

**The University Graduate School  
presents**

**Images of Research 2016/17**

*The Catalogue*



## Guidelines for voting



Can you capture your entire research project in a single image? The University Graduate School presented this challenge to our postgraduate researchers and the images you see here represent the exciting research projects our postgraduate researchers are working on at the University of Birmingham.

**Help us decide if they have captured your imagination or made you think a little differently about research by voting for your favourite entries.**

Please vote for your top three favourite entries. As a guide, a winning image should be:

1. Visually appealing
2. Original and creative
3. The accompanying abstract and the image should be connected to the research topic

You can [vote online](#) or in person at the exhibition in Rotunda, Aston Webb Building, University of Birmingham.

Images will be displayed in Rotunda (R6 on campus map) until 30 November, 2016 and online voting will close on 5 December, 2016.

Winners will be announced on 7 December, 2016 at 17:30 during the Images of Research celebration at the Westmere PGR Hub, University of Birmingham.

We hope you enjoy the Images of Research 2016/17 catalogue!





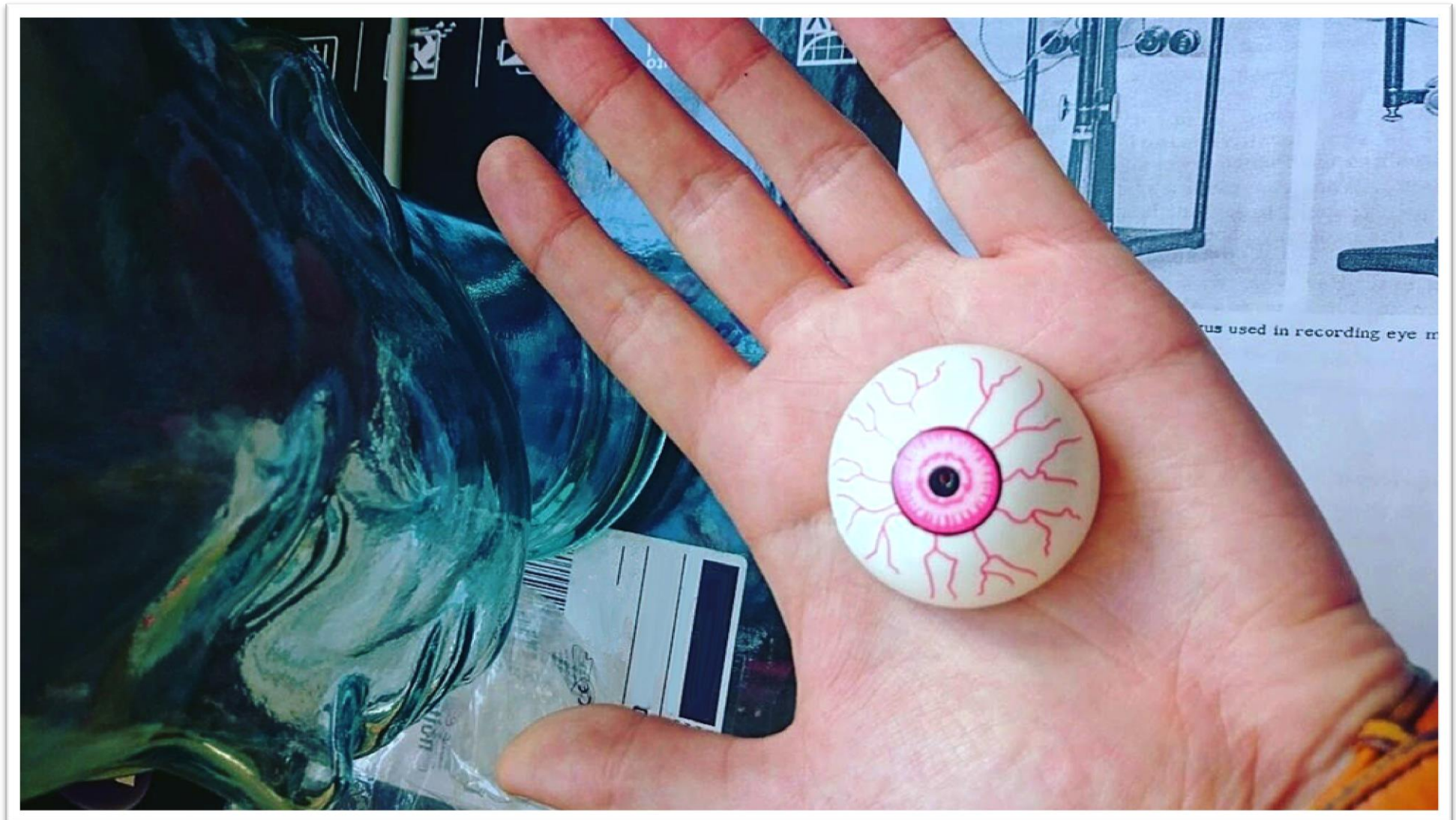
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## Can anywhere be church?

***Alisha Paddock, Postgraduate Researcher, Philosophy, Theology and Religion***

Can church happen anywhere? It has become the trend over the last twenty years among American churches to use any available space to hold worship services. This picture is of Crosspoint Church, nestled between a sushi bar and a pub. Walking down the street, you might not even notice the space is a church. Besides the sign there is no visible architectural element (like a steeple) that indicates this space is a church. First century New Testament believing communities also met in non-church buildings, like houses or rented space (e.g. workshops or baths). In my research, I'm contemplating the places New Testament believing communities met for worship and what needed to take place for that space to be considered sacred.



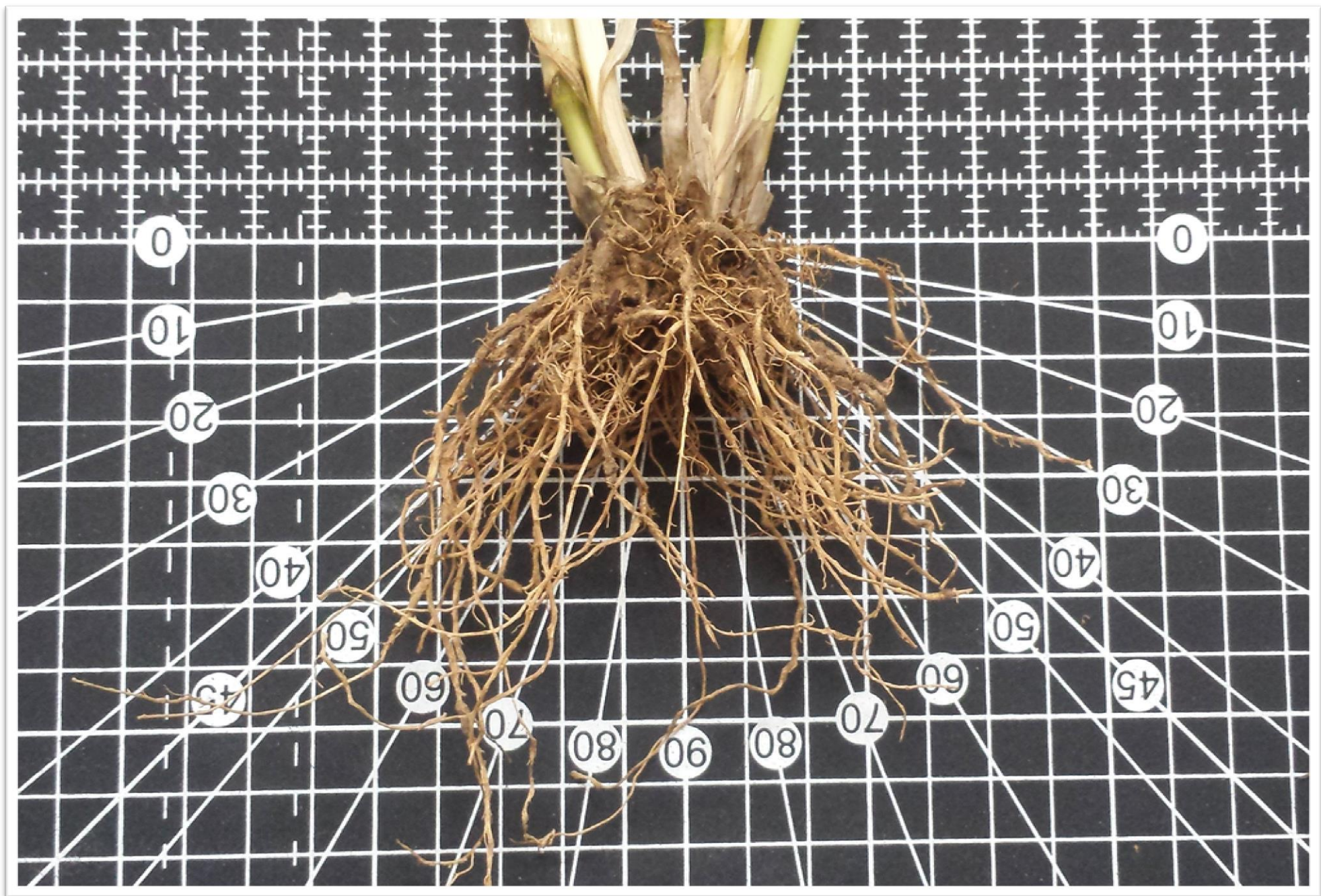


## From Mind to Eye, From Eye to Memory

***Alper Kumcu, Postgraduate Researcher, Psychology***

For a very long time, it was thought that the only purpose of the eyes is to see. However, a growing body of evidence has started to challenge this idea by showing novel functions of eye movements which are not necessarily visual. Memory is one of the most exciting of these functions. Our research has shown that when remembering words, people systematically look at the blank spaces where the words were previously located. Known as “looking at nothing”, this surprising memory effect encourages us to see cognition from a totally different perspective: The world around us is not just input for the mind, but also an extension of it.





