase, Medline, Scopus, Web of Science and PsycINFO were searched. Handsearching was also undertaken. EndNote was used for reference management. Screening and selection of articles included pilot and peer review. Inclusion criteria were quantitative, qualitative, or mixed methods primary studies. Results: A total of 14 records were analysed; 12 articles and 2 conference abstracts. Referral rate (administrative) was the only one reported. The maximum referral rate was 16% of referrals. Patients older than 70 years, women, socioeconomically disadvantaged, with diabetes, asthma or pain were less frequently referred. Greater number of barriers to the offer of referral than barriers to the acceptance of referral. Conclusion: In context, this review identified evidence gaps on the rates and characteristics associated with non-referral for PR. Instead, this review identified multiple barriers to referral. Further studies are needed to better understand the problem of lack of access due to non-referral of COPD patients for PR in the primary care setting.



## Alison Owen

Alison did her undergraduate degree at the University of Cambridge in Anglo-Saxon, Norse and Celtic, followed by a Masters in Theology at the same institution. She is currently studying for a PhD in Anglo-Saxon, Norse and Celtic, focusing on early medieval inter-ethnic and inter-faith relations.

### Norse-Inuit contact in Medieval Greenland

**Abstract:** 'The Norse, like other medieval European Christians, scorned pagan non-European peoples and lacked experience of how best to deal with them.' Jared Diamond's 2006 statement sums up one argument for why the Norse settlers did not make the same adaptations as the Inuit when those groups were living together on Greenland from the tenth to the fourteenth centuries. I aim to nuance the picture in two ways. First, I consider a range of evidence including archaeological discoveries and oral history to develop the ways in which the Norse and Inuit interacted and coexisted. In particular, a recent piece of dendrochronology gives the impression of more long-term, co-operative relations than previously thought. Second, I use analogues from other geographical areas to question whether medieval Christians had the resources for more responses to pagan peoples than just scorn. This will help fill in this chapter of the history of inter-ethnic and inter-faith relations in a more sophisticated way.



## Anna Pullinger

Anna graduated from the University of Leeds in 2019 with a degree in biochemistry. After spending two years at a contract research organisation working on clinical trials, Anna decided to return to academia to complete the 1+3 MRes and PhD programme funded by the British Heart Foundation. Since October, Anna has joined the Sinha lab group in the Cambridge Stem Cell Institute and has been working on developing stem cells as a research tool for studying the age-associated decline in the cardiovascular system.

### Development of a stem cell model of the aging heart

**Abstract:** Cardiovascular disease is a global pandemic, creating significant social and economic burdens, and the risk of developing cardiovascular complications increases dramatically with age. However, studying aging in animal models is challenging due to physiological and genetic differences limiting the ability to translate findings from animals into humans, and raises ethical concerns regarding animal welfare. For my PhD project, I have developed a stem cell model of aging human heart muscle cells by introducing the genetic mutations present in Hutchinson Gilford Progeria Syndrome patients (HGPS: a rare disease associated with accelerated aging, resulting in premature death usually as a result of cardiovascular disease) into stem cells to recapitulate the cellular changes associated with aging. These cells can be used alongside samples taken from HGPS patients which have been reprogrammed back into stem cells to study the aging heart in an in vitro human model. Not only can these modified cells give an important insight into age-related decline of the human heart, they provide an exciting opportunity to identify new methods of treatment and can be used as a platform for screening pharmacological compounds, thus aiding in the discovery and development of novel drugs for treatment of cardiovascular diseases. I aim to confirm the similarities between these modified progeria stem cell lines and physiological aged human cells, study the effects of aging on stem cell-derived cardiac muscle cells, and test the effects of the cardioprotective compound [Pyr1]apelin-13 to assess its therapeutic potential as a treatment for heart failure in aged patients.



## Francisco Wang

Francisco is currently pursuing an MPhil in Strategy, Marketing, and Operations at the Cambridge Judge Business School. Prior to Cambridge, he did his undergraduate degree at Rollins College in Florida and studied International Business and Art History. His research interests lie in consumer psychology, cross-cultural marketing, diversity & inclusion, and prosocial behavior. Currently, he is working under the supervision of Prof. Vincent Mak in researching behavioral pricing strategies.

### Racial composition in advertisements and its effects on White consumers' perceptions and purchase intent

**Abstract:** Previous marketing research has generally not examined how ethnic majority consumers perceive advertisements featuring mixed racial compositions of model groups. Moreover, the development of social movements like Black Lives Matter in recent years suggests that racial polarization may have a significant effect on ethnic perception in marketing imagery. One initial experiment was conducted to examine how White consumers' brand evaluations and purchase intentions change depending on the racial composition of the people represented in an advertisement. The study uses a single 12-condition experiment in which we examine the type of advertisement (product vs. social advocacy advertising), racial composition (all-White vs. diverse mix vs. all-Black), and racial priming effects (racially primed vs. racially neutral message). We find that, for product advertisements, changes in racial composition affect White consumers' purchase intent under certain priming conditions but have no significant effects on brand evaluations. However, for social advocacy advertisements, Whites consistently show more favorable perceptions and purchase intent for racially diverse or all-Black model compositions. The findings contribute to the literature on the effects of group racial perceptions in marketing communications and provide key implications for practitioners. Follow-up studies will investigate mediation and moderation variables to explain the possible underlying mechanisms for such effects.



## Éireann Attridge

Éireann Attridge is a current PhD student in Education researching Higher Education and Social Mobility. Éireann has worked in the field of access and widening participation to higher education since 2016 after reading Education and English at the University of Cambridge. Éireann holds an MSc in Education (Higher Education) from the University of Oxford. Here, Éireann wrote a dissertation on the experiences of working class students in elite higher education institutions. A short paper on this thesis is available open access via The Journal of Further and Higher Education.

### Understanding and managing identity: working-class students at the University of Oxford

**Abstract:** This study aims to add to the literature that explores the experiences of working-class students within elite higher education institutions. It has been undertaken at a time when there is a shift in higher education policy around access and widening participation: from applications and admissions to supporting students throughout the entire lifecycle. Considering the focus of such policy on upward intergenerational social mobility, it explores students' experiences through the lens of identity, considering Bourdieu's theory of cultural capital. Fifteen undergraduate students, who self-defined as working-class and attended the University of Oxford participated in semi-structured narrative interviews. It was found that working-class students appear to continue to face disadvantage during their time at university. Participants often encountered academic and social situations which served to reinforce ideas of a typical Oxford student, which they perceived as not being inclusive of their working-class identity.



