University of Strathclyde Glasgow

Images of Research

Forging sustainable futures

Welcome

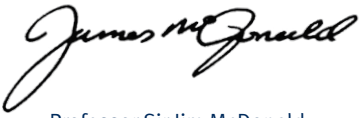
I am delighted to welcome you to **Images of Research 2021: Forging Sustainable Futures**. As Glasgow prepares to host the UN Climate Change Conference (COP26), the world's eyes will be upon our home city as collectively we aim to solve our climate challenges.

With Strathclyde at the heart of the city, this year's exhibition highlights the wealth of research being carried out across the University's four faculties, that aims to build resilience and achieve balance; economically, societally and environmentally. Taking inspiration from the UN's sustainable development goals, and our own Strategic Themes – our areas of strength which underpin the research – entries across the categories demonstrate the breadth and potential impact of our work, and also its relevance on a local, national and international scale.

The Images of Research exhibition, which has been running for 10 years now, forms part of the Engage with Strathclyde Programme – a celebration of the University's partnership with the public, private and third sectors. To ensure our events remain as accessible as possible, all will take place online throughout the month of May this year. I do hope you will join us for some of our other events so we can tell you more about the story behind the Images.

You can also visit our online gallery, before the print exhibition goes on tour when circumstances allow. I hope these inventive images illustrate the diversity and quality of research taking place at the University of Strathclyde, and encourage you to engage further with us.

Best wishes,



Professor Sir Jim McDonald
Principal and Vice-Chancellor

Contents

Images of Research 2021

Images of Research is an annual competition for staff and students, showcasing Strathclyde's innovative work through compelling images. The images form a print exhibition which embarks on a roadshow across venues in Scotland and beyond (details to be announced as they become available). This year's collection, as well as previous years, is also available to view on the competition website.

The 41 shortlisted entries – comprising an image and short story – illustrate the big societal issues being tackled by researchers across our four faculties – Engineering, Science, Humanities and Social Sciences, and the Strathclyde Business School.

Some entries also have an accompanying digital story – a two minute video which provides further insight to the research behind the image. Visit our YouTube channel to see all the digital stories, past and present:
https://www.youtube.com/channel/UCWUE9ksVXjDuKZnU6UbdIXw/videos

The competition and exhibition is sponsored by Engage with Strathclyde.

For more information and to view all of the competition entries in the online gallery please visit:
www.imagesofresearch.strath.ac.uk

Meet the Judges

Tim Bedford

Professor Tim Bedford is Associate Principal of the University, leading the Research and Innovation portfolio in the University Executive Team, working in close collaboration with the Principal and Deputy Associate Principals Professors Lowit, Kerr and McArthur.

Key responsibilities within his Associate Principal role are: representing the R&I interests of the University in discussions with Government and other public bodies such as research and innovation funders; convening the University Research and Knowledge Exchange Committee and, with colleagues, developing the University strategy in research and innovation; providing leadership to cross-faculty initiatives such as the Technology and Innovation Centre and the University Strategic Themes; engaging with external university research partners in business and government; chairing the Taskforce on Innovation for CESAER, and being a member of the Board of Directors.

Professor Bedford is a Fellow of the Royal Society of Edinburgh and a member of its Business Innovation Forum. In 2016 he was on the advisory board of the Reid Review of Scottish Innovation.

Julian Taylor

Julian is the University's Executive Head, International Business Engagement and works to help secure new industrial partners from overseas. He joined Strathclyde last year after many years at Scottish Enterprise, where he was the Executive Director, Strategy and Economics. Latterly, he led the Asia Pacific team of Scottish Development International, living in Shanghai, China for six years.

Julian recognises the importance of Scotland's visual identity overseas and being a part of this year's judging panel, he recognises the key part the Images of Research exhibition plays in raising the University's profile, defining its modern, forward-thinking perspective.

Meet the Judges

Beth Weaver

Beth Weaver is Professor of Criminal and Social Justice in the School of Social Work and Social Policy, and Director of KE and Impact. She also represents the School on the HaSS Knowledge Exchange Committee, and acts as HaSS Faculty Representative on the University's Public Engagement Group, leading the Faculty's Group of the same name. Beth is actively engaged in a number of research networks, research projects and knowledge exchange activities with specific interests in desistance, user involvement and co-production and the use of through-the-prison-gate social cooperative structures of employment. All of her research has an applied focus on penal reform. Beth has also published widely on a range of subjects relating to criminal justice policies, practices, and research and in particular, on the subject of desistance from crime.

Tanja Mueller

Tanja is a Research Associate at the Strathclyde Institute of Pharmacy and Biomedical Sciences, and the new Chair of Strathclyde's Researchers' Group. The Researchers' Group comprises research staff members at all levels of seniority from across the University, and acts as a conduit between researchers and University management committees, supporting Strathclyde researchers by, amongst other things, promoting cross-faculty events.

As a long-standing member of the Researchers' Group, Tanja has also been part of the organising committee for StrathWide, an internal conference aimed at promoting and facilitating interdisciplinary research, in 2020 and 2021.

A pharmacist by training and with a deep interest in Public Health, her research mainly focuses on the use of medicines in society, and how routinely collected health care data may be used to support clinical practice and improve patient care. She collaborates with colleagues from NHS Scotland, and works closely with researchers from several University departments; in addition, she is part of an international network of drug utilisation researchers.

Guy Hinks

Guy is an award-winning photographer based in Glasgow providing expertise and experience in commercial photography. His passion for photography persuaded him to leave his successful legal career in 2008 to follow his passion. Guy has worked with a range of clients, from large governmental organisations to sole-traders, always focussing on detail and the clients' needs, and his experience goes from shooting news for an agency to photographing the interior of Scotland House in Brussels. His travel photography has also been exhibited in the Glasgow Royal Concert Hall. Guy is delighted to have the opportunity to be involved in the judging of this year's Images of Research competition.

Beneficial partnerships

Map, track, act!

Millions of people live in slums where living conditions are often poor with high poverty rates. Our research focuses on the development of a Slum Prosperity Framework. It helps urban development stakeholders to work with vulnerable communities, using network maps to tell stories of the inter-linked social, physical, and environmental spaces. These maps track challenges and assets, and help chart paths to collaboratively improve the lives of those living there.

