



Images of Research 2022

Competition Brochure of Entries

Viewing and voting

- There are 23 fantastic entries in this year's Images of Research competition. Please view all 23 submissions below and keep a note of your two favourites, along with the entry number. To register your vote for the People's Choice, [please go to the Blog post here](#).
- Voting will close on 13th June 2022. Please register your vote only once.
- The winner of the People's Choice will be announced in June at the UON Research Conference.
- If you have any questions, please contact Simone.Apel@northampton.ac.uk

Enjoy the Images of Research below!

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Entry 1 – Jonathan Francis

Improving the reliability of Manual ultrasonics (MUT) in detecting internal corrosion within Carbon Steel pipework using a magnetic probe coupler

Certain practices and techniques are used, and they aren't ever questioned it is just the way they are. If a technique can be improved, then it is up to us to make that change.

MUT is a technique used to detect wall thickness measurements on a variety of components within the oil and gas industry. Accuracy is dependent on consistent coupling between the probe and test piece. The configuration of the components often calls for inspectors to place the ultrasonic probe in a multitude of positions, it can become difficult to ensure coupling of the probe to the test surface. This adds another human factor to the MUT examination. The reliability, and accuracy is affected. The magnetic probe coupler seen in the image is designed to provide consistent and accurate coupling of the probe to the test piece thus mitigating a human factor and, in turn, improving the reliability and accuracy.



Entry 2 – Jo Pattison

A Voice of One's Own

Historically, the voices of women were hidden or distorted by patriarchal dominance. In *A Room of One's Own* (1929), Virginia Woolf, a central figure of the modernist movement, encouraged women to write of their own experiences in order to redress the myths which supported inequalities. My research explores how the traditions of modernism are evident in a selection of contemporary novels by female authors exploring experiences of being perceived as female in the twenty-first century.



Entry 3 – Jacqueline Batchelor

History with Presence

Historical buildings are known for their exceptional foundations and structure that can last the test of time, offering shelter and a reliable point of reference in the landscape. A solid frame provides protection, but it also imposes limitations. This is also true for those solid cognitive, intellectual and emotional buildings that inhabit our psychological and social landscapes. Inherited knowledge, mental habits, unchallenged narratives, beliefs, values and expectations: they serve as points of reference that support us to navigate the uncertain landscape of our social worlds, offering readily available direction to make sense of experiences and the others. However, they also impose limitations, and this is clearly exemplified by the view of Deafness and service provision, where negative approaches and dismissive attitudes, fed by inherited psychological and social structures, remain. This is despite an extensive body of works documenting the gaps in service provision and the discrimination suffered by this population. Nevertheless, there is new research that strives to challenge assumptions and historical knowledge that generates discrimination, creating the change in line with UON Changemaker mission.



Entry 4 – Natasha Toms

Re-Collecting

To recollect is to remember. To recollect is to regather, or, to gather again. But how do we regather, or gather again, something once experienced? What do we encounter when we perceive an image of history? Beyond the surface of the canvas.

Through practical research, I explore the effect historic artworks have on contemporary artists and audiences. Utilizing historic artworks (more specifically from the Baroque period) and the photographic, to document the emotional and mental journey that these images can cause us to take.

Forming a visual dialogue that re-enacts the experience of overcoming and making sense of these images and artists of the past. Re-Collecting is a digital photograph of a printed image, taken at the Dulwich Picture Gallery. It portrays that sense of recollection or remembering an experience or an event. As more time passes, the more the image begins to fade and details begin to distort.