## Charlotte Hutchings

After completing her BSc Biological Sciences at Imperial College London, Charlotte moved on to study an MSc in Genes, Drugs and Stem Cells - Novel Therapies, also at Imperial. This sparked Charlotte's interest in gene delivery systems, particularly Adeno-Associated Viruses which are now the topic of her PhD research here at Cambridge.

### How are adeno-associated viruses trapped inside cells?

**Abstract:** The potential of engineered adeno-associated viruses as DNA delivery agents in clinical settings has been established and two such therapies are available on the market. Unfortunately, the wider application of these vehicles is hindered by low yields and recovery during manufacturing. This is in part due to trapping of the viruses inside of producing cells which necessitates cell bursting followed by extensive purification, a process which is costly with respect to time, money and material. One proposed solution is to collect viruses from outside of the producing cells, but this would require a high proportion of viruses to be released into the extracellular environment. Hence, to apply such a solution will require a greater understanding of the mechanism(s) by which adeno-associated viruses are retained within or released from producing cells. In this project, expression and spatial proteomics methods will be applied to explore how the abundance and location of proteins within HEK293-VP cells changes upon the production of engineered adeno-associated viruses. The resulting changes will be related back to the viral yield and extent of cellular release to indicate molecular pathways which may be involved in determining these two key manufacturing parameters. As such, the results may inform rationale improvements in the manufacturing of engineered adeno-associated viruses and facilitate the wider adoption of these viruses as life-changing therapeutics.





## James Ashton

James has studied 3 years of Medicine at Liverpool before returning home to Cambridge to complete his MPhil. He is an active member of the All Greys rugby team here at Wolfson and loves to stay active.

### Poster 1:

## How do clinically administered MSCs influence the inflammatory cytokine profile and disease progression markers in patients with inflammatory disorders: a systematic review of randomised control trials

**Abstract:** Background: Inflammatory disorders, according to the World Health Organisation, are the most significant cause of mortality worldwide. We therefore investigated the clinical efficacy of mesenchymal stem cells in treating inflammatory pathologies. Crucially, the mechanisms that underpin inflammation can be applied to many different pathologies such as osteoarthritis. Methods: A search strategy was generated using four different electronic databases: Medline, Embase, Cochrane and Web of Science. Studies were screened independently by two reviewers and synthesis without meta-analysis reporting outcomes were used to synthesise data. Results: The variety of pathologies included COVID-19, multiple sclerosis, rheumatoid arthritis, and hepatitis B liver cirrhosis. Treatment with MSCs were all compared to a control group. Cytokines demonstrated an anti-inflammatory profile following MSC treatment. IFN- $\gamma$  was found to be a major mechanistic driver of MSC functionality; higher concentrations of IFN- $\gamma$  were expressed pre- and post-treatment in patients responding to treatment. All studies exhibited significantly improved disease progression markers following treatment with MSCs such as mortality rate, clinically symptoms and specific pathological assessments. Discussion: This study highlights the promising potential of MSCs as a therapy, not only for biochemical improvement, but also towards altering disease progression and symptom relief. Interestingly, Yang et al indicated that MSCs require an inflammatory environment for activation before exerting their therapeutic effects. Despite these diseases being inherently

### Poster 2:

## Pre-conditioning mesenchymal stromal cells for chronic wound repair

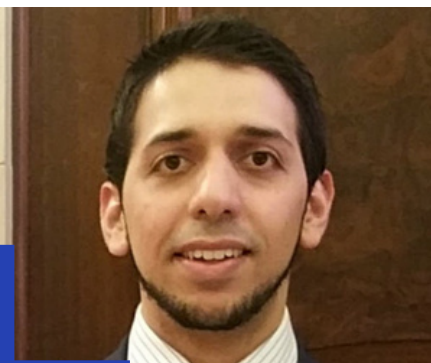
**Abstract:** Background: Wound healing is an intricate process governed by several overlapping, sequential phases. If the delicate homeostasis is disrupted, chronic wounds can form. Our in-vitro study investigated pre-conditioning MSCs to enhance their therapeutic potential in conditions like osteoarthritis. Methods: MSCs were treated with a 4-octyl itaconate (4-OI) and exposed to a range of different inflammatory environments with TNF $\alpha$ /IFN $\gamma$ . Data was collected using metabolic assays, transcriptional analysis and fluorescent imaging techniques. Results: 4-OI was shown to elicit an anti-inflammatory response of MSCs when exposed to inflammatory stimuli TNF $\alpha$ /IFN $\gamma$  when analysing transcriptional data. When compared to low glucose, cells treated in high glucose showed an increased inflammatory gene expression. Cells chronically treated in inflammatory stimuli also displayed a greater inflammatory gene induction. 4-OI also increased the rate of angiogenesis when co-combined with human umbilical vein endothelial cells. Discussion: To optimise the wound healing process, the environment needs to change from a pro- to an anti-inflammatory state. Previous studies confirm the efficacy and safety of MSCs for wound healing, but a lack of evidence has prevented clinical studies from transplanting pre conditioned cells as a form of therapy. Our results show 4-OI to blunt the inflammatory response of MSCs on both a metabolic and transcriptional level. Importantly, the functionality of MSCs was also improved, exemplified by confocal and fluorescent images of endothelial tube projections. This is crucial as new blood vessels are imperative in the healing process.

# ORAL PRESENTATIONS

Friday 4th May, 2023



Wolfson Research Event 2023

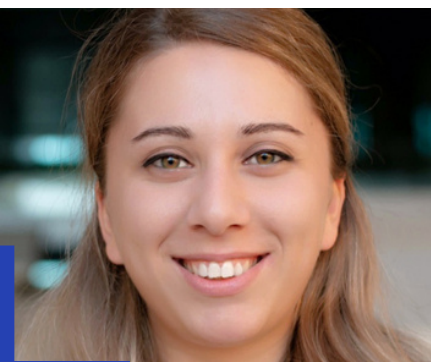


## Aslan Uddin

Aslan Uddin is studying his MSt in History at the University of Cambridge. He is a qualified Chartered Accountant with a BSc in Accounting and Finance from the University of Warwick. His research focuses on the emphasis and role of reason in Islam, utilising texts in Arabic, English, and Urdu. This research is inspired by the classical discussions of Muslim philosophers, like al-Ghazālī, on the congruence between reason and revelation, and the attempts to form a systematic, rational basis of discussion with interlocutors. Aslan enjoys reading a range of subjects in order to understand the world better and holistically.

