

## The Pop-Up University

FREE! From the makers of Festival of the Mind

Friday 20–Sunday 22 September 2019

Friday and Saturday: 10am–5pm

Sunday: 11am–4pm

### At the Millennium Galleries

Welcome to the Pop-Up University!

Our festival celebrates and showcases emerging research from across the University of Sheffield, covering everything from healthcare, technology and sustainability, to culture, history, music and art. Join us on a journey of discovery with captivating virtual and augmented reality exhibitions, and talks from our researchers about the issues that impact on our everyday lives.

Come along for an immersive experience, a chat with our researchers and the opportunity to learn something new!

The festival is free and open to all.

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Museum Sheffield

## Exhibition programme

Virtual and augmented reality exhibitions and installations exploring research from across the University of Sheffield.

Friday and Saturday: 10am–5pm

Sunday: 11am–4pm

### Aegis

Explore the nano-world inside the cells of a plant with the Aegis sculpture, created by artists Seiko Kinoshita and Darren Richardson, working in collaboration with scientist Dr Nate Adams. The sculpture depicts the protecting embrace of an enzyme holding its cargo in preparation for performing a reaction.

### A tour of China's 'Silicon Valley'

Take a virtual reality tour of the Pazhou Internet Innovation Cluster in Guangzhou – China's own 'Silicon Valley' – where internet giants including Tencent (owner of WeChat), Xiaomi, Fosun and VipShop have set up their headquarters. Explore Pazhou's proposed urban quarter and give your thoughts on this pioneering urban design.

### Embodying the drone

Explore the sensory dynamics of human-drone encounters with a virtual reality interface that allows you to 'see through the eyes' of a quadcopter drone.

### Experience Castlegate

What if you could see the past, present and future of our city all at the same time? Experience Sheffield Castle through this augmented reality model, learn about recent archaeological research and see visions of the future from University of Sheffield students.

### Eyes, emotions and experience in the urban environment

Take a walk through a virtual urban space and learn how our minds interact with the space around us. As you travel through and interact with the space, eye-tracking technology will capture your eye-movements and reveal how you experience the environment.

### Harvesting light

Take a trip through the fantastic world of light with two virtual reality artworks developed by artist Paul Evans in collaboration with HumanVR and researchers from the Department of Physics. Explore a mind-bending virtual colour environment and interact with spinning neutrons and photonic structures.

### Journey through the world of materials science

Join us and see how our Engineering students are helping to strengthen plastics and other materials, whilst making them more sustainable and bio-friendly. See a virtual reality 3D model that explains how glass fibre can improve the strength of materials we use everyday.

### Lifecycle city: SCEAT-AR

Play an augmented reality game all about creating a sustainable city. Learn about the environmental, economic and social impacts of your choices as you build, maintain and upgrade your city.

### Lunar base 50

Celebrate the 50th anniversary of the Apollo 11 moon landing with our Sheffield Engineering Leadership Academy (SELA) Engineers at the Pop-Up University lunar base. Work your way through several engineering challenges to make the lunar base habitable and establish a communications link with Earth. Find out if you've got what it takes to live on the moon!

### Mini mobile hydroponics

Find out how food can be produced using novel research developed at the University of Sheffield with mini mobile hydroponics. The system can be deployed anywhere, is soil free, and uses 10% of the amount of water required to grow the same crop in a conventional farm!

### The Cyberselves roadshow

Come and see the world from a robot's perspective as you use a virtual reality interface to control a humanoid robot. You will also have the opportunity to talk to our robotics researchers and meet their robot companion, Miro – designed for education and elderly care.

### The Virtual Hole in the Road

Put on a virtual reality headset and be transported to a time and space where Sheffield's famous Hole in the Road still exists. See this marvel of 1960s urban-planning in all its glory and hear the real-life stories of the people who visited this unique place.

### Young people, technology and the future of Ar' City

How do you make a city fun? Ar' City uses 'creative tech' interventions made by young people to prompt citizens to re-think everyday moments and form memorable shared experiences. As part of Pop-Up University, we invite you to explore some of the exhibitions, play with the technology and meet the makers.



# POP-UP university

Bringing our research to you



20–22 September  
Millennium Gallery



## Talks programme

### 20 minute talks on a wide range of new, ground-breaking research from across the University of Sheffield.

#### Friday 20 September

##### Can AI accelerate precision medicine?

Ines Krissaane

10.30–10.50am

Join Ines Krissaane and discover how artificial intelligence can change the future of medicine – using statistics, machine learning and deep learning to research issues relating to healthcare.