## Measuring Roots

***Amelia Rouse, Postgraduate Researcher, Civil Engineering***

This image shows the measurement of wheat roots to find the angle of spread. The angle of spread is used to determine the resistance of the roots and soils of crops, like wheat, to a phenomenon called root lodging. Lodging is the failure of crops due to factors including strong winds and rain. It affects the yield and quality of grains harvested at the end of the growing season.

My research is investigating the interaction between roots and soils of wheat and oilseed rape crops to determine the key characteristics that could enhance their resistance to wind and rain. This involves measuring root-soil resistance in the laboratory and in the field.





## The Human Rights Council: A new era for human rights?

***Amna Nazir, Postgraduate Researcher, Philosophy, Theology and Religion***

This image was taken on a research trip to the United Nations in Geneva. It depicts the Human Rights Council (HRC) in action, reviewing the human rights record of several countries.

The HRC was established by the UN in 2006 with the aim to promote and protect human rights around the globe. All 193 member states have their human rights progress reviewed periodically with both states and civil society organisations given the opportunity to make any recommendations for improvement.

My research is analysing to what extent this mechanism is effective for the delivery of human rights protection and how Islamic states justify their use of the death penalty within such a context. It is therefore challenging the efficacy of the HRC.





## Looking past the Stigma, seeing the Potential

***Benjamin Parry, Postgraduate Researcher, Sport, Exercise and Rehabilitation Sciences***

The young people in this photograph have:

Spoken in parliament,  
Produced music, spoken word and poetry,  
Fundraised for charity,  
Attended university,  
Climbed a mountain,  
Created thought provoking art,  
Been on interview panels for large organisations,  
Worked with sporting academies,  
Experienced homelessness.

Mental Skills Training for Life™ (MST4Life™), is a collaborative programme working alongside local housing services, designed to help homeless young people develop mental skills and strengths through a range of empowering activities; aiming to enhance qualities such as resilience, self-worth and well-being.

*"I think MST has kind of broken through that stigma of: 'It's a bit embarrassing isn't it like, we live in a hostel, we're homeless, whatever', why? Why is it embarrassing? When we can do something to help the next set of people that will be in our position." – Young Person*





## Consent to veterinary treatment

***Carol Gray, Postgraduate Researcher, Law***

The image shows a veterinary patient (greyhound) lying on a bed, with a human preparing to give the dog some treatment. The patient appears calm about the prospect of treatment. Consent for veterinary healthcare is given by the animal's owner, but it should be "informed" consent.

Do animals ever have a say in whether they are treated or not? Some animals put up a fight when a veterinary professional is trying to administer healthcare – is this an indication that they do not consent? Many veterinary surgeons will sedate such animals purely for treatment. The basis of most veterinary healthcare is that it is in the animal's best interests, similar to young children who cannot consent.





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## #Ironbridge

***Coralie Acheson, Postgraduate Researcher, Ironbridge International Institute for Cultural Heritage***

Selfies are ubiquitous, often irreverent, idealised and performative self-portraits usually taken expressly for the purpose of sharing online through social media. Despite their apparent silliness they could perhaps be considered as profound reflections of our innate human need to tell the world that 'I AM HERE'. My research concerns the ways in which tourists engage with the World Heritage Site of Ironbridge Gorge in Shropshire. It combines online media analysis with an ethnography of tourism within the site. Selfies encapsulate both the physical performances of tourists, within which photography is hugely significant, and the online representation of the tourists' experience during and after the trip. They also capture some of the fun of a big day out!

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## The Demolition of Văcărești Monastery

***Cosmin Minea, Postgraduate Researcher, Languages, Cultures, Art History and Music***

This is one of the last known images of Văcărești Monastery. The famous historical monument in Bucharest, almost 300 years old, was demolished in December 1986 by the orders of Nicolae Ceaușescu, the leader of Communist Romania, who envisaged a new urban layout. The picture still sends shivers down the spine of the Romanians.

The wrecking ball stands as a symbol of the strength and brutality of the communist regime while its victim in the background, the church, lays isolated, feeble and helpless, embodying for many the very destiny of the Romanian identity, crushed under Ceaușescu's dictatorship. My research aims to explain the dramatism of the moment by asking what is the value attached to monuments such as Văcărești and how did they come to symbolise the Romanian culture and identity?





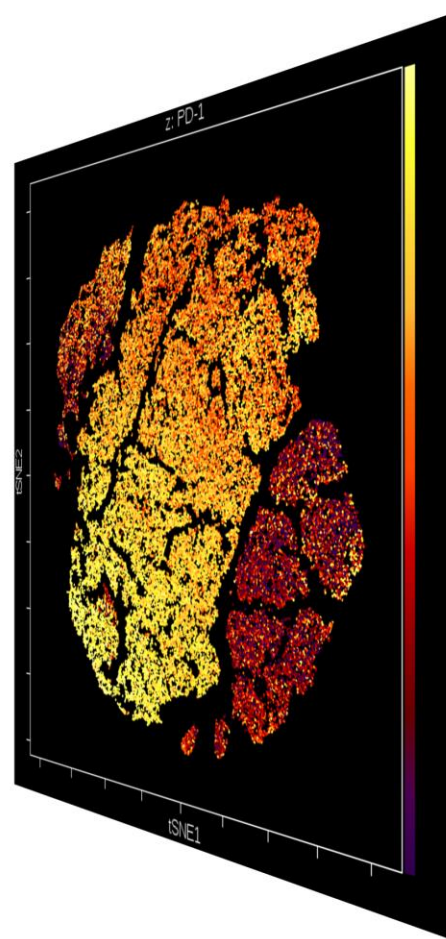
## Considering continents – From field to lab

***David Edward Cavell, Postgraduate Researcher, Geography, Earth and Environmental Sciences***

Geology begins in the field. All studies start with sample collection, often with a hammer and notebook. For my PhD this involved collecting volcanic rocks from Panama and Colombia, and the background image shows me taking notes at an outcrop in southern Colombia.

Every rock has a story to tell. The chemistry of these rocks is similar to that of Earth's first continents, and could hold clues to that early history of our planet. Useful information can be gleamed at every stage, whether when the rocks are first split open in the field or the lab, or as the rocks are broken down further in the lab before chemical analysis. Fieldwork is essential, but is a fraction of geological research.





