



UNIVERSITY
of York

GRADUATE RESEARCH SCHOOL

PhD
Research
Spotlight 2020

Finalist
Summaries

08 January
2020

Ron Cooke Hub
University of York
York



YORKTALKS
RESEARCH IN THE SPOTLIGHT

10 PhD Students

10 Great Impacts

Welcome to the YorkTalks 2020 PhD Research Spotlight competition at the University of York!

This event challenges PhD candidates to articulate their research to a non-specialist audience through an interactive exhibition using a variety of mediums. The process of breaking down their research for this kind of interaction enhances both their communication and presentation skills and also forces them to think about what, why, and how they are conducting their research.

Competition rules

The finalists are encouraged to make their exhibition pieces visually appealing, well presented, and coherent in order to engage an academic, non-specialist audience. They have to give consideration to the medium(s) that will best convey their research.

Judging criteria

1. Visual appeal, presentation and coherence
2. Clear message about the originality of the research
3. Relevance outside a single field, and able to excite those working in other disciplines
4. Appropriateness for a non-specialist, academic audience

HOLLY BROWN

Department of Psychology

Beyond the eye: The consequences of sight loss on the brain

While the eye receives incoming information from the world, it is the brain which makes sense of what we see. It is therefore important to understand how the brain processes visual information in both sighted individuals and those who have lost sight through various forms of eye disease. The leading cause of blindness in the western world is age-related macular degeneration (AMD), which causes a progressive loss of central vision, for which there is no cure. It affects the elderly and given the aging population, AMD will only become more prevalent in the coming years. Whilst most research is geared towards curing eye disease and restoring the eye, my research assesses how the structure and function of the brain are affected by eye disease. This is important when considering restoration attempts; if the visual brain cannot process new incoming information after years of sight loss, restoration attempts will be limited.

Holly Brown is a 3rd year PhD candidate in Cognitive Neuroscience and Neuroimaging in the Department of Psychology. Her research aims to understand how the brain is affected by different forms of eye disease and determine how this compares to natural aging. Using Magnetic Resonance Imaging (MRI), Holly investigates both the structure and function of the parts of the brain involved in processing vision.



ALEXANDER DRAYTON

Department of Physics

Shining a light on disease: A new device for quick diagnostics

No two people are the same; so their medical treatment shouldn't be either. Current disease testing often requires bulky and expensive equipment which is slow to give results. While doctors wait for results, they can only give broad treatment; not the exact medicine the patient needs. Medicine needs small, low-cost equipment giving specific diagnosis at the point of care. Like people, no two diseases are the same. Most diseases create unique patterns of disease-indicating proteins in the body. Quick identification would allow quicker diagnosis and tailored treatment. I am developing a small, low-cost device which measures levels of disease-indicating proteins in bodily fluids. It acts like a mirror whose surface is modified to reflect a specific pattern; disease-indicating proteins stick onto the mirror and its reflection pattern changes. This tool is small and affordable, will help better treatments to be chosen and reduce ineffective or harmful treatment, saving valuable resources.

Alex is in the third year of his PhD in the Photonics Group in Physics, after earning his integrated masters at York. Alex is interested in the interaction of light with matter and how to use this to make bio-sensors for the early diagnosis of diseases. He has also enjoys other fields, such as the health economics needed to understand the impact of such devices. He is an enthusiastic science communicator, keen on explaining physics and engaging the general public.



IAN FOXLEY

Centre for Applied Human Rights,
Department of Politics

The whistleblower dilemma: Why don't more good people speak up about bad things?

Systems fail, bad things happen, people make mistakes and criminals still lust for sex, money and power. But there are also those whose principles, values and courage drive them to expose wrong-doing in all sectors of society, often at great personal and professional expense to themselves and their families. But why are they singular examples of citizenry? Why do more people not speak out when they see bad things? 'Speaking Up' is not just about disclosing corruption within multi-national corporations: there's also school and workplace bullying, abuse of vulnerable people and children, medical malpractice, political corruption and, *in extremis*, acts of individual and State torture and murder. Discovering why honest citizens do not disclose wrong-doing is vital to ensuring the future moral health of society: my research offers opportunities to impact on protection policies to so that others may so do in future - without fear of intimidation and victimisation.

Ian is a retired Lieutenant Colonel with 24 years' service in the Army. His subsequently spent 14 years managing major telecommunications projects, concluded by blowing the whistle on corruption in government defence procurement contracts in Saudi Arabia. Academia is his third career. He has a BSc in Applied Science (1982), a Post-Graduate Diploma in Management (1995), an MA in Applied Human Rights (2017) and is now researching a PhD at the Centre for Applied Human Rights (CAHR), University of York.