##### Using mathematics to save our species

Natasha Ellison

11–11.20am

Mathematics can be used to understand how animals move around the landscape and predict what might happen if they lose their habitat. Natasha Ellison will talk about how we do this and why it is useful.

##### It's all about us: accessing our genetic information!

Dr Cristina Alexandru

11.30–11.50am

Dr Cristina Alexandru explores the cellular and molecular processes that are involved in producing genetic variation within the population and looks at the differences between DNA and RNA, and their respective roles.

##### Lunar base 50

SELA students

12–12.20pm

Our SELA (Sheffield Engineering Leadership Academy) students will be talking about their lunar base 50 interactive installation and how far engineering has come since the Apollo 11 moon landing 50 years ago.

##### Harvesting light

Paul Evans

12.30–12.50pm

Take a trip through the fantastic world of light with two virtual reality artworks developed by artist Paul Evans in collaboration with HumanVR and researchers from the Department of Physics. Explore a mind-bending virtual colour environment and interact with spinning neutrons and photonic structures.

##### What do we know about menopause, relationships and intimacy?

Stephanie Ejegi-Memeh

1.30–1.50pm

Join Stephanie Ejegi-Memeh and hear about research around women's sexual health and well-being at menopause and beyond. The session will include myth busting and troubleshooting.

##### Breaking down the walls of the causes of cancer

Chiara Niespolo

2–2.20pm

Join Chiara Niespolo and find out how she and her colleagues from across the EU take a collaborative approach to research and are working together to understand the fundamental causes of prostate cancer.

##### Experience Castlegate

Professor John Moreland and Tom Moore

2.30–2.50pm

Join Archaeology Professor John Moreland and Architecture student Tom Moore to hear about the past, present and future of the Sheffield Castle site. Tom will look at some of the proposals for development in the Castlegate area, and how these plans will preserve the heritage of the site while creating something new and innovative.

##### Søren Kierkegaard: losing oneself in busyness

Barney Riggs

3–3.20pm

Join Barney Riggs in exploring Danish philosopher Søren Kierkegaard's work, and its relevance to our present age. Writing in mid-nineteenth century Copenhagen, Kierkegaard witnessed radical changes to society. The appearance of a society of "absent-minded busyness" was one of his greatest concerns. For Kierkegaard, in busyness we lose ourselves, becoming spectators rather than actors in our own lives.

##### What happens the day after tomorrow: how do computers forecast floods?

Dr James Shaw

3.30–3.50pm

One in six UK homes risk being flooded, but do you know how computers forecast floods? Computers must simulate the entire city and make billions of calculations quickly enough for a real-world emergency response. Dr James Shaw is making forecasting faster and more accurate, helping to prepare for more frequent flooding in future.

##### Are wearable technologies the key to assessing real world mobility?

Kirsty Scott

4–4.20pm

With the advancements in wearable technologies and many of us now using some form of smart devices to monitor our health and track our activity levels, the question remains; could this data be utilised to assist with the clinical decisions made about our health?

##### "All the tea in China"

Xi Liu

4.30–4.50pm

Join Xi Liu on a journey of exploration through the tea cultures of China. Xi will cover the history of tea in China, representations of tea culture in cinema, and the links between tea, meditation and religious practice.

#### Saturday 21 September

##### StrongWomen Science Performance

11am–12pm

In this fun, lively, fast-paced performance find out how to balance a chair on your chin, if you can juggle liquid, or how circus performers eat fire. StrongWomen Aoife (an engineer) and Maria (an environmental scientist) reveal the science behind their outstanding tricks. Repeated at 4pm

##### Concrete, space and time

Nick Bax

12.10–12.30pm

In his capacity as an artist working within the realm of immersive art and as a researcher at the University of Sheffield, Nick will talk about his commercial and academic work and the potential impacts of this emerging technology on all our lives.

##### Hydroponics

Jacob Nickles

12.40–1pm

Researchers from the University of Sheffield have developed a soil-free system for growing crops that can be employed virtually anywhere, using less water than conventional farming methods. Join Jacob Nickles and hear about this ground-breaking innovation and the work him and his colleagues are doing to tackle the impending food-security crisis.

##### A home for life? Understanding the housing aspirations of older homeowners

Helen Brown

1.30–1.50pm

Is home truly where the heart is? Join Helen Brown in investigating the housing aspirations of Sheffield's ageing population, and share your views... whatever your age!

##### Lighting the way: the science of street lighting for pedestrians and cyclists

Dr Jim Uttley

2–2.20pm

In this illuminating talk, Dr Jim Uttley will discuss the range of methods used to find ideal street lighting conditions for pedestrians and cyclists. Science needs many tools to address this question, from tracking an individual's gaze to using night-time aerial imagery and 'big data' about behaviour.