Entry 5 – Nick Petford*

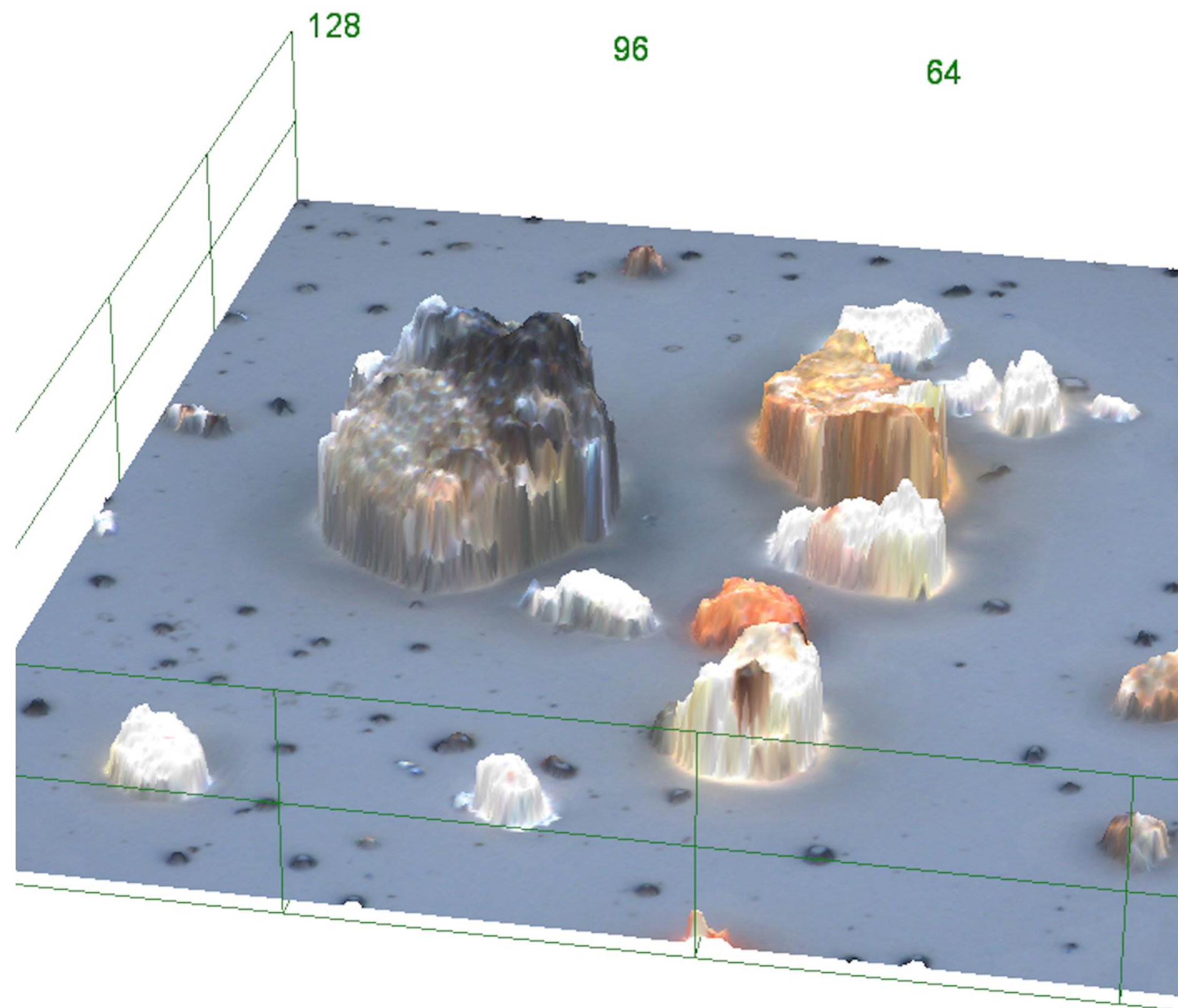
Hold your breath... 3D imaging and bioreactivity of La Palma volcanic ash particles

Volcanic ash particles can cause widespread environmental disruption that has deleterious effects on for example vegetation, animal and human health as well as on infrastructure and aircraft. Particles of small size can travel hundreds of kilometres in the atmosphere thus being deposited far from the original eruption.

Additionally, when breathing through the nose it is particles that are of small size PM10 and particularly PM2.5 that are of most concern for health as it is thought that they are more likely to be absorbed in the airways and lungs. To investigate the shape of the particles and assess their impact on human health, we have used a Confocal Laser Scanning Microscopy to image ash particles from the September 2021 eruption of Cumbre Vieja, La Palma (Spain). The volcanic ash particles were collected from the opening phase of the Cumbre Vieja 2021 eruption, on 19th September 2021 over a period of 1 hour, at 3 km from the initial vent. Initial results suggest ash particles increase pneumococcal adherence to airway cells in vitro.

David Wertheim¹, Beverley Coldwell², Lisa Miyashita³, Richard Giddens¹, Ian Gill¹, Jonathan Grigg³ and Nick Petford⁴.

¹Faculty of Science, Engineering and Computing, Kingston University, Surrey, KT1 2EE, UK. ²Instituto Tecnológico y de Energías Renovables, Granadilla de Abona, 38600, Canary Islands, Spain. ³Centre for Genomics and Child Health, Blizard Institute, Queen Mary University of London, UK. ⁴University of Northampton, Northampton, UK.