PETRONEL GEYSER

York Law School

Prosecuting the crime of terrorism financing

Terrorism, like any organised activity, needs money to plan and complete attacks as well as to find and train new members. Cutting off the flow of money to terrorist groups will reduce their activity and effect on the world. One way to do this is through police investigation and prosecution of the crime of terrorism financing. However, the UK prosecutes an average of just one terrorism financing case per year. This seems a surprisingly low rate given that many private businesses like banks, airlines, and social media must, by law, collect data which can be used to identify and investigate terrorism funders. So what is going wrong? This research will review existing cases to discover how to secure better evidence for terrorism financing trials and determine what else the police and prosecution services can do to put more terrorist funders on trial and stop the financing of terrorism.

Petronel is a second year PhD student at the York Law School, researching factors that inhibit the prosecution of terrorism financing. Her research aims to discover how the investigation and prosecution process can be improved to disrupt more terrorism financing through prosecutions. Admitted to practice as an Advocate, she prosecuted for over 15 years in South Africa, specializing in money laundering, tax fraud and other white collar crimes. She also has extensive experience in civil and criminal asset forfeiture applications.



JESSE HENNEKAM

Hull York Medical School

A world of giants and dwarfs: The story of island evolution

Animals on islands often adapt to their isolated ecosystems very drastically. The "island effect" is a fascinating response of evolution on life on islands, resulting in animals with extreme changes in size and shape. This effect was particularly visible on Sicily; with the presence of dwarfed elephants and gigantic owls. During the 1970s, a slab of rock was extracted from a cave floor in northwest Sicily. Embedded within this slab were multiple well-preserved fossil skulls of an extinct gigantic dormouse. Using scanning techniques normally used in medicine and engineering, these fossils were digitally segmented to reconstruct a composite skull of this enormous dormouse. The composite provides new information about this giant and its placement in a very peculiar Sicilian ecosystem. This kind of research is not solely an exciting discovery from the past, but also vital for predicting how modern species and ecosystems may adapt to a rapidly changing environment.

Jesse Hennekam is a PhD student at the Hull York Medical School, based in the PalaeoHub. He researches size adaptations in mammals on islands using geometric morphometrics and finite element analysis. He has previously worked on insular dwarfism on Mallorca and Gargano, and is currently focusing on insular gigantism in fossil dormice on Sicily. With a background in Geology and Ecology, he aims to understand events from the past using the present, and vice versa.



JAMES KILLEN

York Law School

Morality in adversity

Around the world, unprincipled governments are making it harder for people who defend human rights to do their job. Whether it is civil rights, LGBT+ rights, economic rights, women's rights or children's rights; the work of these people is the foundation of the international system of human rights. Right now, these people are intimidated, criminalised, imprisoned, and receive threats and acts of violence by governments intent on continuing their abuse of power. The United Nations has described this as "an epic struggle... that could shape the course of our world for generations to come". Human rights work has an effect on mental health and working in an environment of persecution makes it harder still. I am researching the effect of moral decision making; looking at when people are routinely forced to make a choice between two equally awful options, and the consequences of those decisions.

James Killen is a second year PhD candidate at York Law School at the University of York, where he also read an LLM in International Human Rights Law and Practice. Before this, he was a Captain in the Army Medical Services working as a mental health clinician running mental health units, treating psychological trauma, and on regimental duty. He served all over the UK, Germany and deployed as the officer-in-charge of the mental health team in Afghanistan.



KRISTL KIRK

Department of Music

Decoding music learning with dyslexic students

Dyslexia affects at least 10% of the population. Previous research has demonstrated the benefits of music for overall brain development: including the use of rhythmic training to improve dyslexic student's reading abilities. However, very little research has been done to understand how dyslexic students process music learning, and there are very few resources for instrumental music teachers. Dyslexia is often associated with misspellings and reversed letters, but in fact may also include memory issues, visual disturbances and motor coordination difficulties. Many of the difficulties which are encountered may create challenges for both the teacher and the student when learning to play a musical instrument. How can teachers be more informed in the way they teach dyslexic students? My research aims to learn more about effective teaching strategies, using specific apps, alternative music scores and working with the student's strengths to create useful resources.

Kristl is a pianist, teacher and music education researcher (MA, York). Her PhD combines a passion for music and research with a particular focus on students with dyslexia. Experiences in her teaching practice were a motivating force driving her ambition to make transformative impact in the lives of dyslexic students, their parents, exam boards, schools and universities. A recipient of the Vinson Scholarship through the Department of Music, Kristl is currently in the second year of her PhD.