### Verifying Early Islamic History Using New Techniques and Discoveries

**Abstract:** The main works on early Islamic History were written in the second and third Islamic centuries and are commonly held to have relied on oral transmission. Most traditional academic scholarship has been sceptical about the reliability of such reports and have deemed them as later day fabrications. However, my research uses the latest discovery of various written sources and the use of transmitter analysis to challenge this notion of unreliability. The questions dealt with in this research are: 1) How can we determine the correct oral historical report using transmitter analysis? 2) How can we use written sources and scientific techniques to verify oral Islamic history? 3) How has the discovery of early written texts affected our notions about Islamic history? 4) How have they affected the notion of the unreliability of oral transmission? 5) How can academics outside of Islamic history use such techniques? It shows that early Islamic historians were aware of fabrications and had sophisticated techniques to accurately sifting through historical reports, thus providing a reliable window to early Islamic history. Since they were aware of oral reports often being transmitted by meaning, my research still shows some variability in the wording of historical reports. The findings of this research provide a broader range of techniques for academics of Islamic history to use but also significantly weakens various academic theories of Islamic history and calls for a change in the Islamic history syllabi of various universities.



## Francesca Melle

Francesca received her master's degree in Nanobiotechnology at the University of Salento (Italy) while working at the Italian Institute of Technology for the realisation of a 3D preclinical model of breast cancer for gold nanoparticle drug delivery. After that, she moved to the Bioelectronics Laboratory at the University of Cambridge within the Erasmus+ programme, and then to the Nanomedicine laboratory at KAUST, in Saudi Arabia, where she worked on 3D printing models for skin regeneration. She is now a fourth-year PhD student in the department of Chemical Engineering and Biotechnology at the University of Cambridge, working on the development of new drug-delivery materials for pancreatic cancer.

### Metal-organic frameworks: a new ally in the fight against pancreatic cancer

**Abstract:** Pancreatic cancer is one of the most lethal and aggressive tumors with an extremely low survival rate. Due to the complex and inaccessible anatomical position of the pancreas, the majority of the cancer cases are treated using chemotherapeutics. Nevertheless, these drugs have low success rates due to a low targeting specificity, high instability, and severe side effects from the use of high doses, making the pancreatic cancer one of the most hard-to-treat type of cancers. One strategy to improve the efficacy of chemotherapy drugs is their encapsulation into nanoparticle systems. Among different classes of nanoparticle systems, metal-organic frameworks (MOFs) represent an unprecedented opportunity for the treatment of cancer because of their high loading capacity and good biocompatibility. MOFs are synthesized via self-assembly of metal clusters and organic linkers resulting in porous crystalline structures, able to encapsulate big amounts of chemotherapeutics. In this project we used a high-throughput screening analysis to compare the encapsulation efficiency of the most common chemotherapeutic drugs into different MOFs. We then evaluated the efficacy of the loaded MOFs in pancreatic cancer cell lines and normal cell lines to select the system with the best therapeutic effect, slow-release



## Benjamin Goh

Benjamin Goh is a historian of Singapore and Southeast Asia with interests in the global histories of education and youth. He is presently a candidate in the MPhil in World History at the University of Cambridge where he is working on a dissertation that examines the world history making of the History Department at the University of Malaya in the 1950s and 1960s. Benjamin completed his undergraduate degree at Yale-NUS College in Singapore, where he wrote his honours thesis on the translocal history of post-independence Singapore's first sex education programme between 1966 and 1980. He tweets at @BenGohsToSchool and serves as a host on the New Books in History podcast. In his free time, he seeks to find the best Pad Thai in Cambridge.

### In Asia, for the world: Six historians and the making of world history at the University of Malaya in the 1950s and 1960s

**Abstract:** The historiography of World History has primarily studied the establishment of the subject in imperial universities. Left unexamined are the world history making of history departments in the colonial periphery. This paper examines the world history making of the History Department at the University of Malaya (UM) in the 1950s and 1960s. Through studying the history making of six UM historians: C.N. Parkinson, K.G. Tregonning, John Bastin, Eunice Thio, Wang Gungwu, and Wong Lin Ken, I argue that these historians were producing world history, connecting the local history of Malaya to the history of Southeast Asia, and the world. This world history making, I advance, must be understood through a new theoretical framework given the shifting geopolitical boundaries of Malaya in this period of decolonisation. Hence, I propose a novel theoretical framework that understands history making as an exercise in cognitive mapping, done as a means of placemaking. By mapping and locating the place of Malaya at the local, regional, and global scales, history making was used to better understand the place of Malaya in the region and the world. In showing how these historians connected Malaya to Southeast Asia, I also recover the work that Southeast Asianists in Southeast Asia did to establish Southeast Asian studies as a field of study, a field that heretofore has been traced to have its origins in the American academy. In these ways, this paper contributes to studies on historiographical practice, and the historiography of Southeast Asian History and World History.



## Muhammad Balarabe

Muhammad holds a Bachelor of Science degree in Natural and Environmental Sciences, specializing in Environment and Health, from the American University of Nigeria. He is currently an MPhil in Population Health Sciences student and an Early Career Researcher with the Global Diet and Activity Research Group at the University of Cambridge.