Entry 6 – Allyson Green

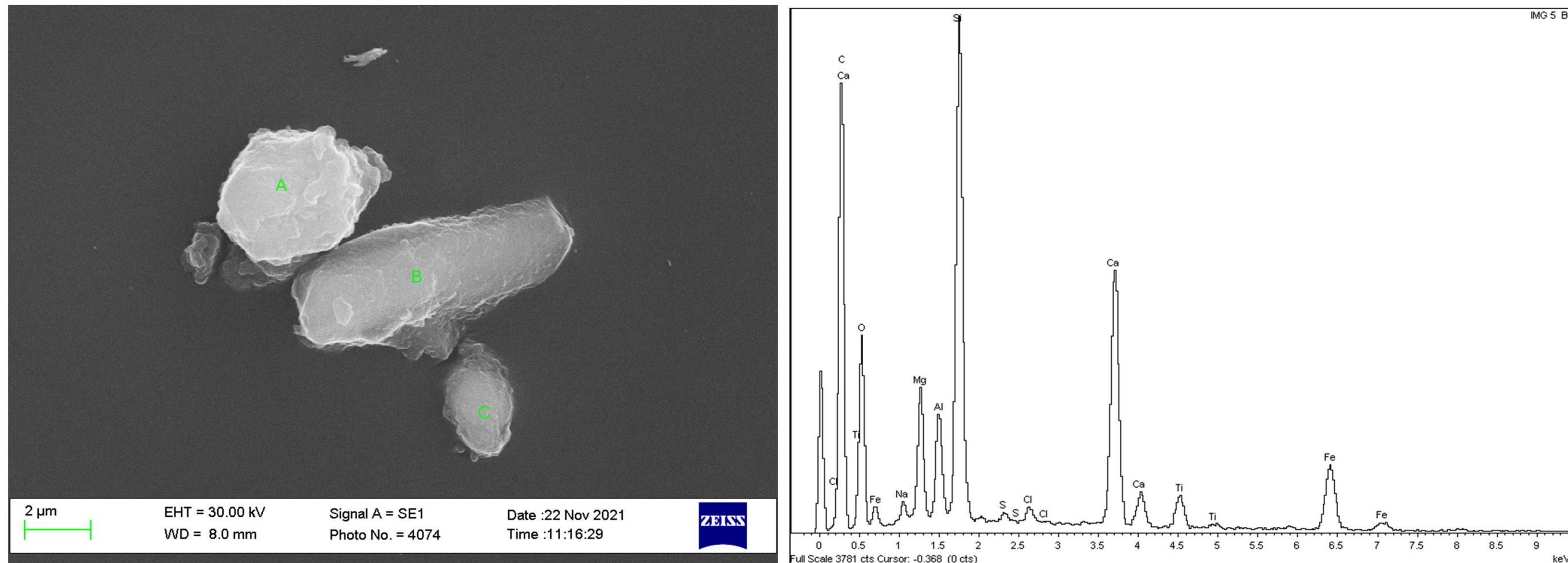
Every Body Matters

For centuries, the female form has been observed, critiqued and objectified. Individuals whose bodies do not conform to a set of prescribed social norms are viewed as less valid or unworthy of being considered beautiful. Negative messages regarding beauty are perpetuated by the media – in magazines, film, television and advertising. Mental health issues relating to concerns about body image can manifest in the form of social anxiety, depression and eating disorders. My research focuses on body diversity and its representation in young adult literature, with particular focus on tattooed heroes and heroines. In the past, people with tattoos, particularly heavily tattooed women, have faced much criticism and negativity as they challenged traditional, conventional notions of beauty. The aim of my research is to ascertain whether tattooed characters in novels are portrayed in a negative or positive way in terms of stereotypical presentations and prejudicial attitudes.



Entry 7 Philip Quainoo¹, David Wertheim², Beverley Coldwell³, Stefan Kaczmarczyk¹, Nick Petford¹

Ashes 2 Ashes: Images from the 2021 La Palma Eruption



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©Philip Quainoo et al

Volcanic ash settling on roofs of buildings can cause substantial structural damage and is a recognised hazard to life in volcanic-prone regions. As part of an on-going PhD project to model the effects of volcanic ash loading and revised EU building codes as appropriate. Samples of volcanic ash from the La Palma 2021 eruption were collected by airfall into a small tub on the first day of the eruption 19th September 2021. When larger grains settle, they can break into tiny fragments. These fragments can cause problems for human and animal health if ingested. They are also small enough to cause problems with building appliances including air conditioning and electrical equipment essential for routine in operations in the build environment. The image shows 3 PM10 particles ash particles using a Zeiss EVO 50 Scanning Electron Microscope (SEM) in both the secondary and backscattered mode.

¹University of Northampton, Northampton, UK., ²Faculty of Science, Engineering and Computing, Kingston University, Surrey, KT1 2EE, UK. ³Instituto Tecnológico y de Energías Renovables, Canary Islands, Spain.