Entrant: Aisha Abubakar

Prioritising livestock health; boosting productivity

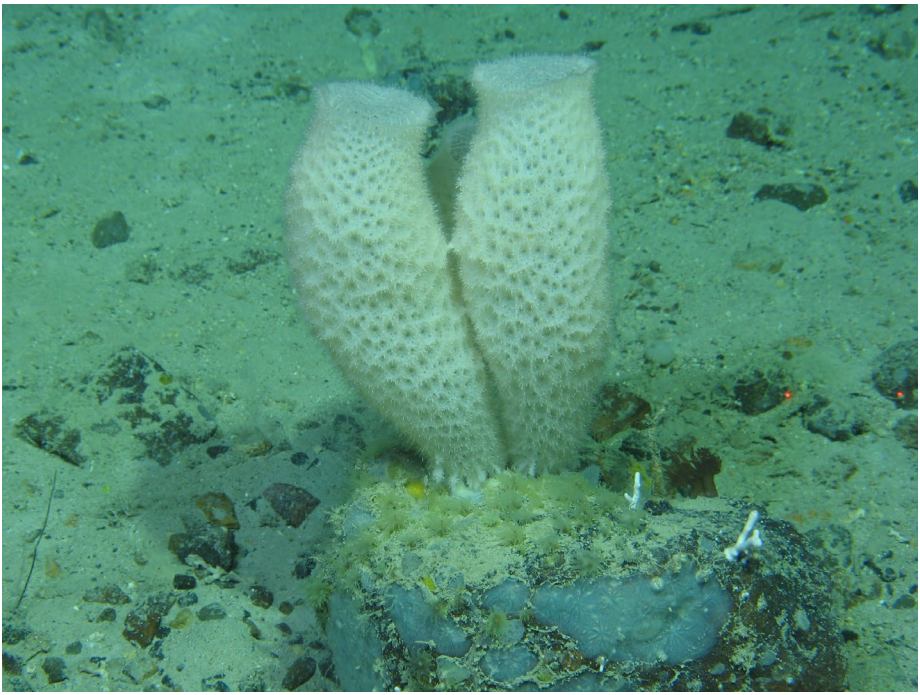
Pressures on securing food supply is driving the adoption of technology-inspired farming solutions and services. Strathclyde is contributing to significant innovation, developing a range of livestock and crop farming solutions based on Internet-of-Things technologies, for which it has achieved international recognition. A smart collar for dairy cattle (depicted), that monitors animal health, wellbeing and productivity, is already bringing significant benefits to farmers across the world.

Entrant: Ivan Andonovic

Tackling knife crime through imagery

Over the past decade, national initiatives have transformed Glasgow from the 'murder capital of Europe' to being at the forefront of tackling knife-crime. However, there is little research on the effectiveness of graphic images of knives, like this one, used in the media. Partnering with Police Scotland and the Mental Health Foundation, we are exploring young people's thoughts and feelings about the use of such images as deterrents against crime.

Entrant: Nicola Cogan



Protecting our deep-sea potential

Deep-sea sponges, many of which are new to science, are home to weird and wonderful bacteria that could be the solution to one of the greatest threats to human health - antimicrobial resistance, when antibiotics no longer work. The One Ocean Hub, led by University of Strathclyde, brings together deep-sea marine researchers, law and social science experts to ensure deep-sea sponges are recognised for their essential contributions to human wellbeing and are better protected.

Entrant: Elisa Morgera

River of dreams?

This river flows through Ndirande township in Blantyre (Malawi) where it collects household, human and commercial waste from indiscriminate dumping and poor construction of toilets. Not surprisingly, our research has shown these rivers to be associated with typhoid transmission, and the environmental distribution of antimicrobial resistant organisms. We are now focussed on working with communities to protect these important riverine systems and reduce the risk of disease transmission.

Entrant: Tracy Morse

Safeguarding our heritage: technology-enabled conservation

This image represents the technological advancements that aim to support preventative conservation of important historic buildings. Through regular monitoring of buildings, the research seeks to slow the process of decay, identifying areas for early intervention, before damage becomes too costly or difficult to repair. Working with the Public Works Department in Malaysia, Strathclyde intends to establish a building information modelling (HBIM) preventive conservation framework.

Entrant: Saiful Ramli

Something's happening beneath my feet

This is not just a field but part of the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) subsurface laboratory, where a world-first experiment was about to commence deep below the ground. Strathclyde researchers participated in a field experiment to inject CO_2 into a geological fault zone and closely monitor its movement, as part of a programme that aims to develop low-carbon subsurface technologies, important for tackling climate change.

Entrant: Jen Roberts

Unearthing the potential beneath

In partnership with Scottish Canals, Strathclyde researchers are aiming to transform noxious, wet canal sediments into useful construction materials, investigating new processes to naturally improve them. One method is to encourage grass and other plants to remove water and break-down any remaining contaminants, improving the texture of the soil. In this photo, we are preparing the surface of a sediment lagoon for over-seeding with a resistant grass variety.

Entrant: Keith Torrance

Setting African wheels in motion

Limbani's 60 kilometre cycling trip to the closest vegetable market is part of his routine as a farmer. Our research aims to identify and remove barriers like this that currently prevent smallholder farmers in Malawi from accessing markets to sell their produce. Enabling the transition towards commercial agriculture is a priority to achieve inclusive rural growth in many developing countries, addressing food security and climate change, and alleviating poverty.

Entrant: Andrea Tuni

Artificial intelligence or intelligent art?

Art can be used to release emotion or inspire it, but how do you feel about art not generated by a living being? This sculpture was created using machine learning, working from databases of 3D-captured classical sculpture. Our partnership with sculptor, Zachary Eastwood-Bloom, aims to initiate debate on the use of Artificial Intelligence in art, and wider society, and considers the myths that these new technologies may generate.

Entrant: Billy Wallace

Empowering people

Rewarding routines: food for thought

The effects of diarrhoea can be life-threatening in places like Malawi, where 40 percent of children under two suffer from it. Working with communities through our effective hygiene practice programme, we are educating people like Mary (pictured with her daughter Ruth) how to store and reheat food safely, to prevent contamination that often occurs in leftover food. Our interventions have so far cut the incidence of dangerous diarrhoea in half.

Entrant: Kondwani Chidziwisano

Tackling the mental health pandemic

With additional layers of responsibility, and mental and physical hardships, Covid-19 has been the ultimate test of emotional resilience in our health and social care workers. Our research aims to better understand the psychological needs of frontline staff in Scotland – asking them how the pandemic has impacted their mental wellbeing – to determine how to best support them as we move into the 'recovery' phase of the pandemic.

Entrant: Nicola Cogan

Loss of my navigator

“He’s the navigator of your vessel, not the captain”- a participant reflects on their experience of adjusting to life after the loss of their ‘navigator’. Thirteen inspiring young people across Scotland have shared their stories with researchers at Strathclyde, to help improve our understanding of the challenges young people face following the death of a loved one. These findings will help inform approaches to supporting young people following a bereavement.