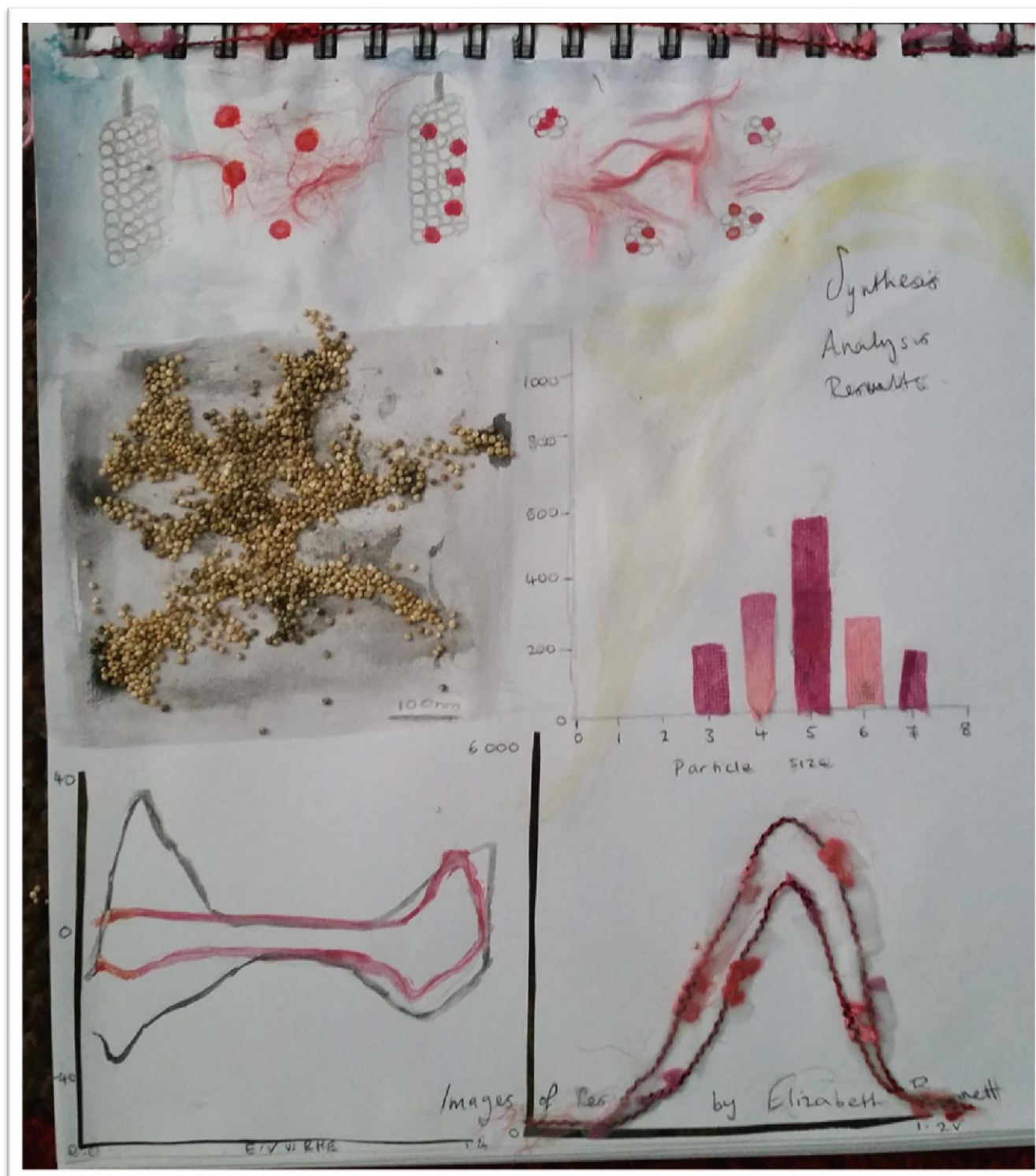
## Standing on the Shoulders of Giants

***Duncan Murray, Postgraduate Researcher, Immunology and Immunotherapy***

The first person to be diagnosed with mycosis fungoides gazes 210 years into the future. Not a mushroom-like fungus as the name suggested, the disease is an incurable cancer of cells from our immune system. For cancer to exist it must subvert our immune system, but what happens when our immune system meets a cancerous form of itself?

The image shows how we can visualise multi-dimensional data, separating the cancer T cells (in the thick yellow stripe) from the attacking T cells in this viSNE plot. When this gentleman's case was described, I doubt he had much idea of what would come of it. This is my way of going back in time to show him and to thank him.





## 'Synthesis, Analysis, Results'

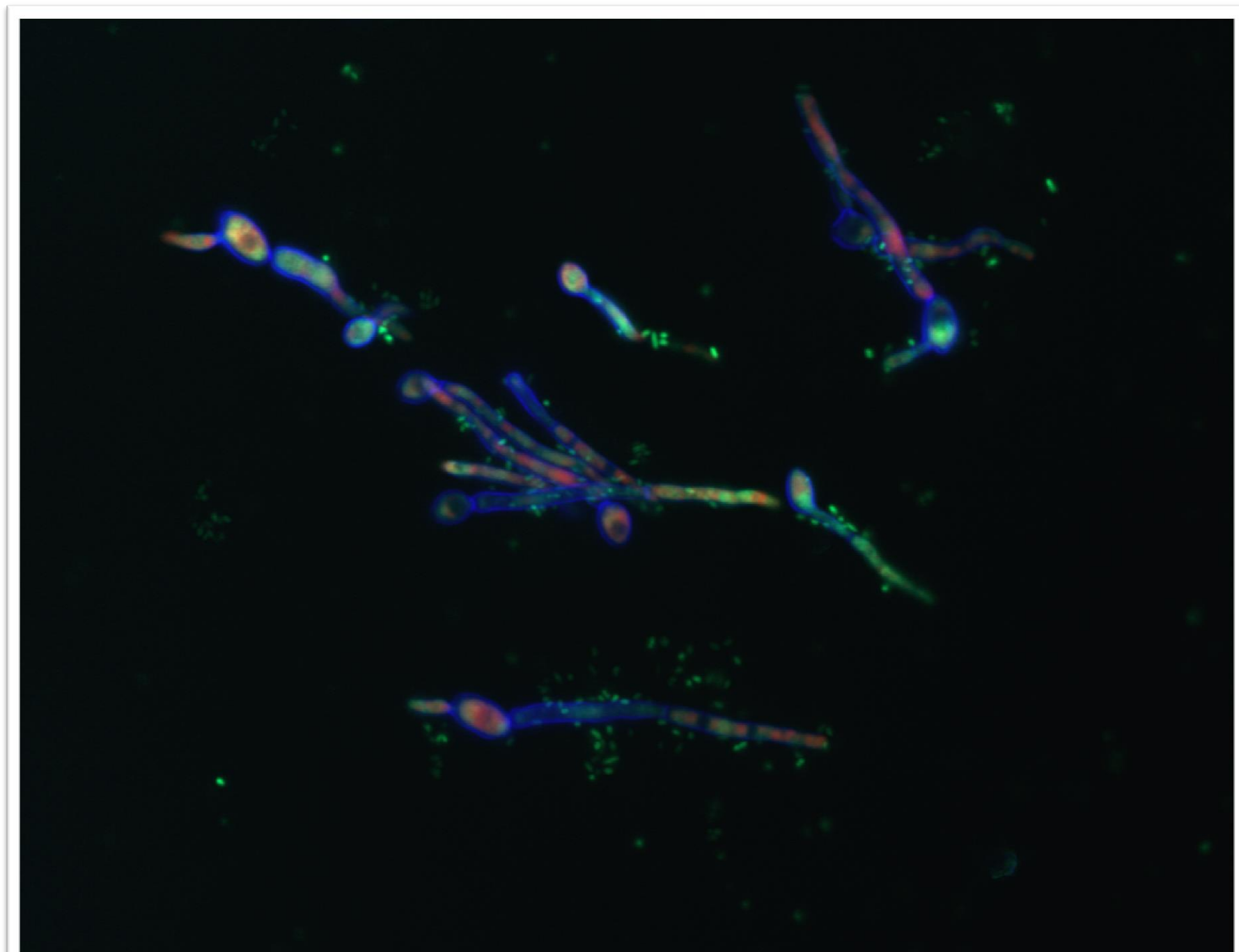
***Elizabeth Bennett, Postgraduate Researcher, Chemistry***

This piece of art is based on preparation and use of metal alloy nanoparticles.

It shows the three main stages involved within the research project: synthesis (top), analysis (middle) and results (bottom).

This work was created using a range of materials showing a scientist's need to improvise and make the best use out of what is available. It is slightly abstract, highlighting the need for creative thinking within research. Materials used include crayons, paint, ribbon (for the bars of the bar chart), quinoa (for the nanoparticles on the image), thread.





## Microbiology<sup>2</sup>

***Emily Dixon, Postgraduate Researcher, Biosciences***

Whilst traditionally microbiologists have focused on a single species, my research focuses on the interactions between 2 common disease-causing microbes. *Candida albicans*, a fungus (in blue), and *Pseudomonas aeruginosa*, a bacterium (small green ovals), are often found together, including in the lungs of Cystic Fibrosis patients or in wounds such as burns.

These microbes stick together in a dense matt known as a biofilm. Such multi-species biofilms are notorious for being hard to eliminate and for their enhanced resistance to common antibiotics. My research investigates how these microbes stick together, and how they attempt to kill each other in order to establish an infection. Understanding these interactions will help us to prevent and appropriately treat a huge range of diseases.