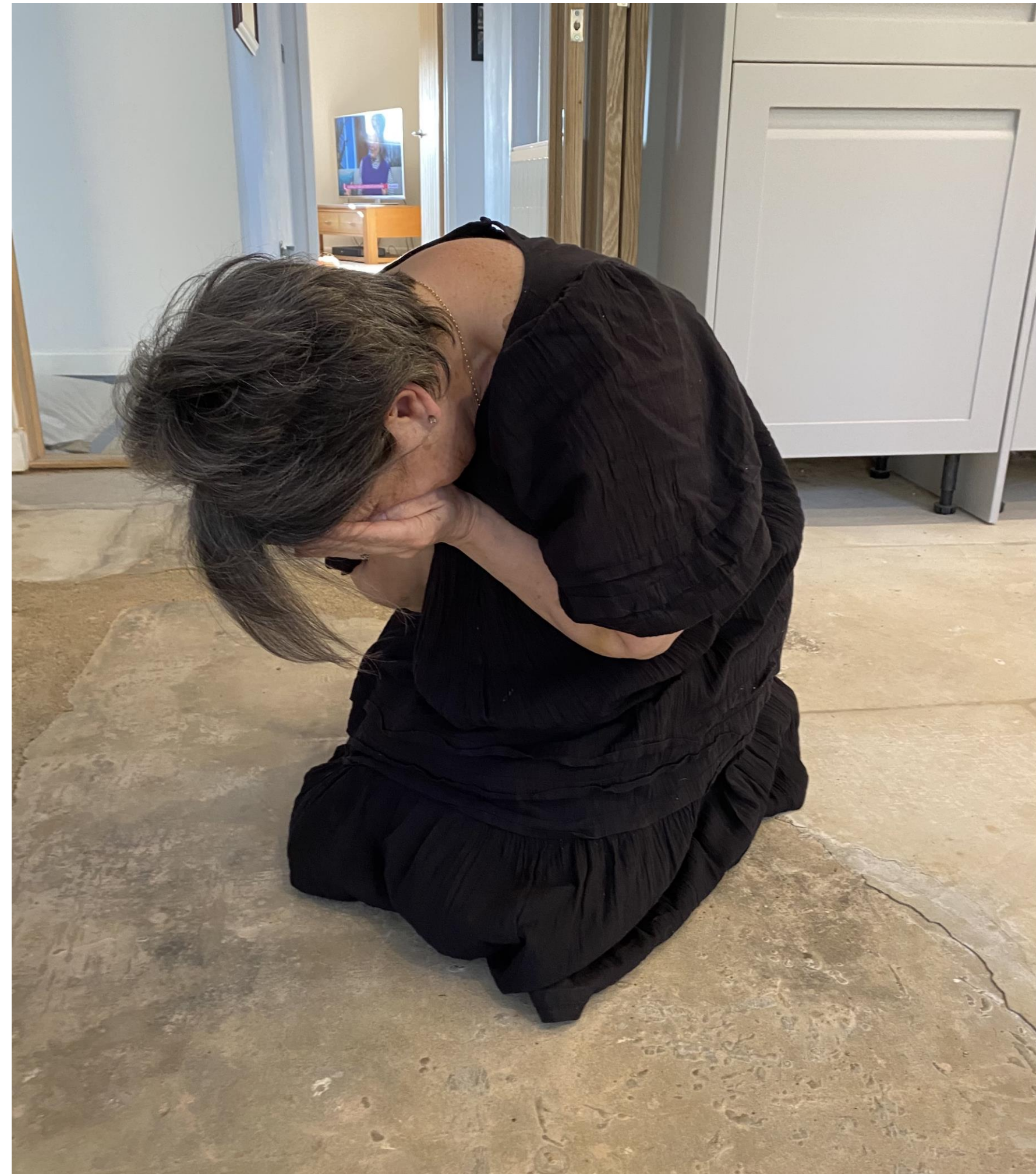
Entry 8 – Sally Ayres

Trauma in Places

The photograph represents the focus of my research into the effects of trauma and its association to places, as depicted in literary narratives. The image conveys the anguish and despair of a trauma sufferer whose body language reflects their pain.

The cracked, cold concrete floor suggests that traumatic pain deeply affects the life of a sufferer and that the normal secure basis of their existence is under threat. In the background 'normal life' continues with indifference to the sufferer's desperation.

Although characters can be traumatised in a variety of places and for many different reasons, the image reinforces the relentless nature of trauma suffering. The traumatised character can never escape the psychical pain, even in the relative safety of a domestic setting.



Entry 9 – Carey Allen

East meets West – Measuring efficacy of eastern ancient healing practices with a smartphone

Soundbaths have been used as an eastern healing practice for thousands of years and have gained in popularity as a method of relaxation, meditation, wellbeing improvement and stress relief. Soundbaths use Tibetan singing bowls, gongs, didgeridoos and other percussive instruments. However, there is very little scientific research supporting the effectiveness of soundbaths. Wellbeing interventions, which are accessible and easy to take part in, are important, especially in the post-covid climate where everyone has experienced the stress of a global pandemic. Developing resilience to stress is also an important attribute for students, given resilience to stress has been found to be an important factor in educational success. In this research participants were University of Northampton students. Using smartphones to measure heart rate variability (HRV) is a scientifically validated way of measuring resilience to stress. In this research HRV is measured with participants' own smartphones before and after the experience of a soundbath.



Entry 10 – Jayne Corfield

‘Untitled’

My work explores an interest in using a scientific approach to demonstrate possible links between science and art. My research has parallels with the laboratory experiment. I have developed a ‘formula’ using equipment, (digital technologies, printmaking, photography, and microscopes) to explore a collection of samples and specimens reaching its conclusion in a series of photo etchings.

I collect ‘samples’ from significant places I have visited, and these then form the basis of my work. Once specimens are obtained and prepared, each image is captured, using photo microscopy, scanned digitally and further explored.

I am interested in microscopic imagery, making detailed observations through the microscope, and exploring this abstracted imagery through the medium of print. Fragments and memories inspire me. In the laboratory fragments of the world are dissected, isolated, recombined, weighed, and watched. Merging the boundaries of art and science, my imagery conveys the intricacy of a world we can’t see.



Photo etching 25 x 25 cms

Entry 11 – Peter Jones

Desire Lines of Physical Activity

Desire Lines of Physical Activity captures the impact of people exercising and being more physically activity during the Covid lockdown. My research is concerned with the health benefits of sport, exercise and physical activity. In short getting people to move more. During lockdown while we saw a lot of people being less active, we also witnessed others become more active as they discovered the benefits of green spaces. The evidence of this was mapped out in all the desire lines all across the Northamptonshire countryside. The benefits of “green exercise”, that is activity in green environments, for both physical and mental health is well established. Indeed in Japanese there is a term shinrin yoku meaning forest bathing. Although there is only one solitary tree in this image, the green open space obviously provided a popular route for walkers and runners during lockdown, as evidenced by the desire lines.



Entry 12 - Amatou Allah Soumeiya Slimani

Representations of Algeria in Selected Literary Works from 1807 to 2012

I took this photo in August 2019 at the International Harbour in Algiers, Algeria. This fascinating view, where various international ships and boats sail in the Algerian deep sea, instantly reminded me of my PhD research that revolves around the different representations of Algeria in literature. Through historical progression, I am discussing how Algeria is portrayed from being an exotic land as seen by travellers and colonisers, to a country of civil wars and violence, as depicted by those who are inhabitants in fictional texts: an American narrative by Martin History of the Captivity and Sufferings, a French novel by Verne Invasion of the Sea, two pieds noir texts by Camus The Stranger and The Plague, and three Algerian novels Kateb's Nedjma (1956), Djebbar's Fantasia, and Hanifi's La Folle d'Alger. It seems that there is a clear instability of the national identity of Algeria as used by these authors.