Entrant: Laura Del Carpio

Coughing to coffin: coalfield lessons

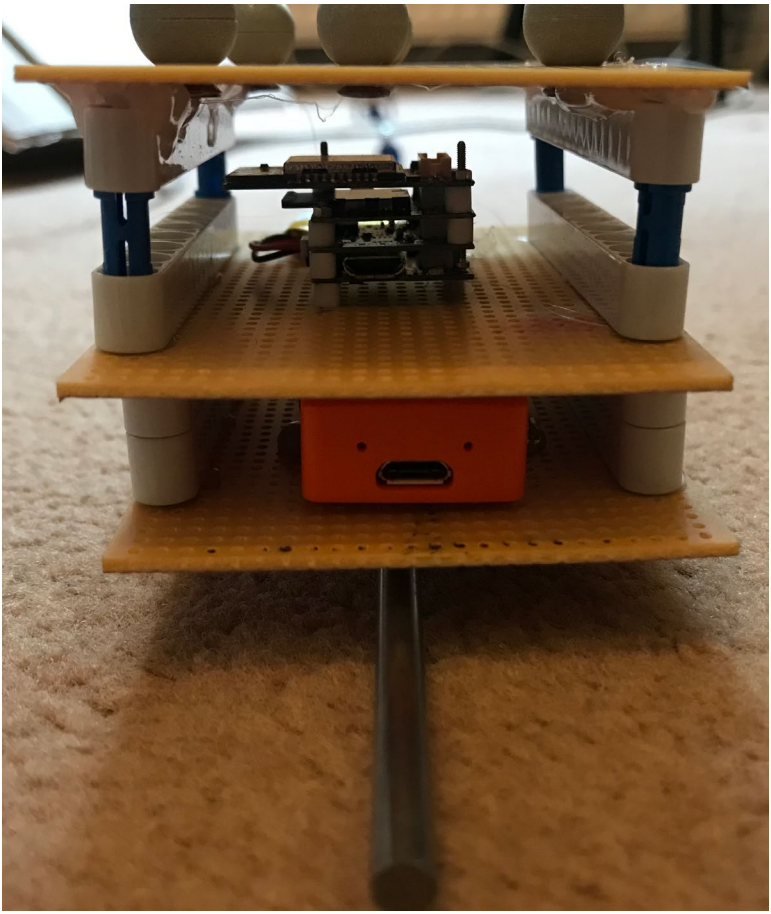
Many diseases, including miner's lung, developed from breathing in tiny coal particles, less than a 1/6th of the width of a human hair, over a person's lifetime. These historical lessons provide a useful gauge in our studies of the cumulative effects of exposure to fine particulate matter that is present in our towns and cities. Understanding the long-term effects of air pollution, we can better inform policy to reduce it.

Entrant: Samuel Grainger

Journeys through homelessness and hope

This illustration captures the difficult, uncertain and often fragmented and dis-empowering transition from homelessness to stable housing – the foundation for dignified healthy lives. Persons who are homeless and have a mental illness often experience persistent health and social inequalities severely affecting their life chances. Our research explores the role of housing and social services in empowering those individuals to achieve recovery and realise their full potential as active citizens.

Entrant: Dimitar Karadzhov



A stroke of genius

Tackling stroke rehabilitation research while working from home during the pandemic led to great innovation in design. Aiming to develop affordable support tools for stroke patients, researchers used everyday objects and a great deal of resourcefulness to test their methodology. Reducing the chance of further delays once in-person trials resume, this work mirrors the ethos of the project in bringing therapies to within everyone's reach.

Entrant: Maisie Keogh

Fisher's rights are human rights

"I hope to see the ocean restore itself to what it was", says fisherman Simlindile Gxala. Small-scale fishers in South Africa are struggling to make a living and, despite their inter-generational expertise, they remain excluded from ocean decision-making. The Strathclyde-led One Ocean Hub is working with small-scale fishers to establish a coastal justice network, to support recognition of their human rights with a view to contributing to more inclusive ocean governance.

Entrant: Elisa Morgera

Helping mums form healthy habits

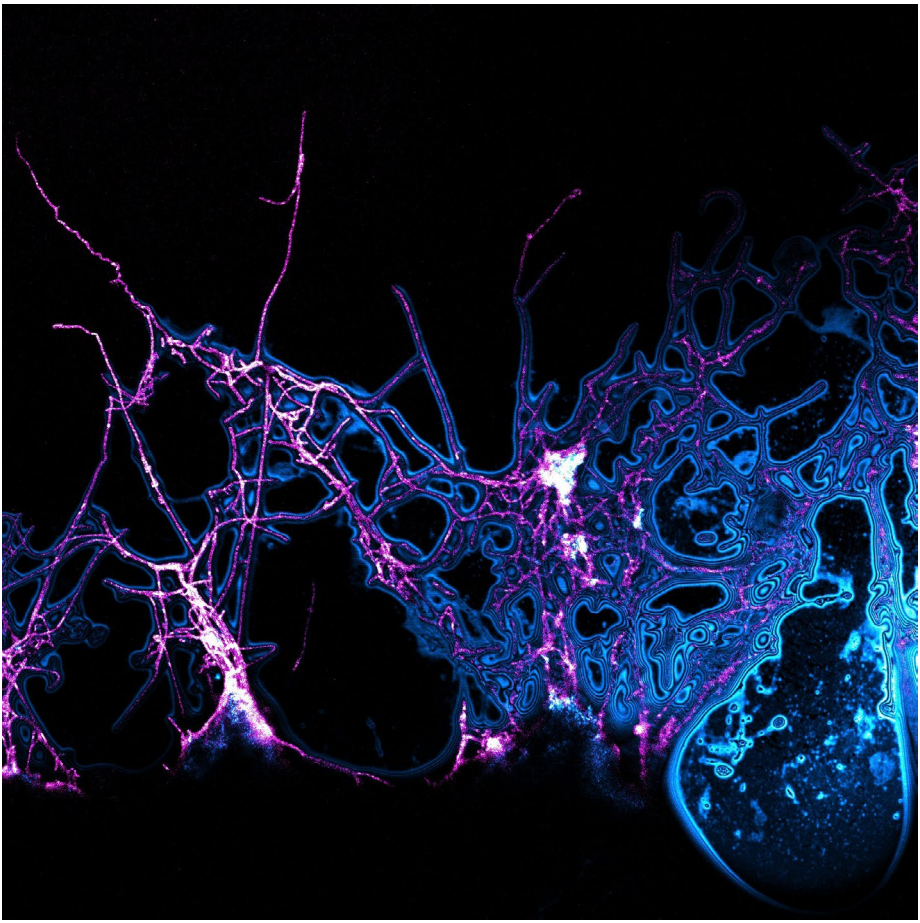
In rural Malawi, Eliza wears a bright bib that helps to remind her mum to wash her hands with soap before she feeds her. Aimed at reducing disease transmission, the Hygienic Family trial – a programme of activities and prompts – was developed and delivered in partnership with the University of Malawi WASHTED Centre and community members. The intervention has so far reduced diarrhoea by over fifty percent.

Entrant: Tracy Morse

The balancing act

Physical activity, sitting and sleep (24-hour movement behaviours) are crucial for physical and mental health. For adolescents with type 1 diabetes, standard adolescent changes combined with the required 24-hour management of the condition, creates unique challenges. Strathclyde research aims to inform clinical guidance to enable adolescents with type 1 diabetes to achieve the optimum balance of movement behaviours and lead healthier, happier lives.

Entrant: Mhairi Patience



Untangling the microcosmic web

Antimicrobial resistance threatens our ability to treat infections using current antibiotics. Around 70% of antibiotics are produced by web-like actinomycete bacteria like this one, Streptomyces coelicolor. At Strathclyde, we are developing new ways to image these bacteria to better understand how they produce antibiotics and how they can be used to generate new medicinal compounds.