### Assessing the built environment for physical activity: A comparative analysis of two methods (virtual and field audits) and two cities (Cambridge, United Kingdom and Soweto, South Africa)

**Abstract:** The built environment that supports physical activity is important for public health, but there are inequalities in the distribution of infrastructure for physical activity in and between cities. This study compares two methods (virtual and field audits) and two cities (Cambridge, UK and Soweto, South Africa) to assess the built environment for physical activity. Research has shown that there is a relationship between the built environment and physical activity, where factors such as walkability, access to recreational facilities, and the presence of parks and trails have been found to be associated with increased physical activity. These environmental factors are measured through field audits or by using virtual tools like Google Street View or Bing Maps. In field audits, evaluators walk a set route and use a scoring form to assess certain features. Virtual tools use remote sensing technology to assess environmental characteristics. This study aims to determine the presence and degree of built environmental features relevant to physical activity at the small area level in Cambridge and to assess whether these features vary by area-level deprivation; compare the feasibility and validity of virtual (Google Street View) and field (MAPS-Global tool) audits for assessing the built environment for physical activity in Cambridge and to examine whether local environment familiarity affects the reliability of virtual audits in Soweto and Cambridge. By identifying potential barriers or facilitators to physical activity, it is possible to take steps to promote it. This study has the potential to improve health outcomes and address infrastructural equity issues.



## Oisín Challen Flynn

Oisín studied his undergraduate degree at Girton college, Cambridge. After spending a year working in France, he returned to Wolfson college to begin his Mphil in World History. His current research focuses on lineages of anticolonial revolt during the First Palestinian Intifada (c1987-1991).

### The Imider sit-in, resource extraction and environmental protest in North Africa c. 1986–2019

**Abstract:** Global warming is felt acutely in arid regions like North Africa. Destructive resource management practices make the situation worse. Environmental Justice Atlas counts 49 recent or ongoing conflicts between local communities and resource extraction companies in the Maghreb alone, mostly centered around water, farming and communal land rights. This paper presents a microstudy of one such conflict between an Amazigh community in Imider, South-East Morocco and operators of a royal-family-owned silver mine. Activists staged the longest sit-in in Moroccan history (9 years) to protest poisoned water supplies, evictions, damage to ancient irrigation systems and ecosystems by mine activities, leading to poor health, loss of livelihood and emigration. Most famously, villagers protested the COP22 conference in Marrakesh- sponsored by the same conglomerate operating the mine. This study traces the movement's development over several decades through a multi-textured approach using interviews, poetry, film, speeches and newspapers. It situates it within histories of state-building processes in Morocco, Amazigh politics, the Arab spring and similar environmental conflicts regionally. It argues that movements like Imider reveal underexplored tensions within state-building processes in the region and top-down responses to environmental crisis. Although these tensions are well theorised in other contexts, especially studies of indigenous land struggles in north/south America, frameworks used here don't easily apply to North Africa. Greater exploration is needed in this context and others of tensions between capitalist resource extraction, state responses to environmental crisis and the agency, practices and technology of indigenous peoples, farming communities and labour movements in offering solutions.



## Sara Corona

Sara did her undergraduate degree in Archaeology at the University of Turin (Italy) and her MSc in Prehistory between the University of Ferrara (Italy), the Universitat Rovira i Virgili (Spain) and the Muséum National d'Histoire Naturelle de Paris (France). Afterwards she briefly worked as a science communicator in archaeology at the regional radio of her native Sardinia after being admitted in an MPhil in Heritage Studies at Cambridge. She is currently researching the uses of heritage and cultural memory in building the national identity (Italian) in Sardinia and their role in the negotiation of Sardinian ethnic identity.

### Contested landscapes in Sardinia: Heritage and ethnic identity under Italian green resource nationalism

**Abstract:** Being born as humans means being born with a nationality. National belonging is a core component of identity, based on a belief in ancient kinship and continuity on a given land. Nevertheless, although nations feel eternal, other collective identities exist that might claim their otherness from them: they are the 'ethnic' minorities, existing virtually everywhere within nation-states around the world. Studies on nationalism have been addressing them for decades but have reached no unanimity as to why ethnic identities persist despite nation-building policies and how they differ from nationality. To answer these questions, I look at the specific case of the Mediterranean island of Sardinia, forming part of Italy but maintaining a strong sense of Sardinian-ness. Conflicts and negotiations in fashioning and transmitting collective identity are visible from a top-down and bottom-up perspective and involve in particular culture and heritage. National policies to build an Italian identity are investigated in how they use heritage as a tool to assimilate difference in Sardinia through education and media. The agency of local communities in negotiating their identity is uncovered in the day-to-day interactions based on what people deem important to be preserved and transmitted intergenerationally. The objectives are (i) to understand nation-building as identity making, even when it is not so much about openly erasing minorities as persuading them to forget (ii) to highlight that ethnic identity is transmitted primarily through cultural memory (iii) to uncover practices of collective remembering and forgetting in Sardinia as negotiations of identity.



## Nancy Karreman

Nancy is a final-year PhD student at the MRC Epidemiology Unit working with Professors Martin White and Jean Adams, and Dr Ben Hawkins. Her research addresses how language is used to frame arguments in UK dietary public health policy, with a particular focus on the Soft Drinks Industry Levy (SDIL) and recent out-of-home calorie menu labelling legislation. Nancy has a Bachelor of Arts in Public Policy Analysis and Biology from Pomona College in California, and a Master's degree in Health, Medicine and Society from Cambridge. Nancy has also worked in the Tobacco Control Research Group at the University of Bath on its TobaccoTactics website as an investigative research assistant. In this post, she worked to expose tobacco industry strategies to undermine public health and developed an interest in commercial determinants of health.

### Understanding the role of the state in dietary public health policymaking: A critical scoping review

**Abstract:** It is increasingly recognised that health is influenced by social and institutional structures. This has led to a focus on population-level health interventions that do not require conscious engagement from individual members of a target population. Despite evidence that these interventions can work and are widely accepted, they remain the topic of intense debate about the appropriate role of the state in intervening in individuals' behaviour. We undertook a critical scoping review to deepen our analytic exploration of the conceptualisation of the state in dietary public health across previously un-synthesized disciplines. Through thematic analysis of 35 texts, we generated six themes concerning choice, personal responsibility for health, balancing the benefits and burdens of intervention, the use of evidence, fairness, and the legitimacy of the state. Our analysis found that narratives that benefit industry and prevent effective regulation are also entrenched in academic literatures. Discourses that place emphasis on liberty and personal responsibility through framing poor health as the result of 'lifestyle choices' maintain the spotlight on individuals and away from other bodies, like government and businesses. Though it may fall short of the state's ability to coerce through taxation, prohibition and associated enforcement, the corporate political power of industry extends to other forms of 'influence' because of individuals' reliance on its products, particularly in the case of food. We hope our findings motivate public health researchers and practitioners to take care to avoid unreflexively embracing implicitly pro-industry framings through the importation of languages and logics of free market economics.



