Tick Tock: Research stories against the clock

3MT®
Finalist
Summaries

10 PhD Students
10 Great Impacts

Tuesday 13
June 2017

University of York
RESEARCH EXCELLENCE

YORK FESTIVAL OF ideas

North Yorkshire Coast Higher Education Collaboration (NYCHEC)

THE CONVERSATION

3MT® THREE MINUTE THESIS
FOUNDED BY THE UNIVERSITY OF QUEENSLAND

vitae
realising the potential of researchers

Contents

Welcome to the 2017 3MT® (Three Minute Thesis) competition at the University of York

3MT® is an academic competition developed by the University of Queensland, Australia

Its success has led to the establishment of local and national competitions in several countries. Today, ten University of York research students have just three minutes to communicate their research and its impact to you - an audience made up of school pupils, teachers, university staff and members of the general public. Communicating to different audiences is important for researchers as it helps to demonstrate the contribution that research makes to wider society and the economy.

Judging criteria

At every level of the competition each competitor will be assessed on the two judging criteria listed below. Each criterion is equally weighted and has an emphasis on audience reaction. Each presentation will be assessed by the panel of judges and scored out of a total of 60 points (five points per bullet point below).

Comprehension and content:

- Did the presentation provide an understanding of the background to the research question being addressed and its significance?
- Did the presentation clearly describe the key results of the research including conclusions and outcomes?
- Did the presentation follow a clear and logical sequence?
- Was the thesis topic, key results and research significance and outcomes communicated in language appropriate to a non-specialist audience?
- Did the speaker avoid scientific jargon, explain terminology and provide adequate background information to illustrate points?
- Did the presenter spend adequate time on each element of their presentation - or did they elaborate for too long on one aspect or was the presentation rushed?

Engagement and communication:

- Did the oration make the audience want to know more?
- Was the presenter careful not to trivialise or generalise their research?
- Did the presenter convey enthusiasm for their research?
- Did the presenter capture and maintain their audience's attention?
- Did the speaker have sufficient stage presence, eye contact and vocal range; maintain a steady pace, and have a confident stance?
- Did the PowerPoint slide enhance the presentation - was it clear, legible, and concise?

Judging panel

Dr Karen Clegg
Head of Research Excellence Training, UoY

Professor Tom Stoneham
Dean of the York Graduate Research School, UoY

Professor Melissa Sturge-Apple
Dean of Graduate Studies in Arts, Sciences and Engineering, University of Rochester (NY)

Joan Concannon,
Director of External Relations, UoY

Kuntal Singh
2016 3MT winner, Department of Biology, UoY

Michael Terwey
Head of Collections and Exhibitions, National Media Museum

Competition rules

Participants:

- Single static PowerPoint slide (no slide transitions, animations or 'movement' of any description)
- No additional electronic media (e.g. sound or video files)
- No additional props (e.g. costumes, musical instruments, laboratory equipment)
- Presentations are to be spoken word (e.g. no poems, raps or songs)
- Presentations are considered to have commenced when a presenter starts their presentation through movement or speech
- The decision of the adjudicating panel is final
- Competitors exceeding 3 minutes are disqualified

Audience:

- No unwanted audience participation
- Mobiles off
- Use a post-it-note to let us know what you think of the competition!

Prizes

1st prize - iPad
2nd prize - £150 Amazon voucher
3rd prize - £75 Amazon voucher

Schools' Choice Award: One on one support from the North of England editor at *The Conversation* to develop a research communication piece for publication.

PLUS the University of York internal competition winner gets to take part in the 2017 national 3 Minute Thesis competition: semi-finals in July 2017; final in September 2017 and the top three winners all get put forward to the Falling Walls Lab York on 23 June 2017.

Indiana Jones made me do it: bad behaviour and worse archaeology in videogames

L Meghan Dennis, Department of Archaeology

According to videogames, archaeologists are fit. Archaeologists are tan. Archaeologists wear khaki, regardless of location, and don't need sunscreen. They also steal artifacts, destroy historical sites, and don't have to worry about getting in trouble with the law (or their universities.)The problem is, none of this is true! It's just the way in which archaeology is shown in videogames. It's bad, unethical archaeology, and it may be influencing how people who play videogames behave in the real world. Through interviews, surveys and game-play sessions, this research seeks to understand the connections between performing unethical forms of archaeology in videogames and attitudes towards heritage outside of games.

Meghan is an archaeologist with more than 15 years' experience in historic preservation, commercial archaeology, and academic archaeology. In addition to her archaeological and preservation work, Meghan worked in online gaming for many years, both as a content developer and community manager. She is currently a second year PhD student and lives in York with a lot of videogame consoles and two excitable herding dogs who don't care about ethics at all.