Entrant: Liam Rooney

Prosperous world

Sunset for Gaelic?

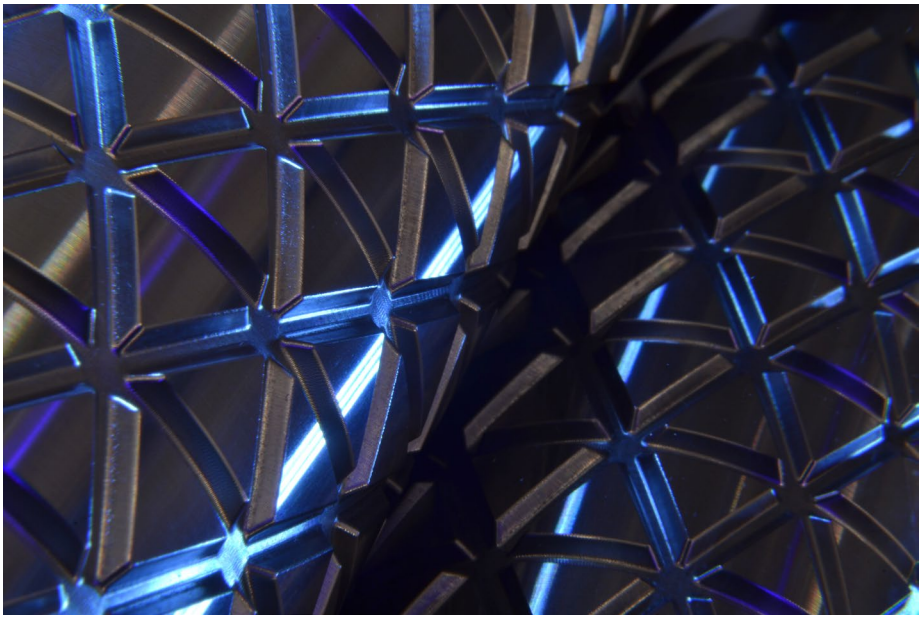
The Gaelic language is an important part of Scottish heritage, however, research shows it is increasingly disappearing from daily use. We are studying how Gaelic is used, and by whom, in different communities. Identifying pattern use, we aim to develop a methodology to sustain the language, in the hope we can prevent the sun setting on Gaelic for good.

Entrant: Ingeborg Birnie

Everyone's a scientist

We take it for granted that learning science is an entitlement for all young people. However, some learners are excluded by a lack of opportunities and suitable resources, though primarily by the feeling that it's "too hard" or "irrelevant for them". Our research explores how science can be meaningful for everyone, no matter how exceptional, with the aim of ensuring that science really is 'for all'.

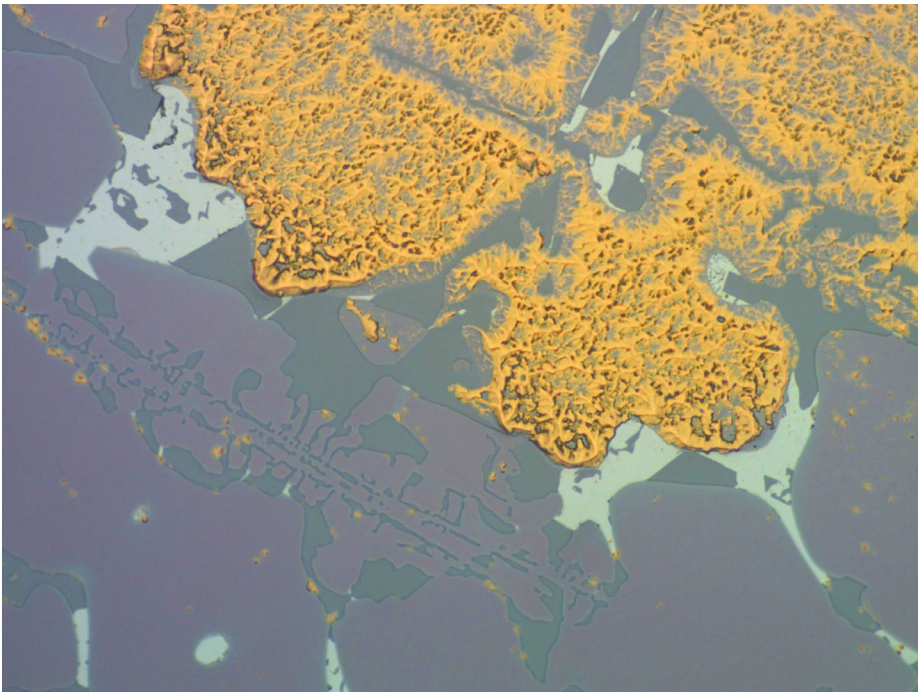
Entrant: Jane Essex



Isogrid: forming new impressions

These rollers imprint sheet metal to create Isogrid - a high performance material developed for NASA. It has incredible lightweight properties but hasn't been widely adopted outside the aerospace industry as current production methods are slow and wasteful. Our new Isogrid forming method hopes to reduce the cost of production, bringing a space-age material to the masses and encouraging industry to adopt its usage and reduce environmental impact.

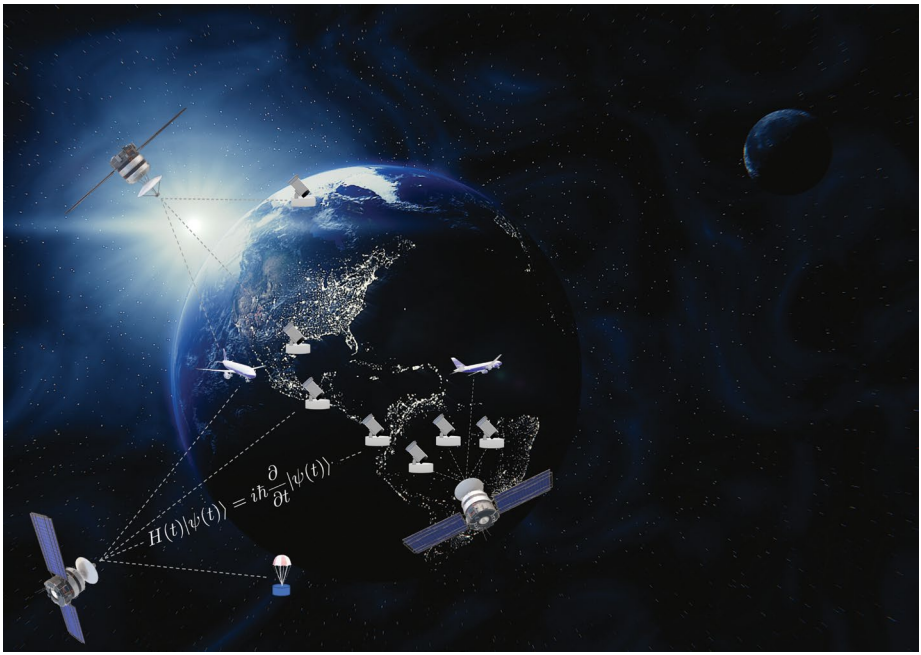
Entrant: Andrew Garrick



Eradicating the purple plague

This is a magnified image of “purple plague”, caused by high temperatures in circuit boards, where gold wires are in contact with aluminium pads. By studying how these compounds – which can cause component failure over time – are generated, we aim to prevent their formation, benefitting business and consumer, by extending the life of electronic components and devices.