## Michael Elizabeth Gasior

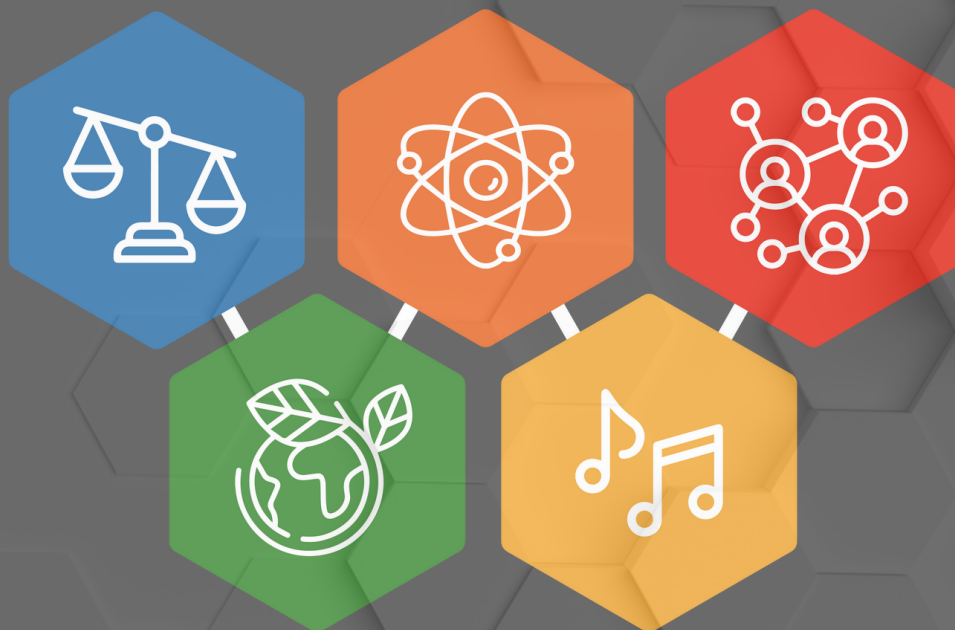
Michael Elizabeth completed her BA in Psychology at Carleton College in Minnesota before moving to the Netherlands to undertake an MSc by Research in Clinical and Developmental Psychopathology at the Vrije Universiteit Amsterdam. At Cambridge, she is pursuing an MPhil in Health, Medicine & Society with plans to continue to a PhD in Public Health and Primary Care under the supervision of Dr Robbie Duschinsky. Her research in Cambridge examines factors that can predict child maltreatment using cohort data from the NHS South London and Maudsley Trust.

### Trauma experiences, financial stability, and access to mental healthcare for Arabic-speaking migrants and refugees in the Netherlands

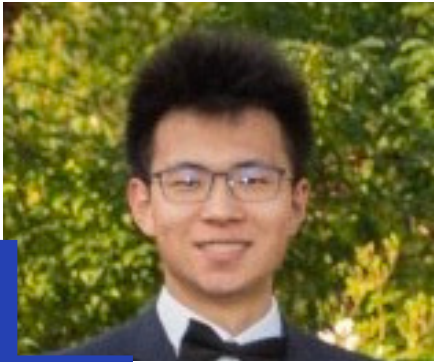
**Abstract:** Civil wars and economic instability have catalyzed Arabic-speaking migrants' and refugees' movement into Europe, and these populations face high rates of mental health problems. Prior research has shown how traumatic experiences can cause people to avoid mental healthcare; financial instability can further hinder care access. This project sought to identify whether traumatic experiences affect access to mental healthcare among Arabic-speaking migrants and refugees and whether PTSD symptom severity mediates this relationship. Furthermore, this project sought to determine the relationship between financial stability and access to care and if adherence to COVID-19 regulations moderates this relationship. Inclusion criteria were speaking Arabic, living in the Netherlands, and being 18 or older. Participants totaled 134 and were aged 18 to 71. Neither number of traumatic experiences nor financial stability predicted access to care. PTSD symptom severity did not mediate the relationship between trauma experiences and access to care; adherence to regulations did not moderate the relationship between financial stability and care access. This study found no relationship between traumatic experiences and access to care, nor between financial stability and care access. Descriptive statistics provide insights into how people access care and why they do not seek help. Developing a better understanding of the problems migrants and refugees face allows clinicians, policymakers, and laypeople alike to better support newcomers' needs.

# POSTER PRESENTATIONS

Friday 5th May, 2023



Wolfson Research Event 2023



## Jiaru Bai

Jiaru received a B.Eng. in Chemical Engineering from the Dalian University of Technology and the University of Manchester and a M.Phil. in Advanced Chemical Engineering from the University of Cambridge. He is a Ph.D. student at the University of Cambridge working on automating chemical research using knowledge graphs.

### **A derived information framework for a dynamic knowledge graph and its application to smart cities**

**Abstract:** Effectively tracking the data provenance and interdependencies inside large knowledge networks is becoming more and more important as knowledge graph technology gains traction in a variety of application areas. In this work, we develop a derived information framework to semantically annotate how a piece of information can be obtained from others in a dynamic knowledge graph. We encode this using the notion of a “derivation” and capture its metadata with a lightweight ontology. We provide an agent template designed to monitor derivations, and to standardise agents performing this and related operations. We implement both synchronous and asynchronous communication modes for agents interacting with the knowledge graph. When occurring in conjunction, directed acyclic graphs (DAGs) of derivations can arise, with changing data propagating through the knowledge graph by means of agents’ actions. While the framework itself is domain-agnostic, we apply it in the context of Smart Cities and demonstrate that it is capable of handling sequential events across different timescales. Starting from source information, the framework automatically populates derived data and ensures they remain up to date upon access for a potential flood impact assessment use case.



## James Sheppard

James is a chartered project manager and registered architect with over 20 years of consultancy experience in the UK, Australia and the US. He has led teams on high profile construction projects such as Tate Britain and the Imperial War Museum but his expertise also ranges across the education, residential and commercial sectors. He is studying part time at Cambridge for a master’s degree and has focussed his research on human factors within digital processes in the people based construction industry.