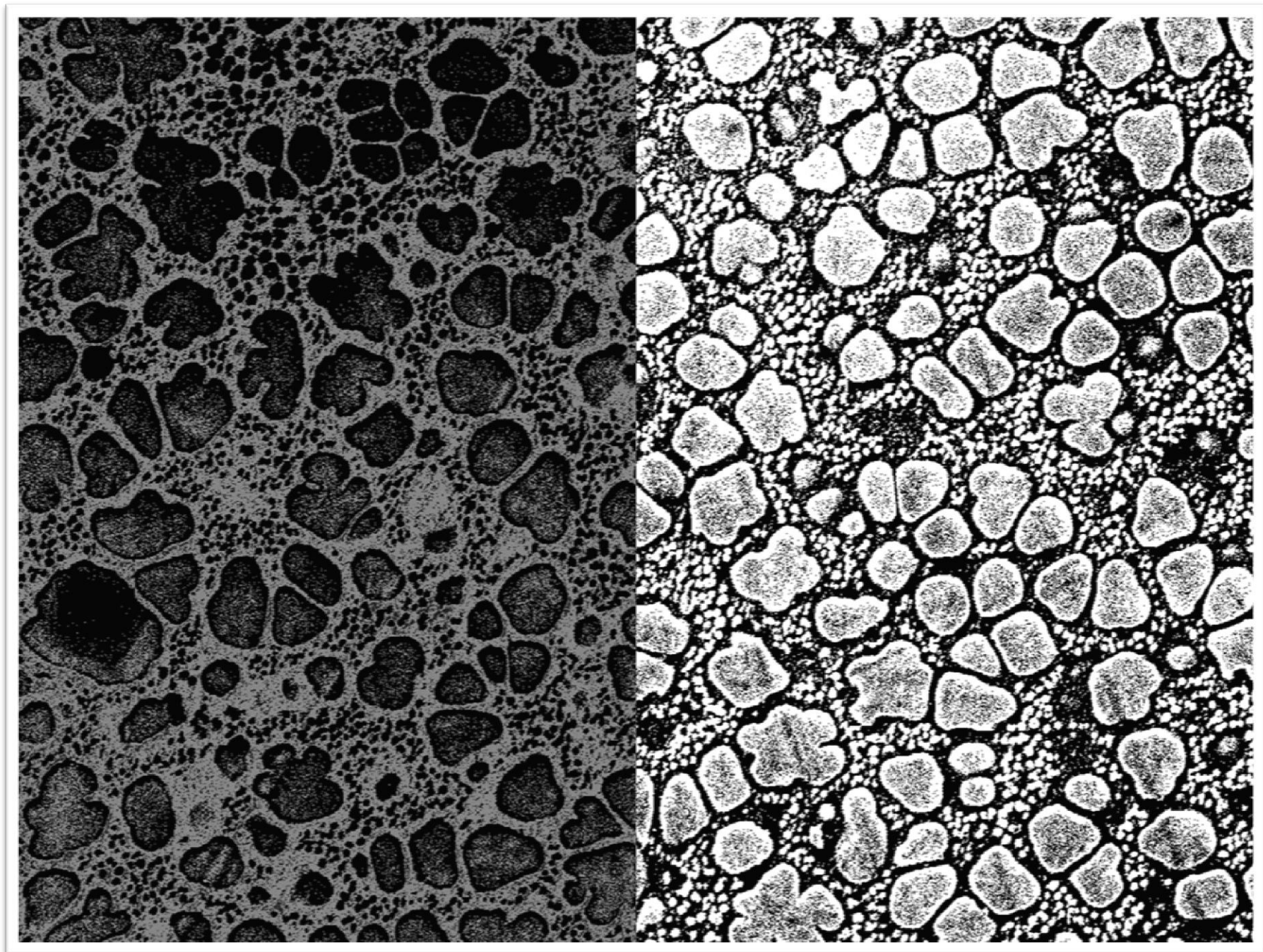


## Stories of Change

***Feldmann Anselm, Postgraduate Researcher, Government and Society***

The image shows Channel 4 correspondent Jonathan Miller's coverage on the elections in Myanmar 2015. My research focuses on how discourses travel across borders and how they are represented at various places. Furthermore, it examines how political structures either offer opportunities or constrain the ability of social movements to engage in discourse. The picture shows several main themes of the research: a transnational broadcast of discourse, and the change of the political environment in Myanmar from military rule. While my case study is on a cross-border social movement network in Myanmar and Thailand concerned with industrialization, this picture is exemplary for two of my main arguments: that political structures are extremely fluid and that discourse easily crosses borders.





## **Material revealed** **– the dark and bright side of microstructural analysis**

***Fiona Schulz, Postgraduate Researcher, Metallurgy and Materials***

High performance materials used for high temperature applications such as turbine engines have complicated microstructures, allowing them to perform at their best. Nickel base superalloys are complex materials with often more than 10 alloying elements, creating a microstructure with characteristic strengthening particles. These particles allow the material to resist oxidation, to display high strength at high temperatures and to withstand a high degree of deformation.

In order to investigate the microstructure in different conditions and its effects on the overall behaviour, image analysis has to be carried out on high resolution, high magnification images obtained using scanning electron microscopes.





## Cistercians and Saints: Hailes Abbey

***Georgina Fitzgibbon, Postgraduate Researcher, History and Cultures***

From 1270 to 1539, Hailes Abbey was famed for its possession of a phial of the Holy Blood. This relic of the crucifixion drew huge numbers of pilgrims, which enabled the community to rebuild the cloisters on the scale shown here.

Medieval monasteries forged social and spiritual identities through the acquisition, veneration and circulation of relics. My research focuses on Cistercian devotional practice in the twelfth and thirteenth centuries, and whether Cistercians can be said to have a uniform culture of relic devotion across their order.

Using textual and archaeological sources, I am comparing cults at different monasteries, asking how lay access, in the form of pilgrimage and burials, were managed, in light of the order's rhetoric of isolation.





## Romantic Moderns

***Hannah Comer, Postgraduate Researcher, English***

My research looks at the ways in which the works of Modernist writers, particularly W.B. Yeats, D. H. Lawrence and David Jones, are indebted to and engage with Pre-Raphaelite art and literature, and with the works of William Morris. The image draws together different aspects and themes from within the project and displayed in the works of the writers; these themes include Art, Mythology and Medievalism, utopian visions and craftsmanship.

The image shows, with its mixture of colour, wallpaper patterns and black and white drawings, how all the writers (and artists) mentioned explore fine art and the relationship between image and word, from their descriptions of paintings, writings that inspire artworks, through to the visual presentation of their printed works.





## Listening to the Universe with Gravitational Waves

***Hannah Middleton, Postgraduate Researcher, Physics and Astronomy***

With gravitational waves we can 'listen' to the Universe. So far, almost everything we know about the Universe comes from types of light. After the first detection of gravitational waves in 2015 by the two LIGO observatories, we can finally listen to objects that do not emit any light.

I work on trying to learn about the sources of gravitational waves. But because they are so small, learning about them takes a lot of computational work. The knitted Earth shows one piece of information we can learn. The orangey line shows an example of where the gravitational wave touched first as it passed through the Earth. The line is very long because they are difficult to triangulate using two detectors.



**Interview questions for English language teachers  
at a Vietnamese university**

1. Could you please define “TEACHER” in your own words?

Answer:

**TEACHER**

each: teacher isolation

“ache”: teacher stress/burn-out

2. Could you please comment on peer evaluation or peer feedback activities in your institution/faculty?

Answer: -----

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**Teaching: A lonely and stressful path to take?**

***Huong Luu, Postgraduate Researcher, Education***

The image replicates an interview form and a very popular activity in English classrooms: crossword game. Hopefully, this helps deliver the sense of the topic *Language Teacher professional identities*. My PhD is now at the data analysis stage and the data has so far told me the lonely and stressful path to become a teacher that my research participants faced or are facing in their first year(s) of teaching.

In the centre of the image, you can see the definition of “teacher” using parts of the word itself. “Each” refers to teacher isolation and “Ache” represents the most commonly mentioned challenge: teacher stress or burn-out. Besides, my research aims to explore the informal learning opportunities for language teachers’ professional development.

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## A True Geologist

***Jack Richardson, Postgraduate Researcher, Geography, Earth and Environmental Sciences***

As a geologist field work is crucial to any type of study we do. This is an image of me conducting field work in Nova Scotia (Canada) as part of my first field season. Behind me you can see a truly spectacular fold structure in the sedimentary rocks surrounding the evaporitic rocks I study for my research. These evaporates deform and move within the ground once they are buried and act a bit like larva lamps deforming the rocks around them and producing spectacular geometries which I went to Canada to look at.





## Clearing the smoke

***Jaidev Ghag Kaur, Postgraduate Researcher, Applied Health Research***

“Smoking kills”. This was one of many campaigns launched to combat the global tobacco epidemic. Despite a considerable reduction in the number of smokers in the UK, there remain many smokers who are unable or unready to quit. In these cases, it is important to protect those living with smokers from the harmful effects of passive smoking (breathing the tobacco smoke of others). Harm reduction strategies have been suggested to encourage and empower smokers to take protective actions, thereby reducing harms from passive smoking.

My research explores how healthcare providers in primary care settings (e.g. GP clinics) might advocate these strategies. As illustrated, these healthcare providers could help clear the smoke around non-smokers whilst treating patients who have smoking-related illnesses.





## Resistance to international peace-building: the case of Bosnia-Herzegovina

***Louis Francis Monroy Santander, Postgraduate Researcher, International Development***

The photograph was taken during the fieldwork for my PhD research. It is a picture of a banner at the top of the Pink Houdini bar in Sarajevo city centre during the peak of the summer in 2016. What the picture represents is a critique of international peace interventions after the Bosnian war between 1992 and 1995. Relying on sheer good old Bosnian sense of irony, the picture shows a view within certain citizens about the continued presence of international organizations despite years and years of a stagnant post-conflict process, marked by high levels of unemployment, state corruption, ongoing ethnic tensions and ethno-politics orchestrated by the nationalist groups that are constantly present in the Bosnian political landscape.