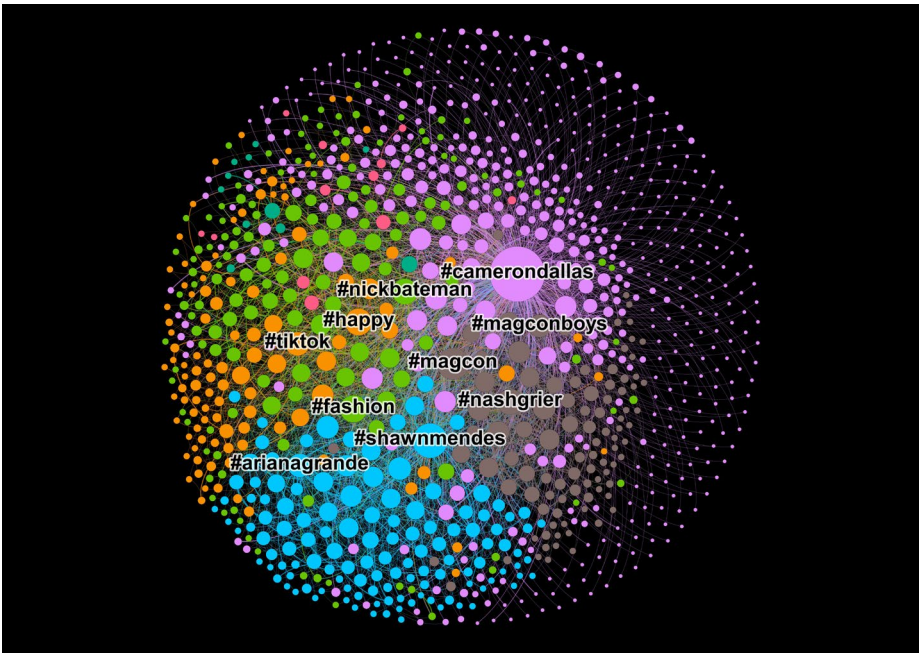
Entrant: James Kelly



Securing our ever-connected world

Current methods of data encryption face increasing threat from hackers, however, quantum physics could eradicate vulnerability. Our research is developing novel quantum encryption solutions to provide much greater protection for sensitive digital information in transit. Through design of satellite constellations that can carry these technologies to space, we aim to efficiently connect the globe so that our future is protected from cybercrime.

Entrant: Sonali Mohapatra



Hashtagging: the power of collectives

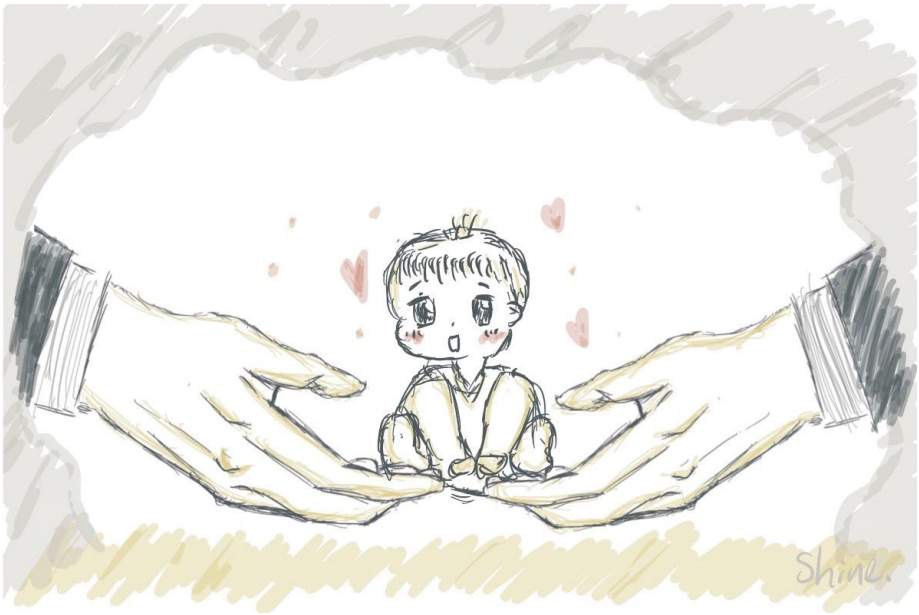
Individuals can be small and powerless on social media. However, this network visualisation portrays how Instagram empowers people, and hashtags enable the creation of mega-influencers. Our research seeks to understand how collective congregation around trending hashtags amplifies individual voices, forming powerful networks around people, movements and ideas.

Entrant: Dilan Rathnayake

Where nano meets bio

Nano-sized particles are all around us, too small to be seen with the human eye, but what happens when they encounter a biological system? In the Rattray Translational Lab, we are interested in studying how these particles behave in the body, so we can design new medicines and understand the environmental impact of these nano-sized materials on living organisms.

Entrant: Zahra Rattray



Building bridges: early years education

This image depicts the ideal partnership between nursery and family; a bridge that enables parental involvement in early childhood education to ensure children thrive. Our research is exploring the perspectives of young children, parents, practitioners and administrators to understand factors that influence parent involvement and identify any barriers. Outcomes will inform creation of a sustainable model of partnership that aims to provide a fully connected learning experience that most benefits young children.

Entrant: Xunrou Shen

Deflating the balloon

The ballooning of the aorta (an aneurysm) can be fatal. The safest way to treat this is by putting a stent-graft in via keyhole surgery. However, this only works for patients with larger arteries, such as men. At Strathclyde, we are developing a computational tool which will be used to improve the design of these medical devices to help make them available to a wider group of patients.