### **Building on binary: Integrating creative collaboration within digital design processes in the UK Construction Industry**

**Abstract:** The construction industry has dealt with increasingly complex design challenges by employing Building Information Modelling (BIM); a collection of socio-technical collaboration processes, augmented by digital tools. Previous research has established that whilst BIM tools are invaluable at helping interdisciplinary design teams identify and resolve issues; it is often in a rigid, task focused manner, with siloed working practices and social barriers which are detrimental to the creative collaboration required for innovative problem solving. This could be conceived as a human problem of creativity within the socio-technical process. Previous academic literature identifies numerous attempts to apply further technology as solution but there is scant existing research into human, social solutions. This study examines the extent that digital BIM processes act either as blockers or facilitators to creative collaboration; and if the situation can be altered by addressing how they affect human, social aspects. Following an initial literature review, findings have been developed via thematic analysis of qualitative data collected from semi-structured practitioner interviews and given further generalisability through quantitative data from a practitioner survey. The research has identified the importance of establishing trust and personal motivation among project participants to stimulate creative collaboration. It is suggested that this can be encouraged within digital BIM processes by creating an environment to develop human relationships through real life interaction. The research suggests a framework for practice which will be of use to design practitioners and researchers seeking to enhance creative collaboration within BIM processes in the construction industry.





## Mark Owusu

Mark graduated from the Kwame Nkrumah University of Science and Technology, Ghana in 2018 with Bsc. Mathematics award. After his undergraduate study, he was awarded a scholarship from the Mastercard Foundation to pursue a masters in Mathematics at the African Institute for Mathematical Sciences (AIMS), in Ghana, in 2019. Mark is currently a second year PhD student in Cambridge under the supervision of Prof. Caroline Trotter working on the epidemiology and control of meningitis in Ghana: an application of mathematical modelling. Aside his academic activities, Mark is passionate about children's issues and youth empowerment programs

### Analysing the immunity profile of group A meningococcus in Ghana

**Abstract:** Meningitis, an infection of the protective membranes that surround the brain and the spinal cord, affects more than 2.5 million individuals each year across the globe. The African meningitis belt, which includes Ghana, has experienced irregular but periodic epidemics of meningitis, primarily due to *Neisseria meningitidis* over 100 years. MenAfriVac, a vaccine against meningococcal serogroup A (the predominant cause of meningitis epidemics before 2010) has contributed to the drastic decline of these cases in the belt. Previous works have shown that, the vaccine does not induce permanent immunity and hence, there is a risk of resurgence if the population immunity is not maintained. For this reason, we explored the possible population immunity profile induced by MenAfriVac using duration specific exponential decay function in Ghana. Our results showed that, approximately 52% among the 1-29-year-olds risk age group are estimated to be directly protected in the Northern region if the duration of vaccine protection is 20 years by 2030. Under the 5 years duration of vaccine protection, only 16% of individuals in this risk age group are estimated to experience direct protection due to the vaccine. The implication of this study suggests that the duration of vaccine protection is an important parameter in making projections on the population immunity. Further studies including employing transmission dynamics model and seroprevalence study are warranted to capture both direct and indirect impacts of MenAfriVac, as well as reducing the uncertainty in the duration of the vaccine protection to collectively refine the estimates of this work.



## Nathan Magnan

Nathan's academic path revolved around his passion for outer space. He first studied towards a master's in spacecraft engineering, then switched to astrophysics for his PhD. His current research focuses on planet formation, but his past projects include observational cosmology, thermodynamics of gravity, economics of reusable rockets, or designing a satellite.

### From dust to planets: the role of vortices in planet formation

**Abstract:** One key step towards understanding the origin of life is understanding planet formation. It will tell us what young planets look like: do they contain water, is it liquid, etc? In the leading theoretical scenario, called core accretion, planets form in young stellar systems, where interstellar dust grows from micrometre-sized grains to thousands-of-kilometre-sized planets. With so many orders of magnitude involved, the story of planet formation is bound to be fascinating. But also complex, with different processes acting at different scales. The small-scale and large-scale growth processes are well understood, but several difficulties occur around the metre scale. The first part of this presentation explains this metre gap in layman's terms. The second part offers a way to bridge the gap. In recent observations of nearby planet-forming systems, we see what looks like vortices. Such vortices would be able to efficiently trap dust grains. Once enough dust has been trapped, a fluid phenomenon called the streaming instability (SI) could trigger, and form dust clumps. These clumps would then collapse under their own weight and form a planet. The main unknown here is whether the SI is active in vortices. My research investigates this question from the mathematical modelling front and confirms that dusty vortices are indeed unstable. This strengthens the case for vortex-based planet formation. From micrometres to kilometres, and from telescope observations to mathematical models, this presentation aims to illustrate the modern approach to planet formation research – in all its breadth.



## Kenneth Gwee

Kenneth is an MPhil student in English Studies at the University of Cambridge. He holds a BA (Hons) in English Literature and Philosophy from the National University of Singapore, and a Postgraduate Diploma in Education. Kenneth taught for several years at a secondary school, where he later served as subject head, before working in curriculum development at the Ministry of Education, Singapore. His time in the classroom has reaffirmed his belief in giving voice to the 'little stories' at the edges of grand narratives. To this end, his research focuses on the wounded body in the biblical tragedies of John Milton, and the ways in which it registers the complexities of traumatic experience.

### 'This Empyrean Substance Cannot Fail': Immortal Bodies and the Poetics of Trauma in John Milton's *Paradise Lost* (1674)

**Abstract:** The early modern period was a 'highly somatic moment' that saw the body emerge as an epistemological framework for structuring the universe. Just as the somatic model lends order and purpose to the world, it also records corresponding states of disease. The English Civil War (1642-51) was an interval of national trauma that violently convulsed the body politic. Writing in its aftermath, seventeenth-century poet John Milton would embody the lesions of this political wound in his biblical epic *Paradise Lost* (1674), an ambitious retelling of mankind's cosmological fall. This study examines the ways in which heavenly bodies—the angelic body of Satan and the cosmic body of Heaven—register physical violence during the angelic civil war (Books V, VI). In Milton's vitalist universe, all matter is material and sentient in nature. Heavenly bodies, in particular, are also immortal; unless uncreated, they are exempt from death. In a literary work whose principal theme is loss, the confluence of materiality and immortality provokes an important philosophical question: how does immortality complicate traumatic experience and the ability of wounded bodies to testify to violence? Trauma studies on *Paradise Lost* tends to privilege psychopathologies, often understating the capacity for injured bodies to act, suffer, and speak. Through a concerted engagement with contemporary theories on trauma, woundedness, and pain, as well as early modern conceptions of the body and disease, this study presents a somatic analysis of trauma in *Paradise Lost*—one that hopes to draw attention to the (obliterated) testimony of wounded bodies that cannot perish.