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## The University Clock Tower, Old Joe, standing between the Old and the New Lean Library Buildings

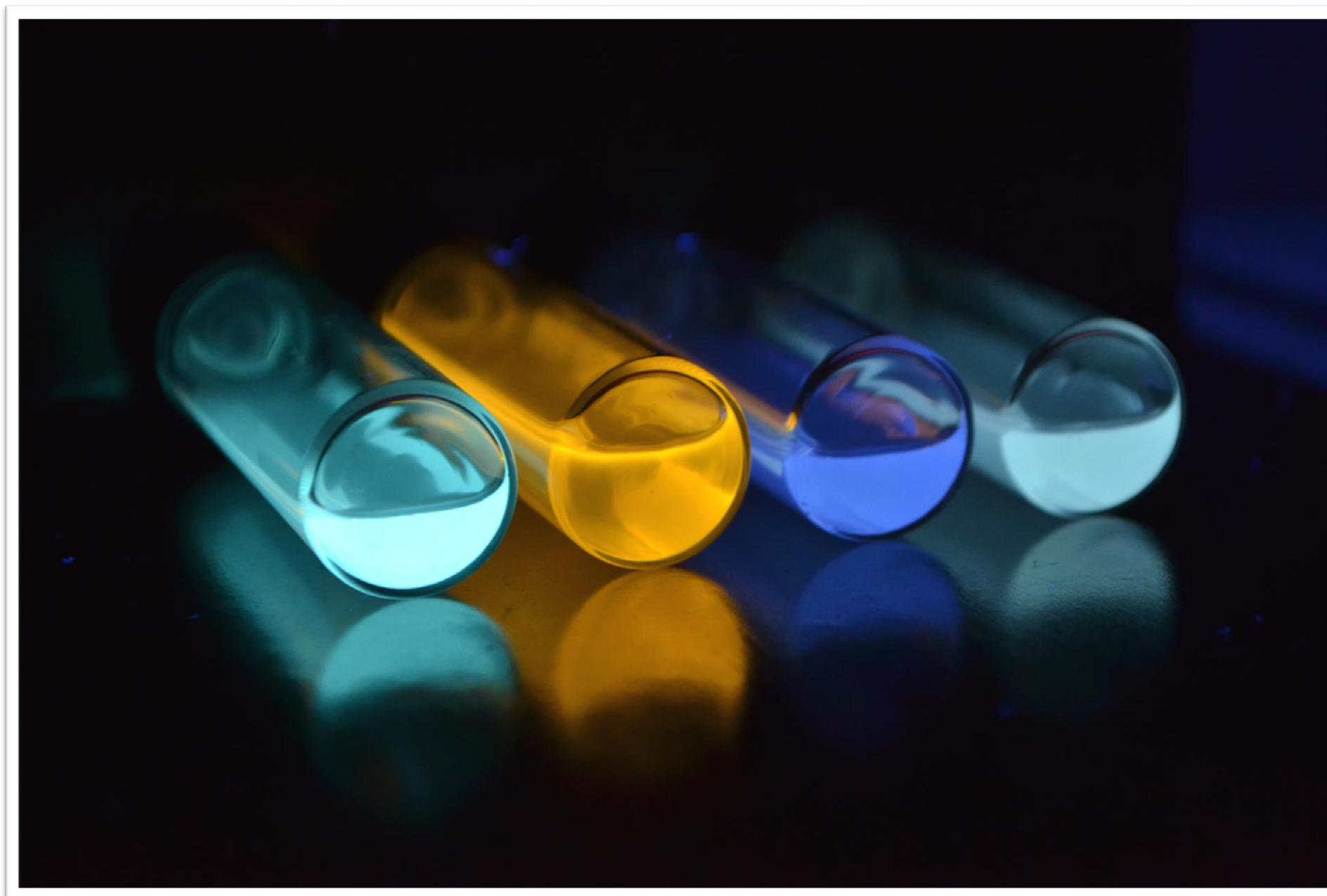
***Mahsa Heidar Barghi, Postgraduate Researcher, Civil Engineering***

I'm doing a PhD in Civil Engineering and my project is about Lean Construction. The construction industry is one of the largest and most important industries in the world. The application of lean principles in construction projects aims to increase value of the projects for customer and to eliminate construction wastes in order to achieve project targets of time, cost, and quality while reducing damage to environment consistent with the underlying principles of sustainable development.

The photo taken from the construction site on campus shows the new University of Birmingham Main Library as a Lean and efficient reference.

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## The Hidden Glow Within

***Mariana Cardoso, Postgraduate Researcher, Chemistry***

Chemistry is one of the physical sciences that help us to describe everything around us. But if we pay attention to the details it can be quite fascinating. As an example, these solutions have organic molecules that are transparent under normal light but under UV radiation they can glow in completely different colours - just by changing one small group in the molecule. Just by changing a detail.

Science learnings can always be reflected to our lives. With this in mind why not try and make small - almost unnoticeable - changes in our daily lives in order to achieve our long term goals? Which changes can you make? Which colour would you like to glow?





## ENDZEITOPIA

***Marlene Schrijnders, Postgraduate Researcher, German Studies***

My research project ENDZEITOPIA focuses on goth subculture. In the 1980s, 'Endzeitstimmung', an apocalyptic mood and preoccupation with 'the end', spread through religious, environmental and subcultural 'no future' doom scenarios in art, music and literature. From 'new romantic' to 'industrial' and from 'new wave' to 'cyber', ENDZEITOPIA looks at goth representations of a late Cold War dystopian (End)zeitgeist, and at how goth evolved and continued 'celebrating the end' until the present day.

The image was taken in Leipzig, in the Eastern part of Germany, where every year during the international goth festival 'Wave-Gotik-Treffen', goths dance to 'Endzeit' music. Goth is not dead and instead sails on into the future, engaging with pasts, ends, new beginnings and new (subcultural) adventures.





## Something's gotta give...

***Meanaz Akhtar, Postgraduate Researcher, Social Policy***

Students with caring responsibilities for family members, partner or friend will often experience balancing their studies, alongside looking after someone, an extremely challenging period. Expectations to carry out daily carer duties such as meal preparations, domestic assistance, personal care and on occasions escorting to appointments, can leave very little time for student carers to attend to their studies.

The built up of emotional stress to meet deadlines, coupled with the physical demands of caring, can have a negative impact on the health and well-being for this group. Whilst some student carers will muddle through their course with limited support and achieve below their potential. For others, the transition is more difficult and the compulsion to leave higher education much greater.





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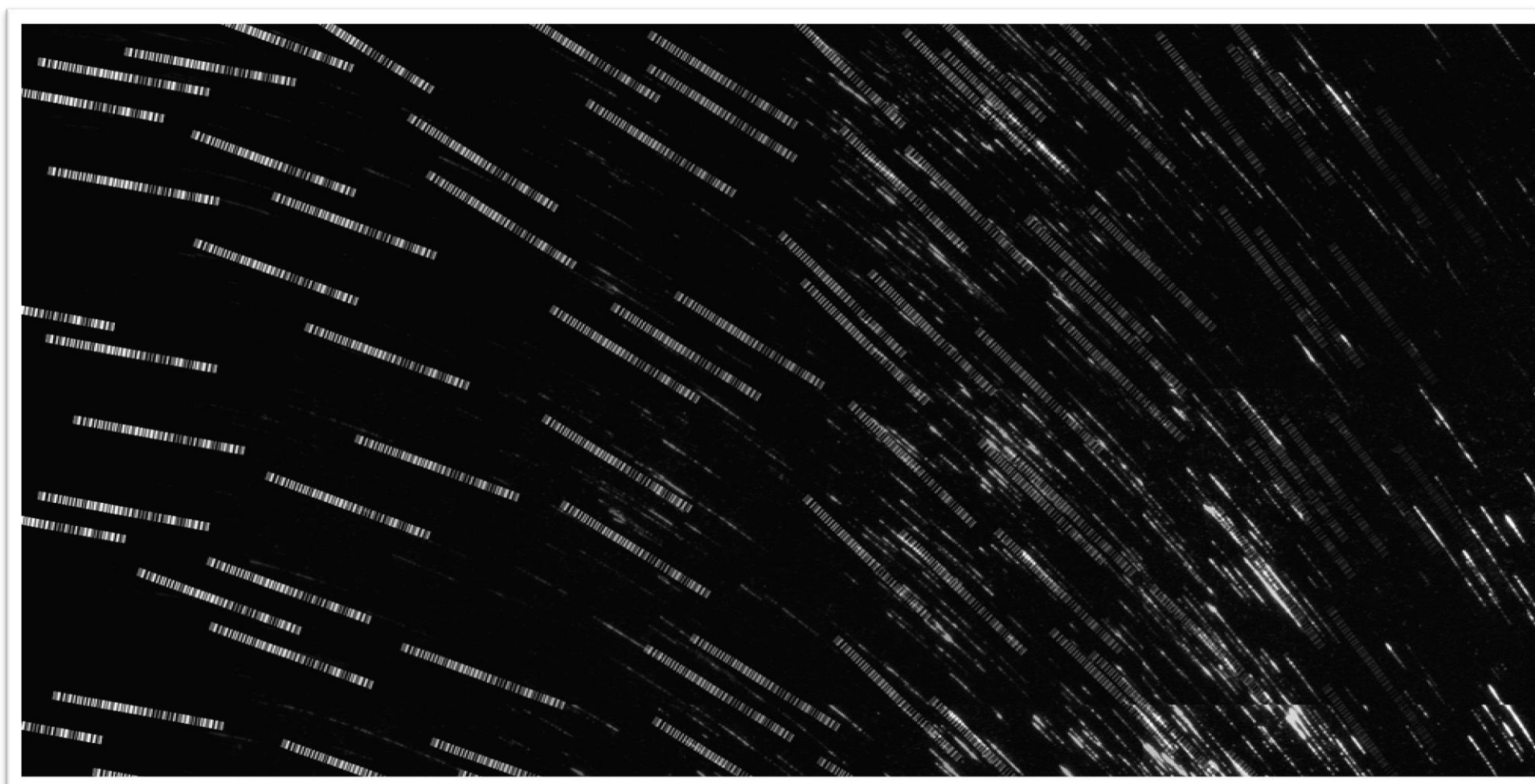
## Set Dandelion Free to Fly (Removing Railway Infrastructure Project Management Barriers via Application of System Dynamics Tools)

***Mohammad Reza Zolfaghari, Postgraduate Researcher, Civil Engineering, BCRRE***

In my research, I focus on introducing an innovative approach to apply system dynamics tools to the project management strategies to optimise railways infrastructure and operation management. Classic project management concepts are too linear to deal with the non-linearity of modern railways environment. Application of system engineering to project management strategies enables project manager to have a visual dynamic model of their projects as complex systems.