Entrant: Alexandra Wren

Protecting our planet

Purging pollutants: restoring our waterways

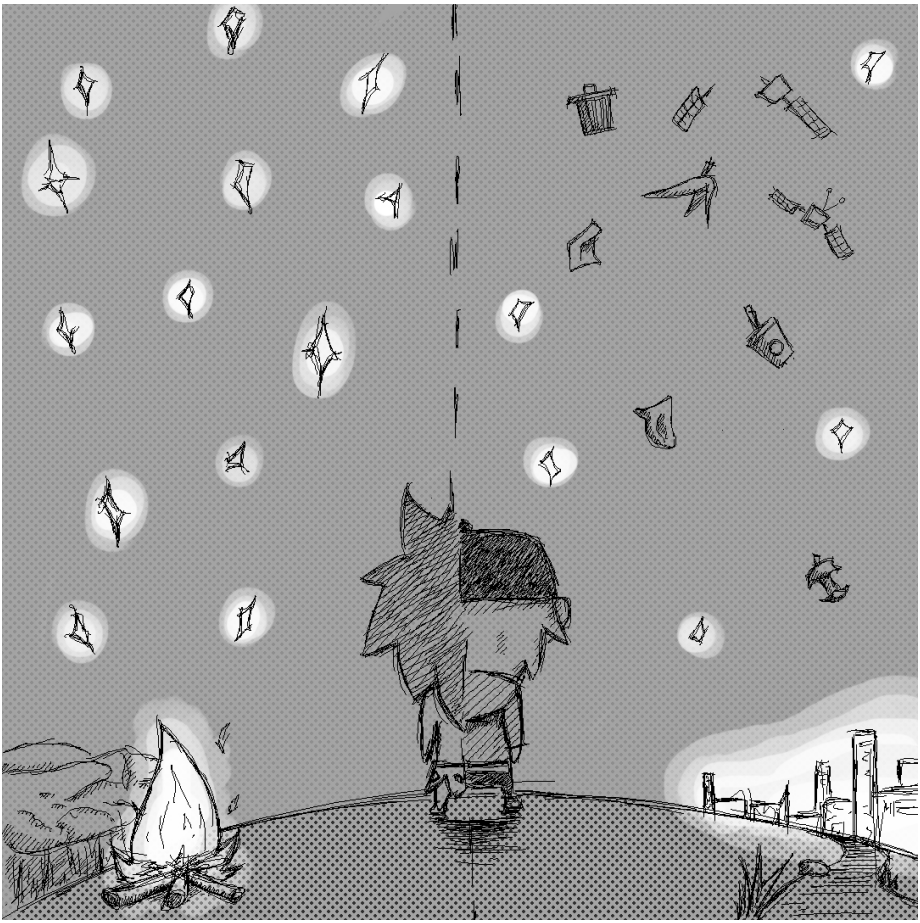
Daily discharge of domestic and industrial pollutants render wastewater potentially dangerous to life. Our research aims to develop a novel system that will enable industry to remove contaminants from wastewater before it is released, ensuring their compliance with increasingly stringent standards and ultimately protecting the environment and the lives that depend on it.

Entrant: Oluwagbemi Aladeokin

When you see it...

The robot watches with dismay as an asteroid crashes into Earth, yet we can only see an unclear reflection of the event unfolding in the puddle. Unfortunately, current spacecraft technologies are not able to identify asteroids fast enough due to optical distortions. With the support of the European Space Agency, we are developing Artificial Intelligent algorithms for spacecraft systems to efficiently and precisely determine these threatening bodies.

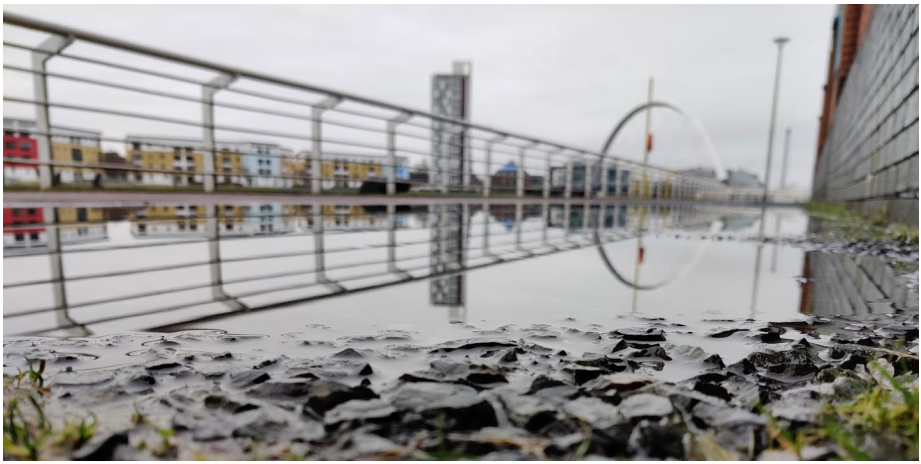
Entrant: Mewantha Aurelio Kaluthantrige Don



The problem with space pollution

Space debris is increasing around the Earth with the potential to knock out satellite communications. By studying the Earth's gravitational influence on debris (orbital resonance) we aim to assist space agencies, informing the development of an instrument to control the orbital progression of space debris and plan its effective removal.

Entrant: Wail Boumchita



Reflecting on urban stormwater

Traditional urban drainage lacks resilience against the impacts of climate change and increasing urbanisation, leading to greater risk of flooding, water scarcity, and the release of harmful pollutants. Sustainable Urban Drainage Systems (SUDS) simultaneously treat contaminated stormwater and reduce its volume, protecting the aquatic environment and even creating the possibility of stormwater re-use. Our research examines how SUDS design can be optimised to provide the best possible stormwater treatment.

Entrant: Erin Corbett

Transforming industrial wastelands

Degrading industrial waste releases abundant, potentially toxic elements into surface waters (top). Our research explores tufa (a freshwater limestone, bottom) as an aid in cleaning dirty water in derelict industrial landscapes (centre) - specifically, the simple yet versatile chemical reactions which lead to the formation of new minerals capable of consuming the contaminants. Such processes offer a nature-based, long-term and cost-effective restoration method for sites such as former steelworks and mining districts.

Entrant: Marta Kalabova

Tunnelling to climate solutions

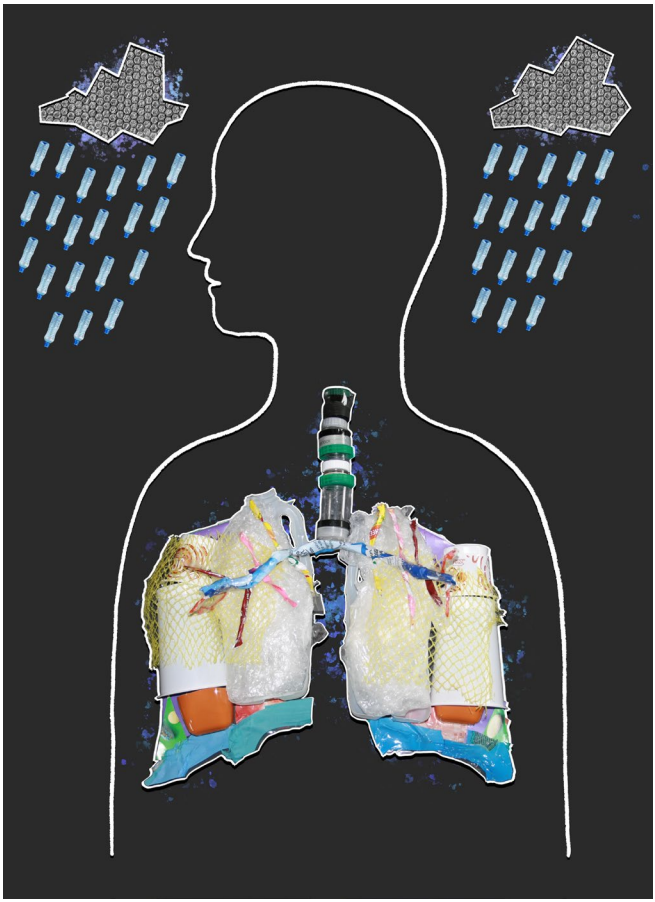
With the increasing need to reduce carbon emissions to tackle climate change comes an increasing need for nuclear power, and therefore assurance that nuclear waste is securely disposed of. As part of a group of institutions working on safe containment, Strathclyde researchers are developing a non-intrusive technique to monitor the stability of barriers that would surround waste, in a mock deep geological disposal facility, at Tournemire Underground Research Laboratory (pictured).