## Nimrod Hertz

Nimrod is a PhD student at MRC Cognition and Brain Sciences Unit. He did his undergraduate degree in psychology and biology with an emphasis on neuroscience in Tel Aviv University in Israel. He did a master's in clinical psychology in Tel Aviv University and treated adults and children at the university's psychological services and public hospitals. During his studies, he worked for 3 years at the Child and Adolescent Psychiatry Division in Sheba Medical Center in Israel, integrating research and clinical work. In Cambridge, he is studying the cognitive mechanisms that underlie cognitive-behavioural interventions for Posttraumatic Stress Disorder, with the ultimate goal of optimizing treatment outcomes by promoting interventions more tailored to the specific needs of each patient.

### Extending case formulations of Posttraumatic Stress Disorder to idiographic statistical networks

**Abstract:** Case formulation is a common practice in psychotherapy, in which therapists aim to characterize the patient's internal world to offer proper treatment and establish therapeutic goals. However, the high heterogeneity in case formulations makes them difficult to quantify, and therefore research about formulation-based psychotherapy is limited and usually fails to address the full diversity between patients. In this research plan, we aim to utilize recent advances in network theory to bridge this chasm in evidence-based psychotherapy. Using idiosyncratic item selection and Ecological Momentary Assessments, we will gather high-resolution data to illustrate personalized psychopathology networks for patients diagnosed with Posttraumatic Stress Disorder (PTSD), and use them to guide treatment selection and evaluate treatment outcomes. Relying on a well established cognitive model for PTSD, we will evaluate if the processes underlying therapeutic gain concur with theoretical predictions. This project can enable insights into the mechanisms that drive beneficial outcomes for patients, and can facilitate higher precision in treatment selection, better tailored to the specific needs of each patient.



## Boris Vasilev

Boris comes from a background in Computer Science before deciding to transition into the field of Biotechnology focusing on computational approaches for drug discovery. In his current master's project he is working under the guidance of Dr. Namshik Han at Milner Therapeutics on network-based approaches for combination therapy discovery in leukemia.

### Combinatorial in silico drug discovery in treatment-resistant Chronic Lymphocytic Leukemia

**Abstract:** Chronic lymphocytic leukemia (CLL) is a slowly progressing blood cancer. Treatment is usually lifelong and acquiring resistance is a common problem. Combination therapies of two or more drugs can have a synergistic effect and have been used with other cancer types, showing a significant improvement over monotherapies. However, drug combination discovery is a very complex task due to the number of approved drugs that need to be screened. Computational approaches have been used to predict potential drug combinations for further in vitro and in vivo screening, significantly reducing the time and cost of developing new combination drugs. This project aims to examine the biomarkers associated with disease progression in CLL and propose novel drug combinations for poor-risk patients through computational techniques.



## Simran Kaler

Simran Kaler completed her undergraduate degree at the University of Calgary in Education and English Literature. She then worked as a teacher and Afterschool-Program Coordinator in Canada. At Cambridge she is studying for her Master of Philosophy in Education specializing in critical approaches in children's literature. She is particularly interested in research on representations of minorities, immigrants and race relations in children's literature.

### How do children colour characters?: Analyzing creative responses to imaginings of character in Ezra Jack Keats' The Snowy Day

**Abstract:** Publishers and scholars of children's literature have long been concerned with the persistent lack of diverse representation and its impact on young readers (Cahill, Maria, et al., 2021; CCBC, 2022), yet how young readers' race and racial experiences influence this is less often discussed. As children's perceptions of race reflect media representations within popular culture (Jordan & Hernandez-Reif, 2009), this presentation explores how depictions of race in books for young readers affect how children conceptualise race. This presentation draws on critical race theory, as well as close textual analysis of storytellings and interviews with young readers of different racial backgrounds to discern if children are more likely to conceptualise characters who look more like them when reading. Increased exposure to diverse characters while reading improves the likelihood of children empathizing with different races. However, children's individual background, knowledge and experience with race likely influence how they read and categorise different characters. Therefore this analysis of children's responses to texts suggests children's experiences impact how they comprehend race and their racial identity. Additionally, this will affirm why varied and nuanced representations in children's literature contribute to deeper understanding about race for children's developing self-identity and awareness of others.



## Christopher McDermott

Chris completed his first degree in Education and English at Wolfson College in 1976. Since then he has completed two further degrees at Wolfson, an M.Ed. in Educational Leadership and School Improvement and an M.St. in Writing for Performance. He has also completed an M.A. in the Teaching of Language and Literature at the University of London and an M.B.A. in Educational Leadership (International) at the University of Hull. As well as having owned his own successful English as a Foreign Language school, Chris has been Principal of five schools in the U.K. and in Dubai, where he founded a school. Chris' last four inspections have resulted in an Outstanding rating. Chris is also a successful writer, having written 40 plays which have been seen by paying audiences in their own right or as part of drama festivals. Chris has received awards as a writer for Best Script, as well as Best Director and Best Performer in theatre festivals at home and abroad.