Changing the face of science

Frances Drachenberg, Department of Biology

Scientists likes to tell stories, just like the rest of us. Finding out a clear cause and effect has been a useful way to develop medical interventions and treat many different diseases. But now we're faced with some stubborn diseases, which are complex and haven't given way to our traditional methods of research. Can we come up with new research approaches, new ways of looking at the problem, to tackle these tough diseases? Can we change the face of science? In my research, I use text mining and network analysis to identify and describe the different research approaches that are already being used, and I see how well that research has done in the long run by looking at the results of clinical trials. The most successful approaches can be built on, so we can change the way we do research and attack complex diseases head-on.

Frances is a PhD student in the Department of Biology and at the York Centre for Complex Systems Analysis. She completed a BA in Ecology and Evolutionary Biology at the University of Colorado, Boulder, followed by an MRes in Computational Biology at the University of York.

Making a robot removal man company

Naomi Gildert, Department of Electronic Engineering

As incredibly complex beings, we humans often use ourselves as inspiration for robotics research: how we walk, pick up objects with our hands and even how we learn have all been attempted to be replicated in robots. My research looks at how two humans cooperate on tasks like carrying a box together by using explicit communication (direct talking) and implicit communication (implying something through an action), and tries to imitate that in robots. This new way of robotic communication could come from combining work from three robotic research areas: implicit communication in swarm robotics, internal simulation, and dynamic leadership. It has the potential to be beneficial in a wide range of robotic applications where humans cannot be present due to environmental or safety concerns. For example, in search and rescue applications in disaster zones, in bomb disposal or threat identification, or in exploration of space or the deep sea.

Naomi is a prime time presenter on University Radio York and is in her first year of her PhD, studying communication and cooperation between humanoid robots. She has an integrated Master's degree in Electronic Engineering from the University of York (2016).

To help or not to help: bullying bystanders in schools

Maria Lopez Romero, Department of Education

School bullying has serious consequences for everyone involved and it shapes students' attitudes toward violence. How do we address bullying? Research has pointed to bystanders. Bystanders can provide or withhold the encouragement bullies seek and give victims the support they need. Still, bystander involvement is uncommon. This study explores students' views on bullying and on being bystanders. Using questionnaires and focus groups, we found students wish they could help, but they do not do it for fear that bullies will pick them as new bullying victims. This offers a challenge for research, policy and anti-bullying programmes. For students to stand up and help, we need to assure them that if they do, they will be cared for as well. Peers, school staff and families need to be a part of this effort. Bullying is a community problem and if all its parts work together, it can get better.

Born and raised in Mexico City, Maria completed a degree in Psychology at Universidad Anahuac before pursuing a master's degree in Counselling in Educational Settings at Rowan University in New Jersey, USA. Maria is currently a doctoral candidate in the Department of Education, planning to submit her thesis in 2017.

What about immigration and professional women?

Joy Ogbemudia, Centre for Women's Studies

My research explores the experiences of professional Nigerian women who migrated to settle and work in the UK. Although women make up nearly 50% of the world's estimated 232 million international migrants, research on global migration focuses on men and not on women. Women are viewed as mere appendages to the men. Furthermore, the very few research that exist on Nigerian women focuses on women as asylum seekers and victims of human trafficking but this is only one side of the story. A good number of women migrate as professionals who are deskilled and unproductive in their host countries. My research focuses on these women. I question the impact that neglecting these talents has on Gross Domestic Product. Through participants' narratives, I explore the global impact of professional women migration on human security, family relationships, children welfare, and health/social care, especially under the present day geo-political atmosphere.

Joy is a second-year PhD student from the Centre for Women's Studies. Her research is on the Immigration and Employment Experiences of Professional Nigerian Women in the UK.

Dying in prison

Carol Robinson, Department of Sociology

Prisons are usually thought of as places full of young, physically fit men. In fact, we have a rapidly ageing prison population and an increasing number of prisoners are dying from natural causes. How we treat them, at their most vulnerable, says a lot about us as a society. My research looks at what effect these deaths from natural causes have on the prison. If the prison exists to keep people behind bars, how does it cope with dying prisoners? What influences how a prison and prison staff respond? Do the decisions staff make when caring for dying prisoners have knock-on effects? I'm trying to answer questions like these by observing what happens within two prisons and by talking to people who work with dying prisoners, including the other inmates. My research is about raising awareness of the hidden challenges presented by these deaths.

Carol Robinson is a PhD student in the Department of Sociology. Her doctoral research, funded by the ESRC, explores the impact on prison regimes, cultures and relationships of the increasing numbers of prisoners dying of natural causes. It is inspired by her experience of having worked as a prison chaplain.