Entrant: Bruna Lopes

Harvesting nature's healing power

Historic metal mining has contaminated land, rivers and sediments across the planet, but plant growth can reduce their impact by preventing contaminated soil from spreading by wind or erosion. At our experimental field trial on an abandoned lead-zinc mine in NE England, we are testing different grasses and waste materials as soil amendments, to try to stabilise the soil without contaminating the plants themselves.

Entrant: Richard Lord



Take my breath away

Plastic waste produced by modern life is polluting our land and oceans, and it is now known that degrading plastic is also contaminating the air we breathe. We are studying microplastic particles in our atmosphere to understand how much we are exposed to and to identify the main sources. This will help prevent future environmental contamination and improve knowledge on how our obsession with plastic could be damaging our health.

Entrant: Anna MacDonald

Carving out remote possibilities

Scotland is committed to becoming a net-zero society by 2045 with energy key to achieving this target. Offshore wind turbines allow us to harvest energy from remote locations, but are difficult and costly to maintain. Through investigation of different turbine forms and design of their optimal maintenance strategies, we aim to make offshore wind as cost-efficient as possible, benefitting supplier, customer and the environment.

Entrant: Jade McMorland

The disturbed sleep

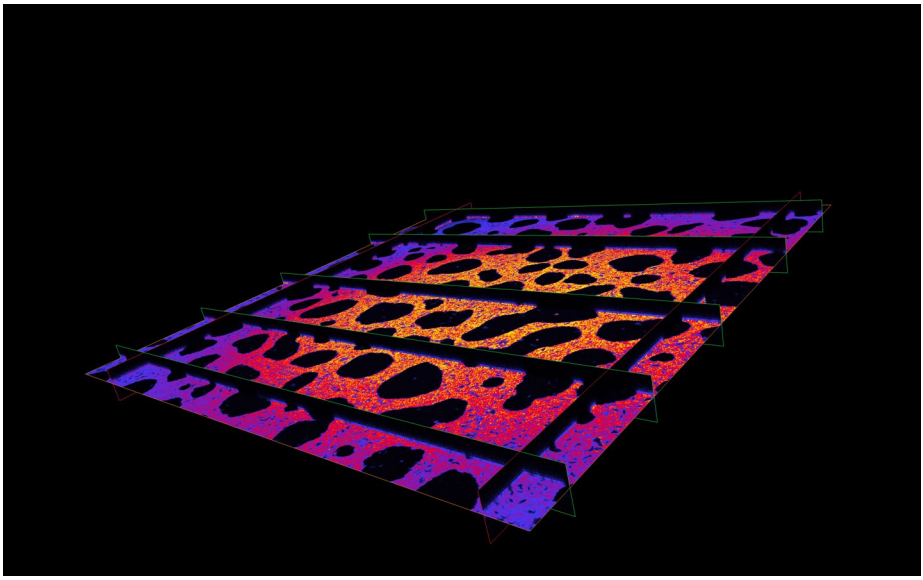
A spiritual cleansing ritual of the isiZulu Zionist takes place in South Africa, where many consider the ocean as the resting place of their ancestors. Due to mounting pressures for deep-sea oil and gas exploration, the sacred sea floor is under threat. The Strathclyde-led One Ocean Hub explores how human rights, the arts, social and marine sciences can contribute to the protection of the oceans and the heritage of indigenous people.

Entrant: Elisa Morgera

The impact of unseen waves

Internal solitary waves move through oceans causing disturbance both at the surface and below in the subsea. They are vital for coral reef ecosystems, but can cause havoc for offshore structures. Our research looks at how we might predict these waves and give early warning when they occur, as well as how to design better offshore structures that can withstand their effects.

Entrant: Michael Orji



How does your biofilm grow?

Bacteria can attach themselves to materials in the form of a ‘biofilm’, with effects ranging from beneficial to harmful. In this 3D microscopy image, we see black ‘holes’ in the biofilm, caused by a novel antimicrobial that has restricted formation of the coating. Understanding biofilm growth has many practical applications, from effective design of bio-corrosion resistant nuclear waste storage containers to optimising antimicrobials for the treatment of disease.

Entrant: Ronald Turner

Entry Information

Beneficial partnerships index

Map, track, act!
Submitter: Aisha Abubakar
Department: Architecture
Funder: Hortigraph Nigeria Ltd

Prioritising livestock health; boosting productivity
Submitter: Ivan Andonovic
Department: Centre for Intelligent Dynamic Communications
Collaborators: SRUC, Christopher Davison, Craig Michie, Christos Tachtatzis
Funder: Scottish Enterprise, Innovate UK. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884

Tackling knife crime through imagery
Submitter: Nicola Cogan
Department: Psychology
Collaborators: Yvonne Chau, Violence Protection Unit, Mental Health Foundation, Damien Williams, Simon Hunter, Kirsten Russell, Will Linden, Nicola Swinson, Michelle Sharp, Stephanie Carney, Lee Knifton, Vicki Jordan, Petya Eckler
Funder: Scottish Police Authority in partnership with the Violence Protection Unit

Protecting our deep-sea potential
Submitter: Elisa Morgera
Department: One Ocean Hub
Collaborators: Mat Upton, Kerry Howell, Rosie Dorrington, Jazz Conway
Funder: One Ocean Hub is funded by UK Research and Innovation (UKRI) through the Global Challenges Research Fund (GCRF)

River of dreams?
Submitter: Tracy Morse
Department: Centre for Sustainable Development
Collaborators: Kondwani Chidziwisano, Derek Cocker, Nicholas Feasey and Taonga Mwapasa
Funder: Related to the Medical Research Council funded Drivers of Resistance in Uganda and Malawi (DRUM) project

Safeguarding our heritage: technology-enabled conservation
Submitter: Saiful Ramli
Department: Architecture
Collaborators: Ibrahim Motawa, Cristina Gonzalez-Longo
Funder: Government of Malaysia (Public Service Department of Malaysia)

Something's happening beneath my feet
Submitter: Jen Roberts
Department: Civil and Environmental Engineering
Collaborators: CSIRO Energy, Geoscience Australia, Curtin University, Class VI Solutions Inc., Korea University, Chinese Academy of Science
Funder: Australian Government through the Commonwealth Carbon Capture and Storage Research Development and Demonstration Fund CCS49360, CSIRO and University of Strathclyde

Unearthing the potential beneath
Submitter: Keith Torrance
Department: Civil and Environmental Engineering
Collaborators: Richard Lord (photo subject)
Funder: Interreg (SURICATES project)