Entry 13 – Emma Whewell

**We're all working together; that's the secret
(by Sam Walton)**

DLAB2 is inspired by the changemaker movement, which seeks to build the skills and attributes for individuals to find innovative solutions to society's challenges. Two related key themes are developing changemakers and social innovation education. Another theme is the use of innovative digital learning environments including virtual and artificial reality technologies to blend physical and digital learning environments and provide powerful opportunities for international collaboration. The project addresses the need to align European educational practice with ways in which digital technology is changing how and what we learn, and how this can be applied in education. It also draws inspiration from the changemaker movement, which seeks to build the skills and attributes for individuals to find innovative solutions to society's challenges. We have worked with immersive technologies, such as augmented and virtual reality (AR and VR), to blend physical and digital learning environments and provide powerful and creative opportunities for international collaboration.



Entry 14 – Stefan Davis*

Tanning with Plant Wastes - Designing Leather to fit the Circular Economy

The use of plant tannins to tan leather dates to over 5000 years but there are questions on whether the use of current sources is sustainable. The farming of tannin crops is a large consumer of land and water, and forestry sources of tannins cannot replace the current demand for established chemistries.

Plant wastes from the food and beverage industry are available in substantial quantities to allow for significant amounts of tannins to be collected. The extraction processes are simple and renders the depleted biomass uncontaminated to allow for composting and biomass gasification processes.

At ICLT, the extraction and application of tannins from waste sources has been achieved at laboratory scale. The extracts double as a colourant and removes the need for the addition of synthetic dyes. The produced leather has imparted properties adding a unique selling point. This work demonstrates the potential of waste streams to convey circular economic benefits to the leather industry.



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* S. J. Davis, Anne Lama, Friedemann Scaber, Ashokkumar Baskar

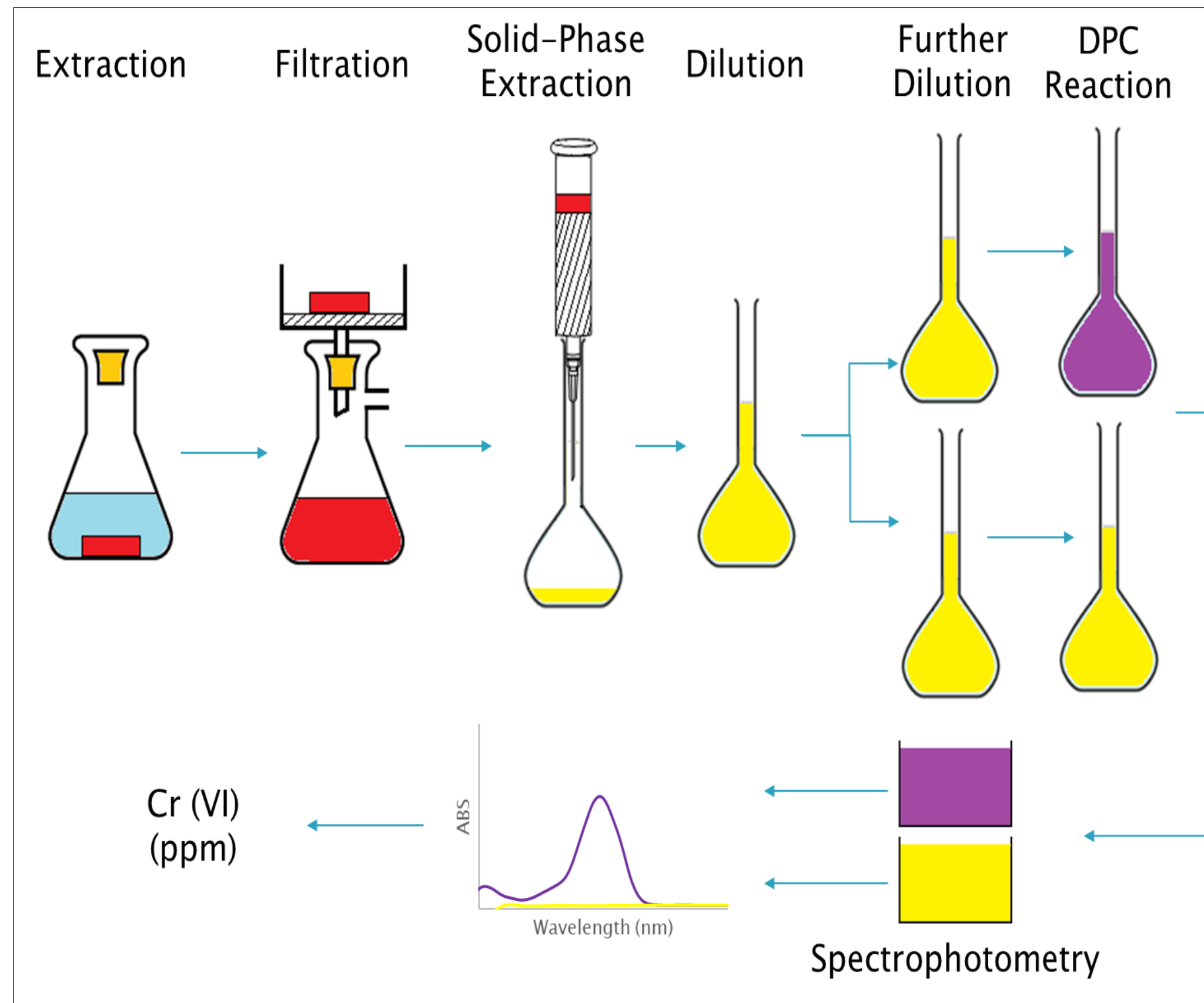
Entry 15 – Will Wise and Stefan Davis

How low can you go? Hexavalent chromium in leather...