Weekly cycles; cautious Thursdays

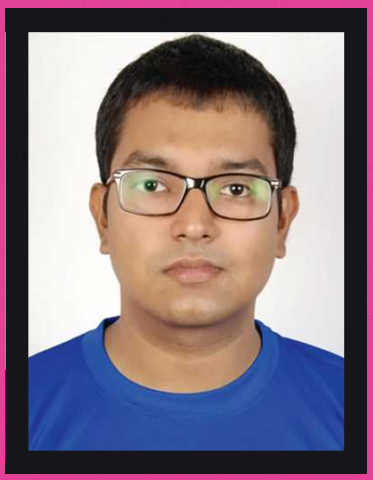
Jet Sanders, Department of Psychology

It is common knowledge that we feel different on different weekdays. This affects our choices. For example, people are more likely to go to the pub on a Friday than midweek. But on what weekday is a bank most likely robbed? Or a country most likely voted to independence? All these choices depend on taking risks, and my research shows that risk taking changes across weekdays. I will present evidence from a lab experiment, an analyses of FBI statistics for 60,688 bank robberies, and 81,564 poll responses ahead of the Scottish Independence and 149,064 poll responses ahead of Brexit. In all studies, risk taking decreased from Monday to Thursday – where we become most cautious – reverting to original risk levels on Friday. Surprisingly, the outcomes of such important decisions depend on the day on which they are taken. When in the week an election is held could even determine its outcome!

Jet is in the write-up stage of her PhD in Psychology. She works to find patterns that can be used to change behaviour for social benefit, and in her spare time she likes drawing portraits. She went to a United World College in Costa Rica, and has since worked and studied in Kampala, Glasgow, York and Kyoto.

Robot doctor: walking towards better diagnosis and recovery in healthcare

Viswadeep Sarangi, Department of Electronic Engineering



Gait; the style of walking, is an extremely synchronised, complex relay of activities involving the muscles and nerves of our whole body. Its complexity potentiates it as a marker for diagnosis and recovery monitoring for various diseases like Parkinson's, stroke and osteoarthritis. My PhD research aims at transcribing the abstract aspects of gait that a trained clinician or a doctor looks at during gait analysis, and translating those aspects efficiently into machine language; so that the computer may understand it. The invention of 3D cameras and artificial intelligence techniques makes it possible for a machine to understand human walking and use the information to perform diagnosis and recovery monitoring over time. The success of the thesis would create the platform for a portable, highly trained and skilled artificial clinician. It could not only aid doctors for better diagnosis and care of patients, but also be utilized as an inexpensive home diagnosis and recovery progress monitoring device.

As a PhD student in the Department of Electronic Engineering, Viswadeep is an artificial intelligence enthusiast, a virtual and augmented reality fanboy, with an aim to better people's lives through healthcare. He also holds a Bachelor's degree in Electronic Engineering, a Masters in Physics and has three years of industrial work experience as a machine learning engineer and as a data scientist.

Hands that speak

Katherina Walper Gormaz, Department of Language and Linguistic Science

Have you ever noticed that when speaking, we can't help moving our hands? Yes! We move them all the time, and, often, even more when we are speaking in another language. In this presentation, I will tell you about my study of Chilean teachers of English and the kinds of things they accomplish through their hands during the lessons. I will show you how they give students clues so that they come up with words themselves. The importance of this study is that it will provide new insights for teachers, of languages and other subjects, into how to maximise the potential of instruction. Universities, too, will be able to tailor their teacher training programmes to better educate teachers.

Katherina is a third-year PhD student in Language and Communication at York, and her main research interest is classroom interaction and the role of the body. She is a teacher of English as a foreign language and a teacher trainer at Universidad Austral de Chile. She loves reading Jane Austen and going to the theatre.

How a human antidepressant could alter the behaviour of wild songbirds

Sophia Whitlock, Environment Department

Many species of songbird in the UK are in decline. One recently identified threat to songbirds is human pharmaceuticals in the environment. The antidepressant Prozac (fluoxetine) is designed to alter behaviour in humans and is known to contaminate the environment. My work has shown that Prozac present in the environment could alter anxiety and courtship behaviours in songbirds. Prozac can enter the environment via sewage. About 10 % of the Prozac taken by a patient is not used by the body and is excreted unchanged into sewage. This active waste is not fully removed by sewage treatment processes, meaning Prozac can enter the environment. This is problematic because songbirds can eat plants and invertebrates which have taken up Prozac from contaminated soil or water. Those songbirds are then at risk of altered behaviour, which could affect their ability to reproduce or even to survive.

Sophia is an Environmental Science PhD student studying the risk of pharmaceuticals in the environment to wild birds. Between her undergraduate Chemistry degree and PhD, she worked in a research governance role for the NHS. She also took some time to travel, including several months of volunteering on a seabird reserve island. This inspired her to pursue a PhD on the subject she is most passionate about: birds!

The organisers

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

RETT want all our 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**

Acknowledgements

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GSA Office
120 Vanbrugh College
University of York
Heslington
York
YO10 5DD

Telephone: 01904 32 2718
Email: info@yorkgsa.org
Website: www.yorkgsa.org
Twitter: @gsayork
Facebook: /YorkGSA