Poor knowledge about railway projects complexity creates bottlenecks in railway projects. In this image, a dandelion is stuck by a stone. In this image, the dandelion is a metaphor of railway projects success and the stone is a metaphor of existing barriers due to the absence of the application of system thinking in railway projects, which leads to waste of time, money and resources.





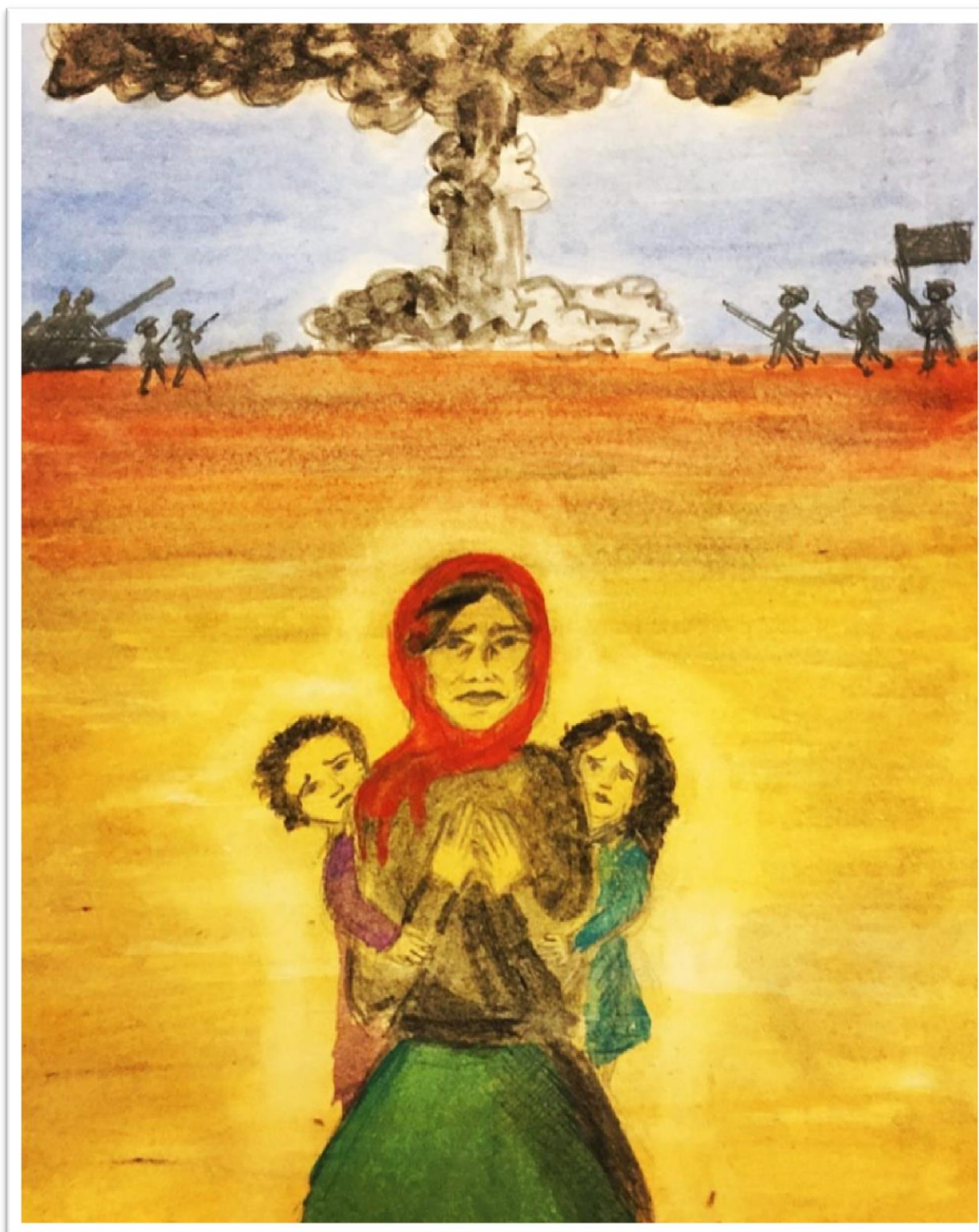
## The Barcode of Life

***Nathaniel Wand, Postgraduate Researcher, PSIBS DTC***

We are on the verge of a post-antibiotic world. Multi-resistant strains of bacteria now pose a major threat to world health, as effective treatments run out. To diagnose a strain of MRSA currently takes 72 hours as the DNA code is sequenced: ACGTAGCTAGA... The aim of my research is to develop an alternative approach, not by reading out letters but to scan DNA barcodes.

On the far right of the image is DNA which has been combed onto a surface. It has been modified at specific positions to effectively create a DNA 'barcode'. On the far left is a representation of the barcode that is recognisable. We can all imagine scanning these and identifying the source of the DNA.





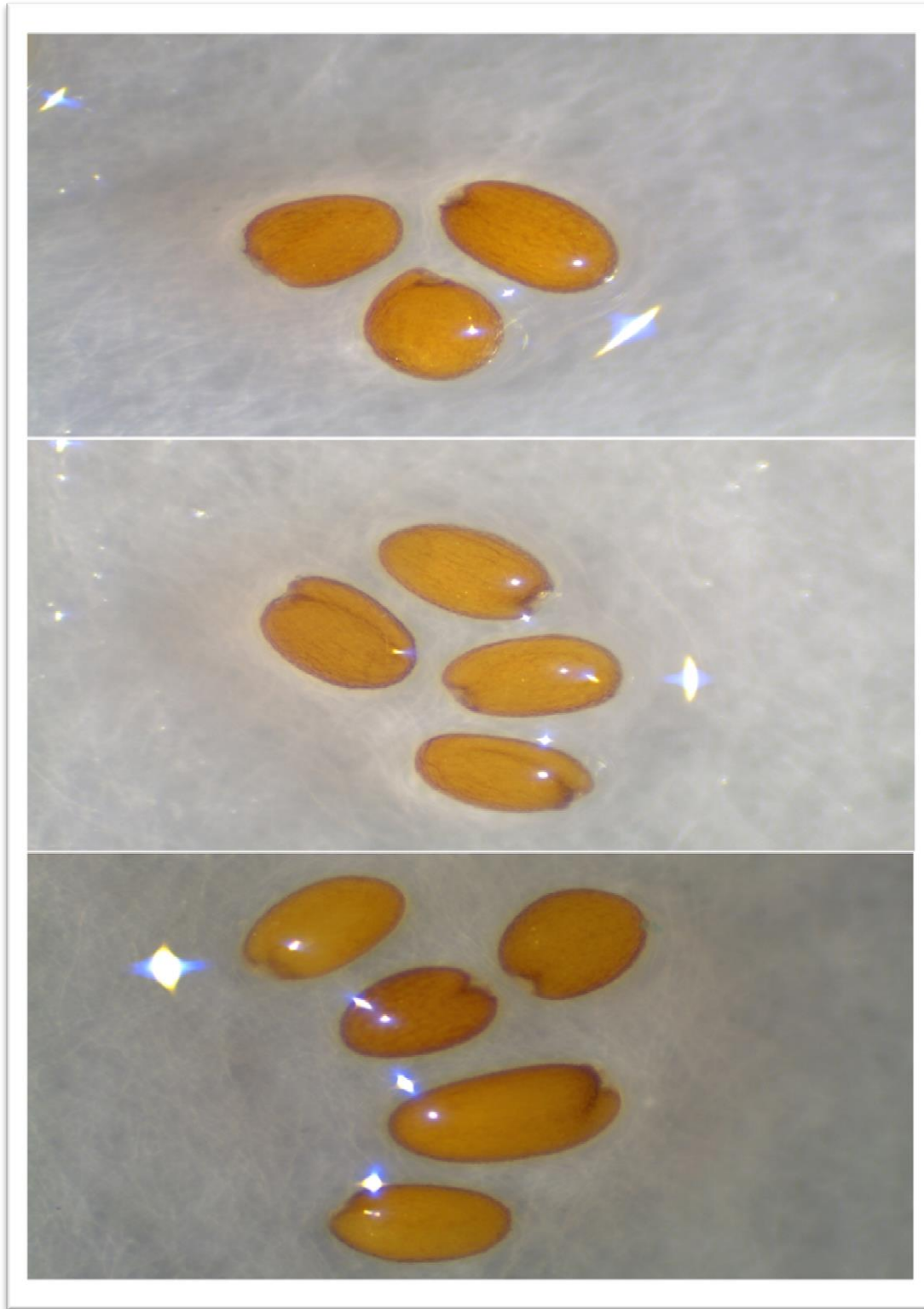
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## From your lips to the ears of God

***Nubla Mohamed, Postgraduate Researcher, Philosophy, Theology and Religion***

This painting depicts the suffering of a woman and her two children in the midst of a war. This mother, in her helplessness has nowhere to turn to but God. The same source that serves as inspiration for conflict for some, is to her, a last refuge in the face of pain and injustice. She prays for herself and her children to live another day. If the people behind her had the understanding that came with her simple piety or if they stopped to truly contemplate her suffering, perhaps the world would be a better place. This painting is dedicated to the countless civilians who are caught in the crossfire in wars to which they do not belong.