The European Chemicals Agency (ECHA) recently undertook a consultation addressing the limits of chemicals in a range of materials. Levels of hexavalent chromium within leather was part of this consultation; the current limit is 3 parts per million (ppm) but ECHA had proposed reducing this limit to 1ppm.

The Institute for Creative Leather Technologies (ICLT) continue to be instrumental in raising industry concerns that the currently accepted test methods were not adequate to test to such a low level.¹ Part of the argument was that the methods instruct successive dilution of samples (see image) and as a result the colorimetric techniques of detection have to distinguish much lower levels of the species of concern.

ICLT's research is now informing British Standards and our findings will hopefully be incorporated into new versions of the methods which are currently under review. ICLT are working towards an altogether new method with considerably improved accuracy – watch this space!



UON Images of Research 2022 ©Will Wise; Stefan Davis

1. S. J. Davis, W. R. Wise, S. Recchia, A. Spinazzè, M. Masi; *Analytica*; 2022; **3**(1); 1-13; <https://doi.org/10.3390/analytica3010001>

Entry 16 - Oluwaseyi Omoloso*

FRESHPPACT: Levelling our Mounting Plastic Problem

The image symbolizes the increasing scale of the problem of plastic pollution and the generation of plastic waste globally. Nowhere is this problem more profoundly visible than in developing countries such as Ghana. Blue Skies, a multinational fresh fruit company operating in Ghana, has recently teamed up with the Centre for Sustainable Business Practices (CSBP) at the University of Northampton to establish a Research and Development Hub called the FRESHPPACT hub. The hub will engage businesses and key stakeholders in the United Kingdom, Africa and other countries, with the goal of commercialising solutions that tackle and mitigate plastic pollution in Sub-Sahara Africa. The potential long-term impacts of the hub's activities will contribute to the actualisation of the United Nations Sustainable Development Goals (SDGs).



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*Ebenezer Laryea (Ebenezer.laryea@northampton.ac.uk); Amin Hosseinian Far (Amin.HosseinianFar@northampton.ac.uk); Oluwaseyi Omoloso (Seyi.omoloso2@northampton.ac.uk); Adrian Pryce (Adrian.Pryce@northampton.ac.uk)

Entry 17 – Kathrina Perry

A Welcome Return

This photo depicts the return of the access to the hospital archives at Northampton General Hospital. As much of my research involves searching for charitable donations and benefactors made by women to the hospital, a large amount of my time is trawling through Hospital annual reports. Researching women in historical documents can be challenging, as many are often only mentioned in relation to their husbands, however, my aim is to give them their own voice and show the philanthropic activities in and around Northampton that they carried out in their own name. After a two year wait to return following the pandemic, it was only fitting that my image was that of the shelves in the archives.