### **Duplicity – A stage play investigating the complexities of human relationships**

**Abstract:** The research consists of the creation of a stage play, *Duplicity*, and a critiquing of that play. The analysis of the play and its context operates at two levels, one which focusses on theatrical format and structure and the other which focusses on the play's themes, narrative and characters. The interactive structure was created so that the play's denouement is chosen by the audience. The play investigates the complexities of coercive control and character motivation, with much of the meaning lying below the surface of explicit dialogue. This combination of the chosen structure and the major theme of coercive control addresses a gap in the theatrical market by combining these two elements, each of which have been present separately, the former in Boal's Forum Theatre and the latter in plays such as Patrick Hamilton's *Gas Light*. *Duplicity* also examines themes such as sibling rivalry, children with specific needs, PTSD and duplicity. The methodology locates the play's structure within the context of earlier theatrical models of interactive theatre, before analysing issues intrinsic to the play, such as character motivation, power and honesty. The findings relate to the promotion of concepts such as critical thinking and decision-making theory. The significance of *Duplicity* is that the audience is asked to vote on a life-changing issue for the play's oppressed protagonist. The creation of a fictional narrative avoids the possible contamination of vested interest present in a real-life situation. This piece of research seeks to answer questions but then, in doing so, prompts more.

# MEET THE 2023 WRE COMMITTEE



**Konstantinos Tsigaridis**

Chair

Konstantinos holds a BSc in Physics and an MSc in Educational Planning and Teaching, both awarded from the University of Athens. He is currently studying for a PhD in Education. He has been the head of the science department of a Greek private secondary school and a passionate Physics teacher preparing students for their National Physics examinations for more than 10 years. Through his research, Konstantinos aims to investigate the cognitive skills that contribute the most to Mathematics and Physics achievement in secondary school students. Additionally, he is curious to understand whether these skills are responsible for students' preferences towards mathematics and physics or the engagement with these courses shapes the development of their cognitive skills.



**Daniel Egan**

Editorial Officer

Daniel is a clinician-scientist whose interests lie in the overlap between fundamental science, clinical medicine, and population health. He is a first-year PhD studying the interactions between immune responses to common cold coronaviruses and more pathogenic viruses, such as SARS-CoV-2, and the effects that this has on long-term immunity. This research contributes to the larger projects of pan-coronavirus vaccine design and future pandemic preparedness. Outside of his research, Daniel enjoys rowing, climbing, and sci-fi novels.



**George Han**

Editorial Officer

George is a PhD student studying Pharmacology at the University of Cambridge. His research interests lie in the field of ageing biology, where he focuses on studying progeria syndromes and protein misfolding diseases. When he is not busy with his studies, George enjoys spending time pursuing his hobbies - music, chess, rowing, and camping are his best friends.



**Leonie Miriam Pakulat**

Editorial Officer

Leonie is a first year PhD student and laboratory technician at the Department of Physiology, Development and Neuroscience. Her research is on a neuronal population underlying reproductive function and sexual behaviour with an interest in female health. For this she records electric currents in brain cells to understand their characteristics and function within their network.



**James Ashton**

Programme Officer

James has studied 3 years of Medicine at Liverpool before returning home to Cambridge to complete his MPhil. He is an active member of the All Greys rugby team here at Wolfson and loves to stay active.



**Yonatan Gideoni**

Programme Officer

Yonatan is doing a masters in Computer Science, researching theoretical deep learning. Before that he was an algorithm developer at Mobileye, working on improving autonomous vehicles' maps, and a teacher at the Israeli Arts and Sciences Academy. He is a physicist by training, having gotten his bachelor at the Hebrew University of Jerusalem.



**Burcu Sevde Selvi**

Programme Officer

Burcu is an MPhil in Public Policy student. Her main research interests revolve around labour economics, specifically focusing on the dynamics of the school-to-work transition, skills mismatch, and gender differences in economic behaviour. She also has experience working with micro datasets for measuring the degree of mismatch in the higher education system and forming a centralised human resources database for public institutions in Türkiye. Burcu also takes a role in Cambridge Union's Speaker Sub-Committee.



**Sally Yan**

Logistics Officer

Sally completed her Bachelors in Science in Biosciences at Rice University in Houston, TX in the United States. In her year at Cambridge, she is pursuing a MPhil degree in the history and philosophy of medicine, and she is particularly interested in examining infectious diseases and public health from the perspectives of the humanities. Afterwards, she hopes to use these multidisciplinary insights as she begins her medical education in the U.S.



**Tan Yi Hong**

Logistics Officer

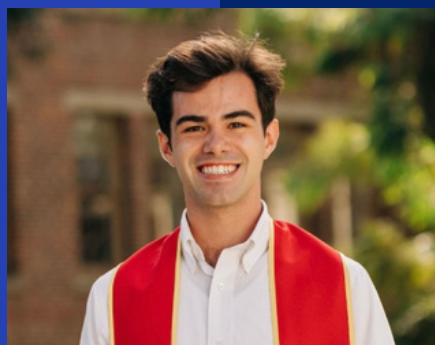
Hong is a first year undergraduate studying Natural Sciences, hoping to do further studies in the field of Ecology. He has an avid interest in all things natural and is a great home cook, often being found either hiking or in the kitchen during weekends or longer breaks.



**Francisco Wang**

Publicity Officer

Francisco is studying an MPhil student in Strategy, Marketing, and Operations at the Cambridge Judge Business School. He obtained his BA in International Business from Rollins College. Francisco's research interests are in cross-cultural consumer psychology and prosocial behavior. He also has experience working in higher education and journalism as social media coordinator and graphic designer.



**Jackson FitzGerald**

Workshop Officer

Jackson is doing an MPhil in Archaeological Science. He has presented posters and talks at various conferences but was new to helping organize one.





**Elizabeth Roe**

Equity Officer

Elizabeth Roe is an MPhil in Public Policy student from Boston, USA. Her research interests include social inequality, health disparities, and LGBTQ+ rights. Her research experience has focused on topics including policing in Boston's opioid epidemic, climate services in the health sector, and comparative effectiveness of cardiology therapies. Aside from academics, Liz spends her time competing on the Cambridge Blues Basketball Team and serving as Wolfson College's LGBTQ+ Welfare Representative.



**Laura Jeffrey**

College link

Laura is a chartered, academic librarian. She is responsible for leading and developing Wolfson College's research and academic skills programme. In addition, Laura manages the provision of core library services including circulation, collection development and reader services.



**Meg Westbury**

Fellow Liaison

Meg is the Academic Services Librarian (Human and Social Sciences) for Cambridge University Libraries, and she is the former Librarian for Wolfson College, where she is also a Fellow and Tutor. She holds a PhD in E-Research and Technology Enhanced Learning and MAs in Cultural Anthropology and Library and Information Science.