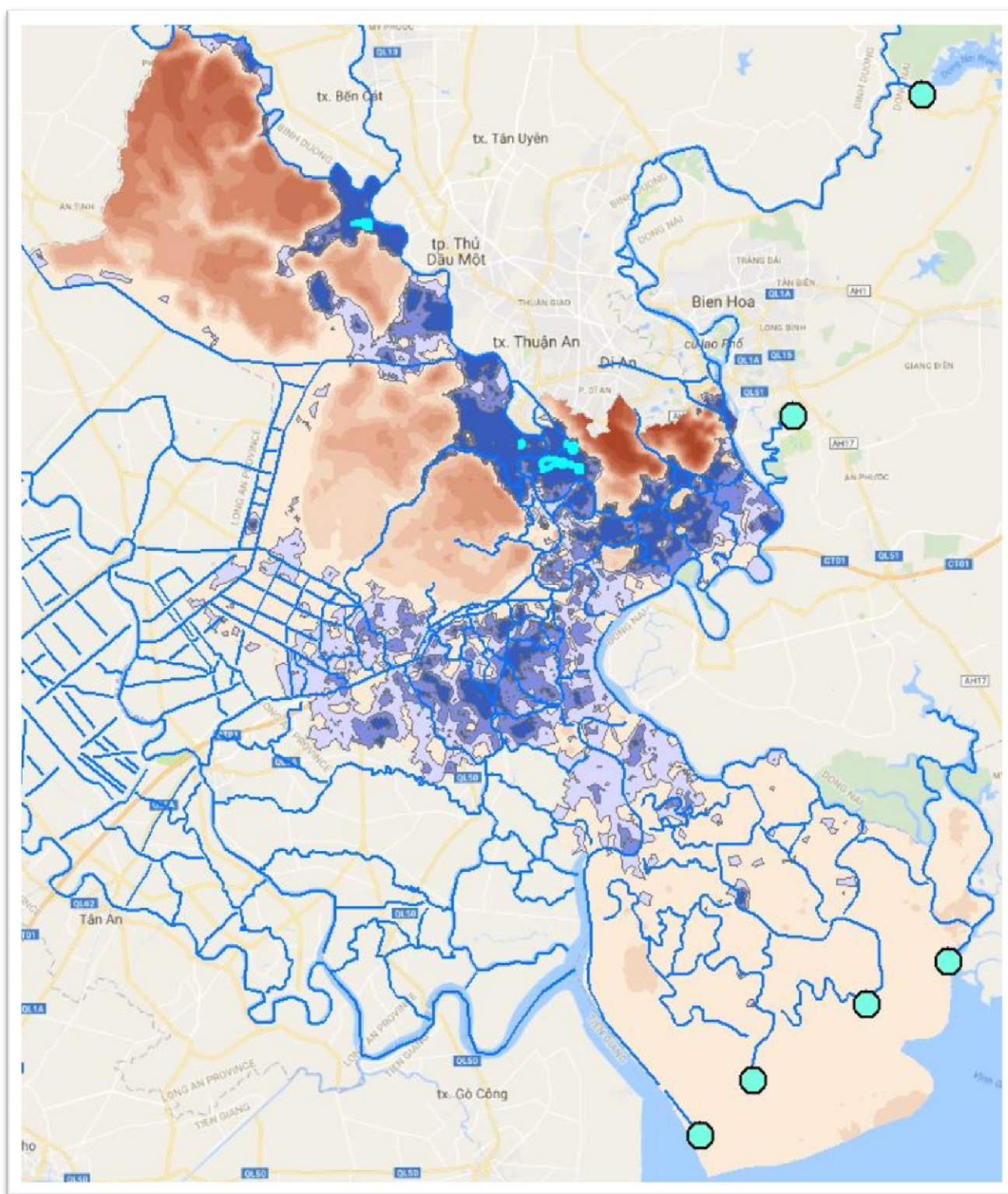
## Seed as agriculture input

***Nur Karimah Mukhtar, Postgraduate Researcher, Biosciences***

Seed is the starting point for every agricultural activity. The good seed qualities increase the yield production and secured for the food security. Seed germination is the most important process in the seed plant life cycle in agricultural production. The seed to seedling transition in plant defines in regulated by exogenous cues from the environment. The hormones gibberellic acid (GA) and abscisic acid (ABA) act antagonistically to regulate the decision of a seed to germinate. They also promote seedling growth and stress responses, respectively.

The aim of this study to investigate and localize GA signalling, ABA signalling and cell wall gene expression that driving seed germination and seedling establishment under microscopy using *Arabidopsis Thaliana* as a plant model.





## Flooding risks to human life in cities

***Phan n Duy, Postgraduate Researcher, Geography, Earth and Environmental Sciences***

Floods have affected development of many cities where living-environment of citizens has been threatened by both regular and extreme floods. The cities, by themselves, increased the vulnerability to flooding as their new developments areas are more constructed on the wetlands which used to be contributed to the balance of natural system including network of water bodies. Economic targets always conflicts to sustainability of natural environment that should be concerned thoroughly by governments. People able to fail to natural uncertainty, such as global climate changes, as they completely depend on the advance of technology improvements that currently against to the nature of eco-system. This has created the flooding problems to cities.



## 9 May 1950 – a new beginning to guarantee peace & stability in Western Europe

From conflict



Post war  
settlements

Via reconciliation & compromise



Making the  
New Europe  
work

To Cooperation



Made possible by these men – *but who are they?*



German Trade Unions and European integration – how did they react to it? What did they want from it? And did they achieve their aims?

## 9 May 1950 – A New Beginning

***Richard Fieldhouse, Postgraduate Researcher, History***

My research is into the attitude of German Trade Unions during the early years of European unification – did they support it? What did they want? Did they achieve their aims?

- The date? – the day the Schuman Plan was announced, pooling French and German coal and steel production to make future war impossible
- The building? The HQ of the Coal and Steel Community
- The men?
  - Konrad Adenauer – first West German Chancellor and an enthusiast for West European integration
  - Robert Schuman – French foreign minister who proposed the plan
  - Jean Monnet – “Mr Europe” who drew up the plan
  - Hans Böckler – leader of the German Trade Unions who supported Adenauer’s reconciliation policy

Together they helped create a new Europe.





## Risk - at the blink of an eye!

***Sasidharan Manu, Postgraduate Researcher, Civil Engineering***

The railways are crucial to a country's economic and holistic development. The development of an enhanced risk monitoring and management framework for railway industry is a challenging problem with added values on safety, security and durability of railway infrastructure. As the origin of uncertainty of risks varies, a proactive risk assessment model to deal with both probabilistic and non-probabilistic uncertainties, and scrutinizes each type of uncertainty separately is helpful in decision-making support. Risks are always uncertain, and can turn into a hazard within the blink of an eye. The image showcases a scenario of an accident, before and after the blinking of eyes.





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## Spot the difference!

***Shardia Briscoe-Palmer, Postgraduate Researcher, Government and Society***

The image captured is of four young boys (4yrs old) in Jamaica, eating cake upon a high rock whilst on their break during church Saturday school. The boys represent how socially constructed cultural depictions of man are often mistakenly unexclusive of diasporic influential awareness. One of these young boys does not belong in this image in mind but can only relate to the others through body.

So what is the difference? One of these boys was not born in Jamaica nor currently resides there. One of these boys attends private school in the UK, plays piano and speaks French as an additional language. One of these boys has never experienced poverty, hunger or difficulty. One of these boys is not aware of his privilege or his life luxuries. But all of these boys are looked upon by society as the same, Black!

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## Sunrise on Research

***Steven Hale, Postgraduate Researcher, Physics***

Sunrise above the clouds at Mount Wilson Observatory in California marks First Light on a new automated solar telescope. The image shows a new robotic mount installed at the top of the observatory 60-foot tower, where two telescopes capture light from the Sun. The telescope on the right houses a camera using intelligent machine vision to guide the mount following the movement of the Sun. The telescope on the left transmits sunlight along an optical fibre into a solar spectrometer in the observing room below. The system measures solar oscillations – sound waves that pass through the very core of the Sun and reveal the secrets of its deep interior that would otherwise be hidden behind the bright solar surface.