LYNDSEY KRAMER

Department of Sociology

Latvian workers moving to Northern England: how do they find work and settle, and will they stay?

The economic recession of 2008 hit Latvia particularly hard, due to its history and economic policies. Findings so far are that the recession was the main influence for migration to Northern England from Latvia after 2008. Arguably, this creates a potential dilemma for part of Northern England that has grown to rely on this labour, as Latvia moves out of recession and regains economic growth, will the workers stay? How easy is it to move from a country like Latvia to Northern England? This research asks Latvians how they have managed to settle in Northern England. Importantly and of economic as well as sociological significance, it asks them why they chose to come to Northern England and if they will stay. Altogether there will be 30 in-depth interviews, and these are repeated after six months, post current Brexit negotiations. These provide a valid insight into the opinions of Latvians who have arrived in Northern England since the recession of 2008. Significantly, Latvians are the second largest group of EU workers in the North West.

Lyndsey studied Politics, Social Policy and Sociology at Plymouth University, gaining a good honours degree. She was then offered a scholarship at The University of Exeter to study for a Master's degree. From there Lyndsey worked as a researcher, later qualifying as a teacher in adult education. After teaching in sixth forms she became a Qualified Teacher and worked in schools. Lyndsey has returned to studying to complete her PhD. Social research is her passion, finding reflecting and thinking about social events and their potential consequences intriguing and intellectually fulfilling. Especially when combined with supporting policy decisions and furthering knowledge.



BETHANY SUGGETT

Centre for Women's Studies

Challenging the global taboo: Menstrual attitudes and experiences in England and Kenya

Menstruation is a normal and necessary biological function experienced by half of the global population, yet it is often concealed, managed in silence and experienced with shame and embarrassment. There has been a rising interest across the international research community in how people experience menstruation, and we now know that inaccurate knowledge and negative attitudes are having a detrimental impact on the lives of those who menstruate worldwide. Despite the recent exposure of the various issues being faced here in the UK when it comes to "that time of the month", menstrual stigma and 'period poverty' continue to be associated with low- to middle- income countries. I aim to improve our understanding of menstrual attitudes and experiences across different socio-economic contexts and more importantly, challenge existing narratives of the Global North-South divide.

Bethany is a second year PhD researcher in the Centre for Women's Studies. She holds an undergraduate degree in International Development with Sociology and a master's degree in Global Development and Gender. Her current project builds on previous research she carried out on menstrual attitudes in Uganda with school-age boys for her MA dissertation. Bethany is spending time at the University of Nairobi this year during her fieldwork in Kenya as part of the Worldwide Universities Network Research Mobility Programme.



EVELYN TAN

Department of Computer Science

Teamwork makes the dream work: Building effective teams using digital games

The global games industry is valued at \$134.9 billion as of 2018. With 2.5 billion players, digital games have become an irreplaceable part of our culture. Some of the most popular games are team-based and are enjoyed by players because of the challenge, skill level and social aspects involved. However, because players are typically matched with strangers and must learn to work together in an extremely short time (i.e. 45 minutes) such teams are sometimes ineffective and breakdown. Poor teamwork not only affects the outcome of the game but the player's overall progress which can leave players feeling frustrated. Studying team-based digital gameplay in real-time can help reveal how to facilitate effective teamwork in new teams and improve the gaming experience. In addition, because digital games can provide extremely realistic simulations of numerous environments, this work can also provide insight to improve the effectiveness of real-world teams whatever their context.

Evelyn is a 2nd Year PhD student in Computer Science. Under the Centre for Doctoral Training in Intelligent Games and Game Intelligence, her research investigates factors that improve team effectiveness - both in terms of team processes and team composition. Since it is difficult to obtain high quality data about teams in the real-world, Evelyn uses digital games as her medium of research. Digital games provide information about team members, composition, interaction and outputs, which enable a deeper understanding of the underpinnings of effective teamwork.





The Organisers

The York Graduate Research School (YGRS) and the Research Excellence Training Team (RETT) are committed to providing a supportive, stimulating and structured framework in which research students and those who support them can improve the conduct of research and develop their professional skills and career profile.

YGRS and RETT want all researchers at York to realise their potential and fulfil their career aspirations, whatever they may be. We are always looking for collaborators in the form of organisations and individuals who can support our work. If you, or your organisation, are interested in helping us to develop our programme of skills training or are able to offer opportunities for our researchers, please contact us at rett@york.ac.uk

For more information see:
www.york.ac.uk/rett