Setting African wheels in motion
Submitter: Andrea Tuni
Department: Design, Manufacture and Engineering Management
Funder: Global Challenges Research Fund

Artificial intelligence or intelligent art?
Submitter: Billy Wallace
Department: Computer and Information Sciences
Collaborators: Zachary Eastwood-Bloom (Sculptor), Robert Madaj (student)
Funder: Creative Scotland

Empowering people index

Rewarding routines: food for thought
Submitter: Kondwani Chidziwisano
Department: Civil and Environmental Engineering
Collaborators: Tracy Morse, Rossanie Malolo, Mindy Panulo
Funder: UK AID (Department for International Development)

Tackling the mental health pandemic
Submitter: Nicola Cogan
Department: Psychology
Collaborators: Gillian MacIntyre, Gary Tanner, Karen Deakin, Lisa Morton, Chloe Moore, Zoe Beck, Heather Archibold, Lisa McInnes, Bethany Griffith, Samantha Smith, Isabel Saez-Berruga

Loss of my navigator
Submitter: Laura del Carpio
Department: Psychology
Collaborators: Susan Rasmussen
Funder: Wellcome Trust

Coughing to coffin: coalfield lessons
Submitter: Samuel Grainger
Department: Civil and Environmental Engineering
Funder: University of Strathclyde: Engineering the Future Scholarship

Journeys through homelessness and hope
Submitter: Dimitar Karadzhov
Department: Institute for Inspiring Children's Futures
Collaborators: Ian Hutchison (artist)
Funder: This work was supported by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie Grant 690954.

A stroke of genius
Submitter: Maisie Keogh
Department: Biomedical Engineering
Funder: Engineering and Physical Sciences Research Council, Grant no: EP/R513349/1

Fisher's rights are human rights
Submitter: Elisa Morgera
Department: One Ocean Hub
Collaborators: Taryn Pereira Kaplan, Dylan McGarry, Buhle Francis
Funder: One Ocean Hub is funded by UK Research and Innovation (UKRI) through the Global Challenges Research Fund (GCRF)

Helping mums form healthy habits
Submitter: Tracy Morse
Department: Centre for Sustainable Development
Collaborators: Mindy Panulo, Rossanie Malolo, Kondwani Chidziwisano
Funder: Sanitation and Hygiene Applied Research for Equity (SHARE Consortium) funded by Department for International Development, UK Aid, Foreign, Commonwealth & Development Office

The balancing act
Submitter: Mhairi Patience
Department: Psychology
Funder: University of Strathclyde: Student Excellence Award

Untangling the microcosmic web
Submitter: Liam Rooney
Department: Physics
Funder: University of Strathclyde: Strathclyde Tranche Studentship

Prosperous world index

Sunset for Gaelic?
Submitter: Ingeborg Birnie
Department: Education
Funder: Bòrd na Gàidhlig

Everyone's a scientist
Submitter: Jane Essex
Department: Education
Collaborators: Strathclyde Education Dept, Strathclyde Pure and Applied Chemistry Dept, the Salters' Institute

Isogrid: forming new impressions
Submitter: Andrew Garrick
Department: Mechanical and Aerospace Engineering
Collaborators: James Kelly, co-photographer
Funder: Advanced Materials Research Laboratory (AMRL), University of Strathclyde and Ocean Kinetics Ltd

Eradicating the purple plague
Submitter: James Kelly
Department: Advanced Materials Research Laboratory

Securing our ever-connected world
Submitter: Sonali Mohapatra
Department: Physics
Funder: University of Strathclyde Impact Accelerator Account funded by Engineering and Physical Sciences Research Council (EPSRC), Grant no: EP/R51178X/1

Hashtagging: the power of collectives
Submitter: Dilan Rathnayake
Department: Marketing

Where nano meets bio
Submitter: Zahra Rattray
Department: Strathclyde Institute of Pharmacy and Biomedical Sciences
Collaborators: Nicholas Rattray
Funder: Scottish Universities Life Sciences Alliance, STEM Equals

Building bridges: early years education
Submitter: Xunrou Shen
Department: Education

Deflating the balloon
Submitter: Alexandra Wren
Department: Mechanical and Aerospace Engineering
Funder: University of Strathclyde: University Research Excellence Award (REA) Studentship

Protecting our planet index

Purging pollutants: restoring our waterways
Submitter: Oluwagbemi Aladeokin
Department: Chemical and Process Engineering
Funder: H2020 Euratom Research and Training Programme (NFRP-2014-2015; funding agency ID: http://doi.org/10.13039/100010687)

When you see it...
Submitter: Mewantha Aurelio Kaluthantrige Don
Department: Mechanical and Aerospace Engineering

The problem with space pollution
Submitter: Wail Bounchita
Department: Mechanical and Aerospace Engineering
Funder: European Space Agency

Reflecting on urban stormwater
Submitter: Erin Corbett
Department: Civil and Environmental Engineering
Funder: Engineering and Physical Sciences Research Council (EPSRC), grant no: EP/N509760/1

Transforming industrial wastelands
Submitter: Marta Kalabová
Department: Civil and Environmental Engineering
Funder: University of Strathclyde

Tunnelling to climate solutions
Submitter: Bruna Lopes
Department: Civil and Environmental Engineering
Collaborators: Alessandro Tarantino (Strathclyde), Pierre Dick (IRSN) and Johan Bertrand (Andra)
Funder: Andra, Institut de Radioprotection et de Sûreté Nucléaire (IRSN) and H2020 via Modern2020. This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 662177

Harvesting nature's healing power
Submitter: Richard Lord
Department: Civil and Environmental Engineering
Collaborators: Ben Nunn (subject in photo)
Funder: University of Strathclyde: ETF studentship, Civil & Environmental Engineering (studentship top-up) and Northumbrian Water Ltd (research costs and living wage bursary)

Take my breath away
Submitter: Anna MacDonald
Department: Civil and Environmental Engineering
Collaborators: Phillip Edge (image co-creator)
Funder: Engineering and Physical Sciences Research Council (EPSRC), grant no: EP/T517938/1

Carving out remote possibilities
Submitter: Jade McMorland
Department: Naval Architecture, Ocean and Marine Engineering
Funder: Engineering and Physical Sciences Research Council (EPSRC), grant no: EP/S023801/1

The disturbed sleep
Submitter: Elisa Morgera
Department: One Ocean Hub
Collaborators: Dylan McGarry, Kira Erwin, Kerry Sink, Mpume Mthombeni
Funder: One Ocean Hub is funded by UK Research and Innovation (UKRI) through the Global Challenges Research Fund (GCRF)

The impact of unseen waves
Submitter: Michael Orji
Department: Naval Architecture, Ocean and Marine Engineering
Collaborators: Emmanuel Idowu
Funder: Petroleum Technology Development Fund (PTDF)

How does your biofilm grow?
Submitter: Ronald Turner
Department: Civil and Environmental Engineering
Funder: UKRI Engineering and Physical Sciences Research Council (EPSRC), grant no: EP/L014041/1

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