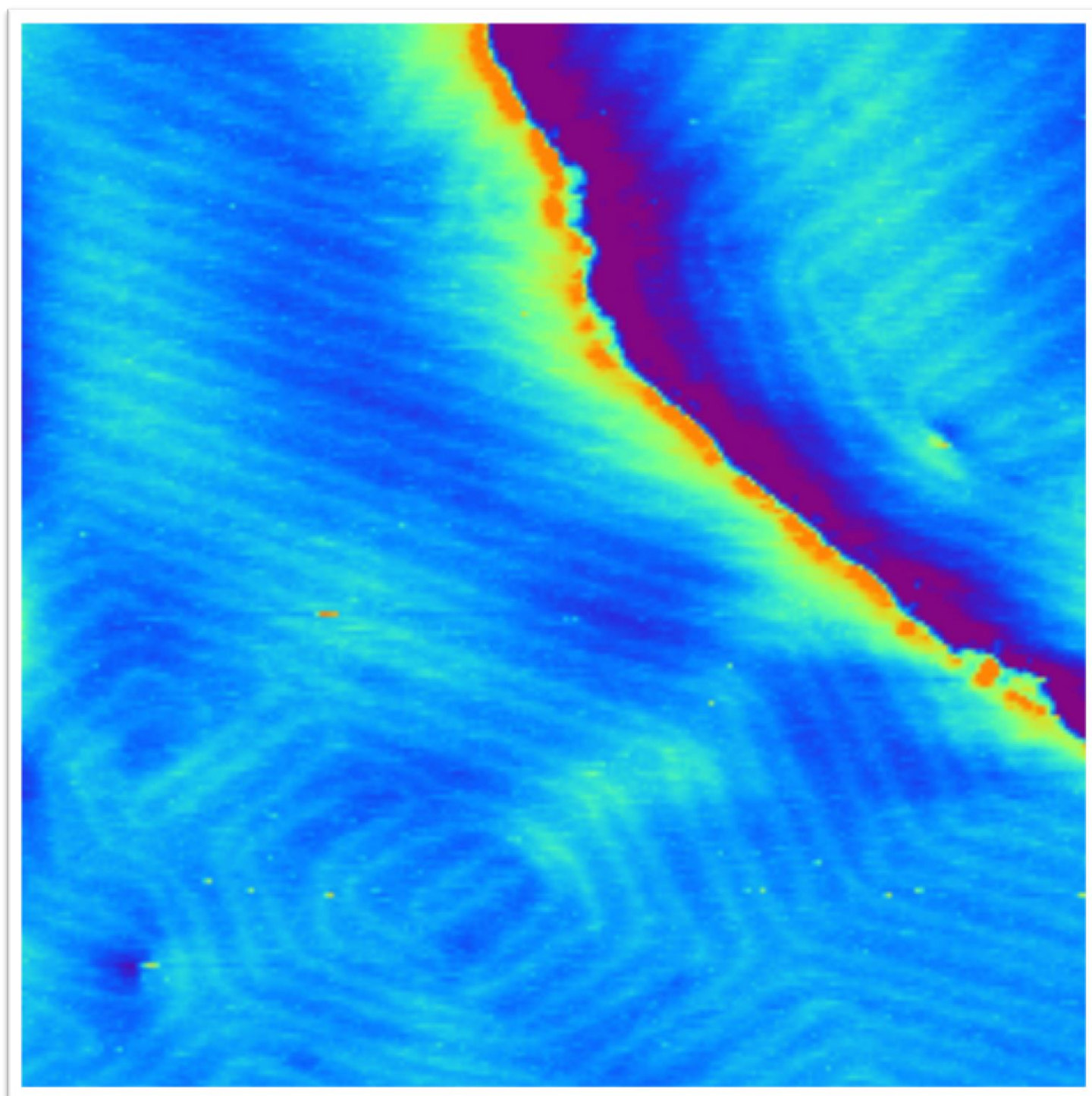


## There Will be Blood Image, Burning Oil Derrick

***Thomas Cobb, Postgraduate Researcher, English, Drama and American and Canadian Studies***

The image here is from the Hollywood western *There Will be Blood* (2007) and seems to capture my research into how Hollywood films from 1999-2009 allegorize US foreign policy in Iraq through its destructive, militaristic imagery of a burning oil derrick. Focusing on notions of neo-conservatism, liberal intervention and the 'shock and awe' military tactics employed in the 2003 military campaign, my thesis examines how Hollywood films such as *Three Kings* and *The Dark Knight* reflect and critique American interventionism in Iraq onscreen. My thesis also utilises international relations theorists such as Walter Mead and Walter McDougall to examine how American pictures represent divisions and arguments over US foreign policy in the era of American unilateralism I explore.





## Herringbone Decorations by Nature on Gold Surface

***Timothy Poon, Postgraduate Researcher, Physics and Astronomy***

By examining a very clean gold surface in an ultra-high vacuum environment with scanning tunneling microscopy (STM), the surface can be probed with atomic precision because of the mind-blowing phenomenon of quantum tunneling. Gold atoms on the outermost layer are arranged in a way that will minimise their energy and this contraction causes a mismatch between the second layer. The mismatches result in these striking herringbone patterns. They periodically rotate by  $120^\circ$  and often influenced by other surface features, forming a variety of herringbone patterns! STM is an indispensable tool in my research and it is such an enjoyable moment to observe these amazing and diverse herringbone patterns. Nature does appreciate the beauty of herringbone decorations as we do!



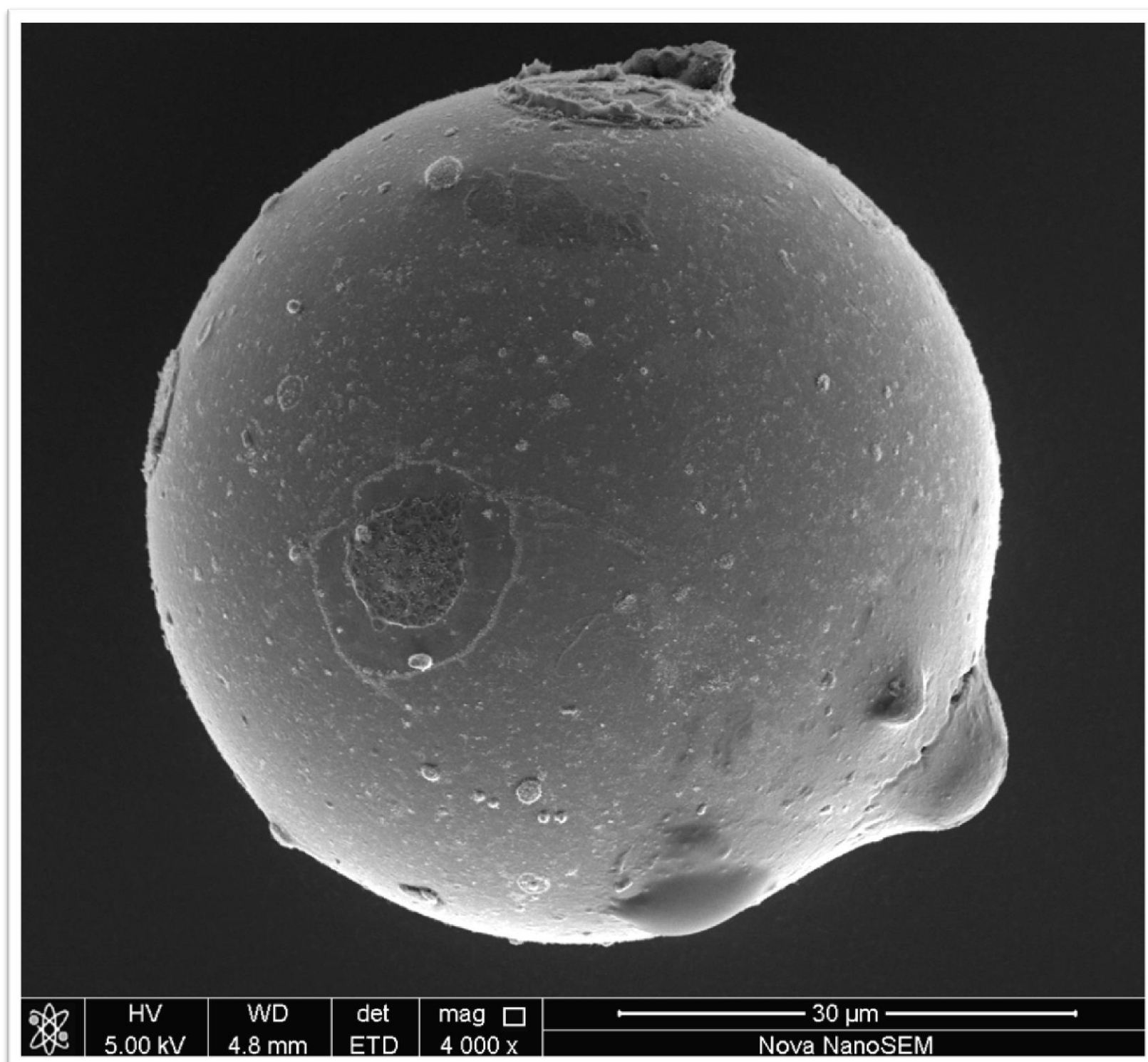


## Tradition and Transformation in Nepal

***Tom Jarvis, Postgraduate Researcher, Government and Society***

The image shows a moment of silence and contemplation at a military funeral in Kathmandu. It is a snapshot of the contradictions and transformations in Nepali society, a decade after the ending to armed conflict in the country. Between the bowing soldiers is the body of a man whose high social standing is eminent in the orange garlands which adorn his funeral pyre. Against this expression of Nepali tradition, the soldiers themselves represent a force transformed - no longer the *Royal* Nepal Army of the disposed King, but part of the new democratic Nepal still emerging from conflict. These transformations and contradictions are explored through the lens of governance and corruption in my research, amid the legacy of conflict.





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## Moon

***Xiaochao Ji, Postgraduate Researcher, Metallurgy and Materials***

This picture is a scanning electron microscope image of a nickel particle adhered on black carbon film. The treatment of the particle in acetylene by chemical vapour deposition method has changed its original smooth surface. The amorphous carbon randomly coated nickel particle looks like the moon at the micro level. Part of my research is to *in-situ* synthesize composite particles which can be used in thermal spray and 3D printing.

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