##### What's appenin' to t'Sheffield dialect?

Johanna Blakey

2.30–2.50pm

Join Johanna Blakey and find out how massive changes to the social landscape of Sheffield over the past 100 years has influenced the way locals talk. Hear clips, stored in the archives at the University of Sheffield, of Sheffield dialect speakers from as far back as 1901.

##### Biologics: turning cells into mini drug factories

James Baker

3–3.20pm

In this talk, James Barker will look at Biologics – some of the most powerful drugs at our disposal for treating chronic conditions. Discover what makes Biologics different to normal drugs, how scientists transform cells into minuscule drug factories to create them, and the role they play in society.

##### Masters of disguise: how and why cancer cells evade immunity

Denise Giovana Carrasco Gonzalez

3.30–3.50pm

Several studies indicate that cancer can be treated by our own immune responses, but how does this work? Join Denise Giovana Carrasco Gonzalez and find out all about how some cancer cells evade the immune system, how these evasive cells can be exposed, and what this means for cancer treatment.

##### StrongWomen Science Performance

4–5pm

In this fun, lively, fast-paced performance find out how to balance a chair on your chin, if you can juggle liquid, or how circus performers eat fire. StrongWomen Aoife (an engineer) and Maria (an environmental scientist) reveal the science behind their outstanding tricks.

#### Sunday 22 September

##### Who likes contemporary art?

Dr Sarah Price

11.10–11.30am

Join Dr Sarah Price in looking at some of the most controversial art recognised by the Turner Prize. Should a pickled shark, a painting with elephant dung, or a light turning on and off be considered good art? Why do people love these works? And why do they inspire such vitriol from those who don't?

##### Brass bands and wellbeing: a blow by blow account

Dr Michael Bonshor

11.40am–12pm

Dr Michael Bonshor explores the physical, psychological and social benefits of playing in a brass band. Brass banding can improve respiratory health and cardiac function, reduce stress, act as a safety valve for releasing emotions, and generally prevent us from becoming too brassed off!

##### Enhanced solar energy capture inspired by nature

Evelin Csanyi

12.10–12.30pm

The fight against climate change is contingent on science offering ever more advanced technologies to meet our energy needs. Evelin Csanyi will explore a novel solar cell design inspired by biological light-harvesting in nature that is capable of enhanced solar energy capture.

##### The art-science divide, and how to bridge it through collaboration

Dr Nate Adams

12.40–1pm

Research as art is a hot-topic, but how do you maintain the aesthetic quality while also communicating cutting edge research? Dr Nate Adams and Seiko Kinoshita explore both Nate's research in chlorophyll biosynthesis and how they have developed their artistic collaboration from the beginnings in 2015, to their current national touring works.

##### Designing for democracy: the restoration and renewal of the Palace of Westminster

Dr Alexandra Anderson

1.30–1.50pm

Exploring the importance of 'renewal' in the restoration and renewal programme for the Palace of Westminster, Dr Anderson seeks to explore the value of a meaningful public conversation about the future of Parliament that looks to the future instead of the past.

##### What do MPs do?

A day in the life of an MP

Dr Nikki Soo

2–2.20pm

MPs are often viewed negatively, with polls revealing high levels of distrust. How much do we really know about what MPs are doing? Dr Nikki Soo will take audiences through a day in the life of an MP, shedding light on what MPs do in the constituency and for their constituents, and the challenges they face.

##### Self-compassion vs self-pity

Sandy Belle Rosales Cadena

2.30–2.50pm

Treating oneself with kindness and understanding can be difficult, but is not impossible. Join Sandy Belle Rosales Cadena and learn the difference between self-pity and self-compassion, and how to cultivate and grow the skill of being kind to oneself.

##### Food advertising and children's eating behaviour: Could healthy food advertising save the day?

Laura von Nordheim

3–3.20pm

Food advertising influences how we think, feel and behave towards food. With childhood obesity on the rise, finding ways to encourage healthy eating and a balanced diet is of paramount importance. Laura von Nordheim will explore the media influences and the potential of healthy food advertising to improve people's health and wellbeing.

##### Managing a carbon-free electricity grid

Owen Huxley

3.30–3.50pm

In April 2019, National Grid set out their ambition to run a carbon-free electricity grid by 2025. Owen Huxley will explore how the National Grid will manage an electricity system with high levels of renewable power and how energy consumption might have to change to facilitate such an electricity system.



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