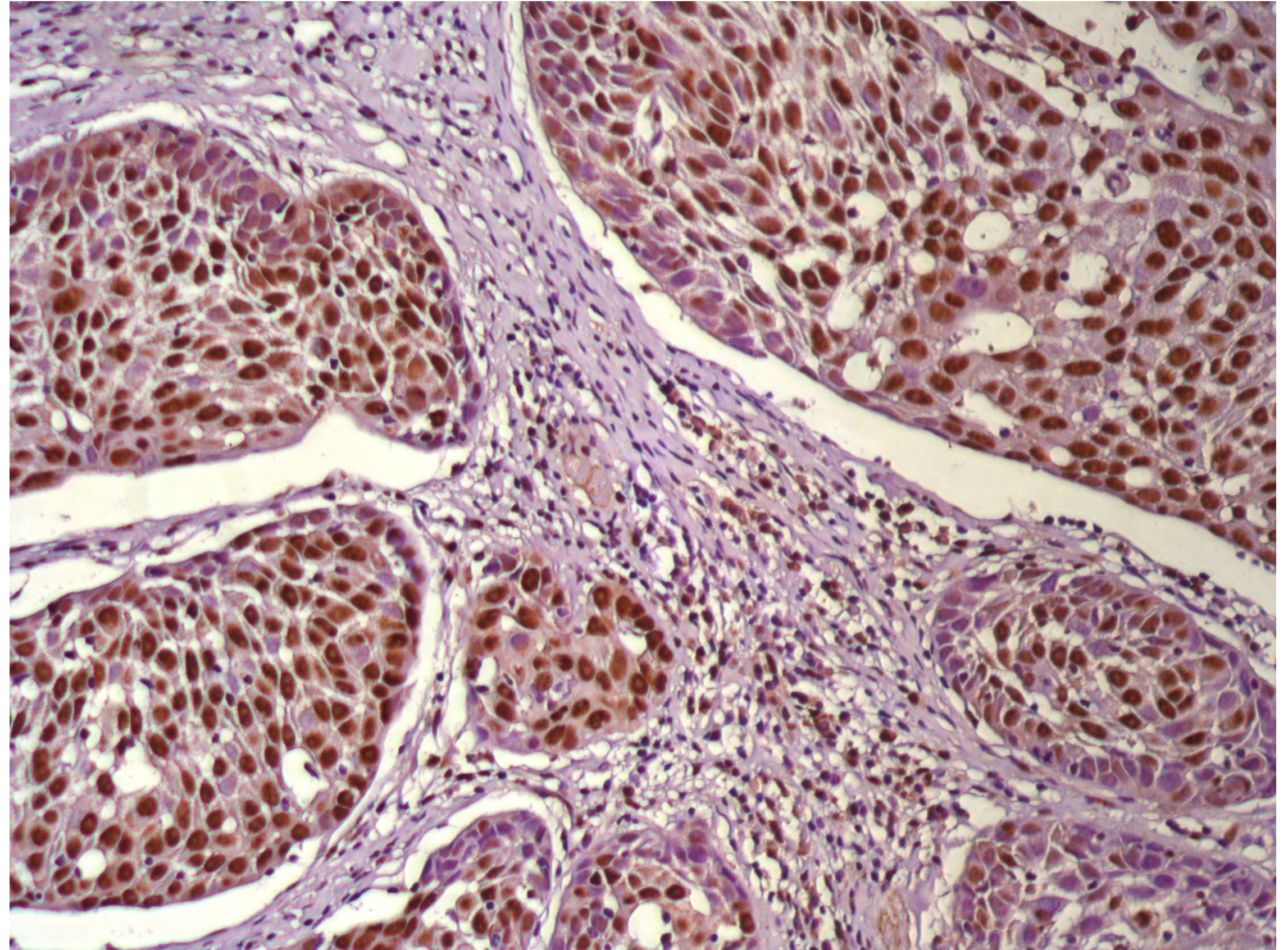


Entry 18 – Leanne Jones

Immunohistochemical Staining of the Duchenne Muscular Dystrophy Gene in Head and Neck Cancers

My research investigates the potential role of the *DMD* gene within Head and Neck cancers (HNC). Part of my research has been to analyse 50 human HNC tissue biopsies obtained from a UK biobank.

Immunohistochemistry is a multistep process which looks at protein expression. This image is from a biopsy obtained from the uvula located in the oropharynx. The brown areas within the image represent areas of the tumour which express the *DMD* gene. This image shows strong *DMD* staining specifically within the nuclei of tumour nest cells. This has been the first successful staining performed at the University of Northampton, and I am collaborating with the Histopathology department at the Northampton General Hospital to gain further understanding of the tissue architecture. This research aims to understand how *DMD* may be involved in HNC development, which could lead to better patient stratification and improved survival outcomes.



Entry 19 - Robin Sturman-Coombs

How does your landscape speak to you

Landscapes contain paths, folds, hurdles and opportunities for exploration and understanding of our environment. These landscapes present us with an exceptional amount of information that we must process, make sense of and attempt to discern to choose a path which enriches, empowers and maximises our potential. Physical environments, such as this image, often represent the exploration we must undertake in discerning and processing information. And yet, landscapes can also be metaphysical and exist in the mind and body. How we navigate through both physical and metaphysical landscapes requires us to draw on a multiplicity of sources of information, which is both real in physicality but also real in the mind. Intuition is important in both physical and metaphorical environments and presents itself as a profoundly essential ingredient in making sense of what we see. I draw extensive attention to this in my research into Social Work practice, which presents as a landscape of uncertainty, opportunity and dilemmas.



Entry 20 – Matthew McCormack

Studying Historic Shoes

This picture was taken while I was conducting research on historic shoes at Platt Hall Museum in Manchester. The museum has one of the finest costume collections in the country, but it is currently closed to the public so I was very fortunate that they gave me access. One of the challenges of working on material culture is that museums are not really set up for researchers, so we rely on the generosity of curators and a single research visit can take months to organise. My work involves handling shoes in order to understand their physical properties and what they would have been like to wear. I photograph and measure them (note the tape measure) and take handwritten notes (pen is not allowed in archives and laptops are not always practical). The shoes on the left are women's shoes from the later eighteenth century.



Entry 21 - Jess Sturman-Coombs

To climb, or not to climb, that is the question

You packed your class, gender, voice, intersectionality and perception into a rucksack and now you're standing at the bottom of a mountain, contemplating the enormity of it all. Your group, randomly gathered by chance, each sees something different. Some stare up in anticipation, supported and comfortable in their Regatta hiking gear. Others feel the draft of trepidation whispering through their well-worn trainers. For some, the battle won't be in the distance but in the smaller obstacles along the way, having no prior experience of how to negotiate or approach them; how to overcome the persistent failure they represent. When nobody they know has ever reached the summit or planted a flag, how would they know it was possible? Standing in their poorly insulated footwear, looking up, they have first to answer the question: to climb or not to climb.



Entry 22 – Jacquie Bridgman

Interviewing with Willow

I have chosen this image as for me it represents the shift from interviewing face to face to using digital methods that became necessary due to the pandemic. I am sure that this will resonate with many who have had to navigate the world of online interviewing platforms, conducting interviews in unexpected locations such as at home and coping with the challenges of shared spaces, filled with other members of our households such as our pets, during this time. I have been conducting my PhD fieldwork throughout the lockdowns, from home. Elements of my home life became shared with my participants and indeed Willow became an icebreaker on many occasions, as did my participants pets and occasionally their family members. Interviewing participants digitally presented many challenges but also provided an opportunity to enable the researcher / participant relationship to become more of a shared experience than had we met face to face in an abstract setting such as a café. Rather than proving a distraction the presence of my enquiring cat made the experience an altogether more interesting and relaxed one.

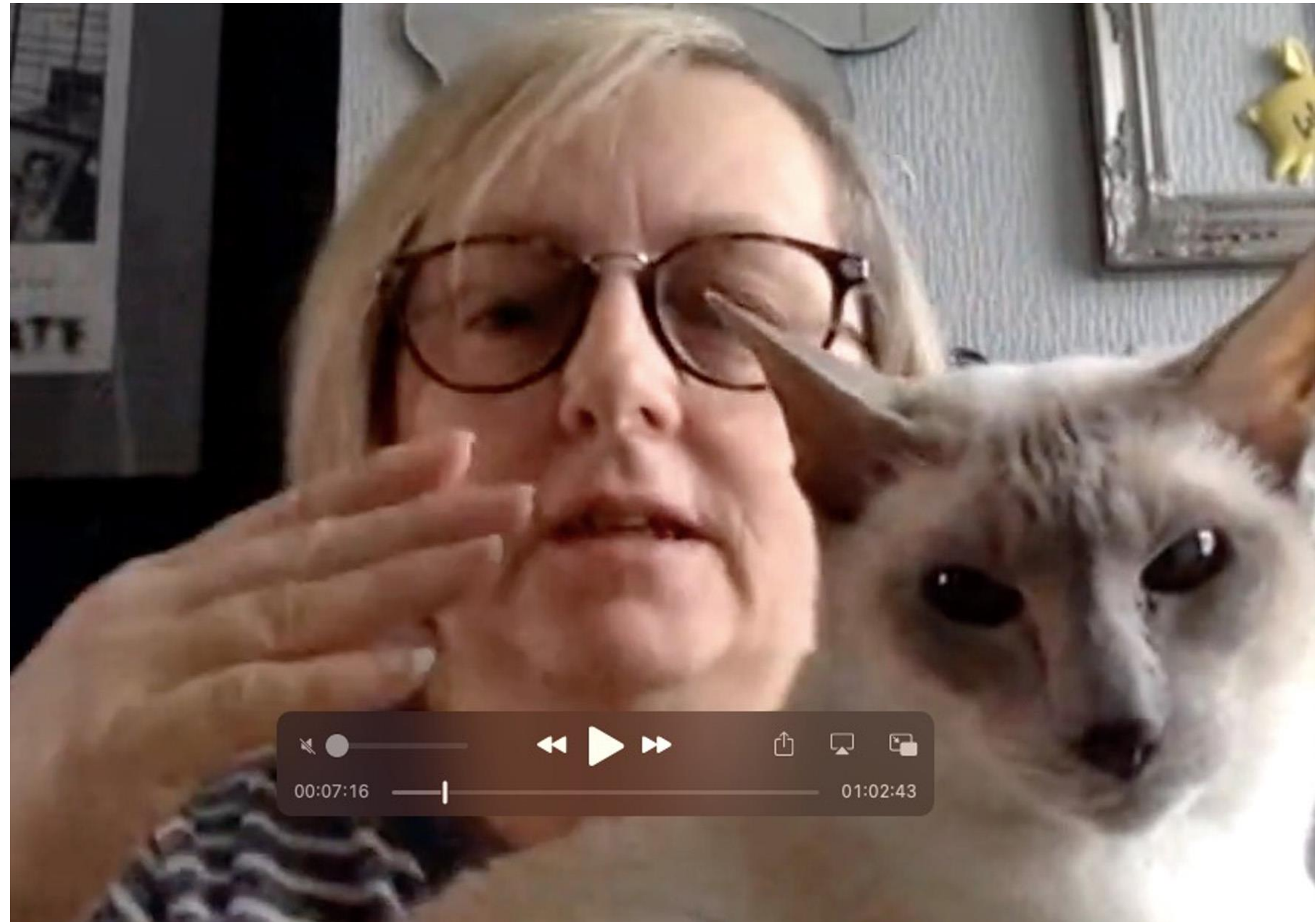


Image still taken from an online participant interview as part of my PhD research project.

Entry 23 – Benjamin Hodges

Double Line Problems

This photo speaks of the frustrations of being a postgraduate researcher (PGR) over the last two years as the world battled the Covid-19 pandemic. The mask represents the everyday steps I took to protect myself and others, and more specifically the wearing of face-coverings on campus. The books are some of the key texts for my research and it includes a second-hand book, which represents the expense that many PGRs have had as they have to pay for books they could not obtain from closed libraries. The library book and the inter-library loan book is indicative of the superb job of supporting PGRs that the Library and Learning Services team have done at the university during this difficult time. Finally, the dreaded positive Lateral Flow Test that so many of us have experienced, and the subsequent set back to my studies.





Images of Research is an annual event run by The Graduate School. For any queries, or to give feedback, please contact simone.apel@northampton.ac.uk

The Graduate School Senate Building Waterside Campus Northampton NN1 5PH United Kingdom