

JIM'S £2.1M  
JOURNEY INTO  
THE NATURE  
OF TIME...



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SURREY

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AUTUMN  
2021

# YOUR UNIVERSITY



**DRIVING GUILDFORD'S  
£525M BUSINESS  
POWERHOUSE**



**ALISON'S STAR ROLE FOR  
CANCER RESEARCH**



**CHAMPIONING  
DIVERSITY  
IN CLASSICAL  
MUSIC**



**CELEBRATING OUR  
COVID-19 HEROES**



**FIGHTING POLLUTION IN WOKING!**



**SAVING THE WORLD WITH SOLAR!**



**VET  
SCHOOL  
PONY RUBY  
FINDS HER  
FOREVER HOME**





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Our students and staff are  
#ProudtoBeSurrey in our  
new on-campus campaign



## WELCOME TO YOUR UNIVERSITY

Thanks for picking up this latest copy of *Your University*. This is our newspaper for our local community that aims to let you know what we're doing on campus, and how our research and other activities extend into Guildford and beyond.

In what continues to be a challenging period, I'm pleased to report plenty of positive news and achievements.

Surrey Research Park remains a powerhouse of innovation, which generates £525m for the local economy. We caught up with its new Chief Executive to hear about his plans for its future (page 16). We celebrate smaller local businesses, too, with the CREST21 Awards (page 5).

In this year of COP26, we report on how we're running our campus in a more eco-friendly way (page 12), a project to improve the environment in Park Barn in Guildford (page 5) and how we're combatting air pollution in Woking (page 12). We have our eyes on global impact, too, with a £3m research project into the next generation of solar energy cells (page 12).

Elsewhere, Professor Jim Al-Khalili CBE has a new project investigating the nature of time (page 7), while

Professor Nishanth Sastry is helping MPs and the G7 combat online hatred (page 8). We're also proud to announce the launch of our new mental health podcast, *A Safe Space* (page 6).

And last, but by no means least, you can find out how acclaimed actress and national treasure Alison Steadman is supporting our fight against cancer (page 5).

To make sure we continue to deliver good news, we're moving forwards with a refreshed strategy to inspire, invigorate and improve all our activities across the University. *Forward Thinking and Doing* is our ambitious new plan to play our part in the post-pandemic recovery effort, and focus on how we'll build a platform to reach greater heights in the future.

Thanks for reading and stay safe.

Ross Kelway  
Public Engagement Manager

R.K



Professor Nishanth Sastry discusses his research into online hate crime

“

Surrey Research Park remains a powerhouse of innovation, which generates £525m for the local economy

## YOU CAN CONTACT US

The University of Surrey wants to engage with Guildford residents to make our town the best it can be. So please join in and contribute to the conversation via our events, research and activities. Or contact us via the email address on the right.

 [publicengagement@surrey.ac.uk](mailto:publicengagement@surrey.ac.uk)

 [surrey.ac.uk/community](https://surrey.ac.uk/community)

  @UniOfSurreyCPE







## CONTRIBUTION AND COLLABORATION



Our latest social impact report, *Measuring Up 2019-20*, updates the significant activities and achievements of the University in Guildford and beyond. And there's other exciting news, too...

The report celebrates our close relationship with our home town and our response to the pandemic, plus our ongoing ties with global partners, alumni and friends. These factors allow us to support regional growth and innovation, and produce world-leading research.

Successes we're particularly proud of include donating 120,000 items of Personal Protective Equipment to the NHS and care homes in the fight against Covid-19, and supporting 12,230 jobs in the Borough. As the graphic on the right shows, there are plenty of other contributions to celebrate, too.

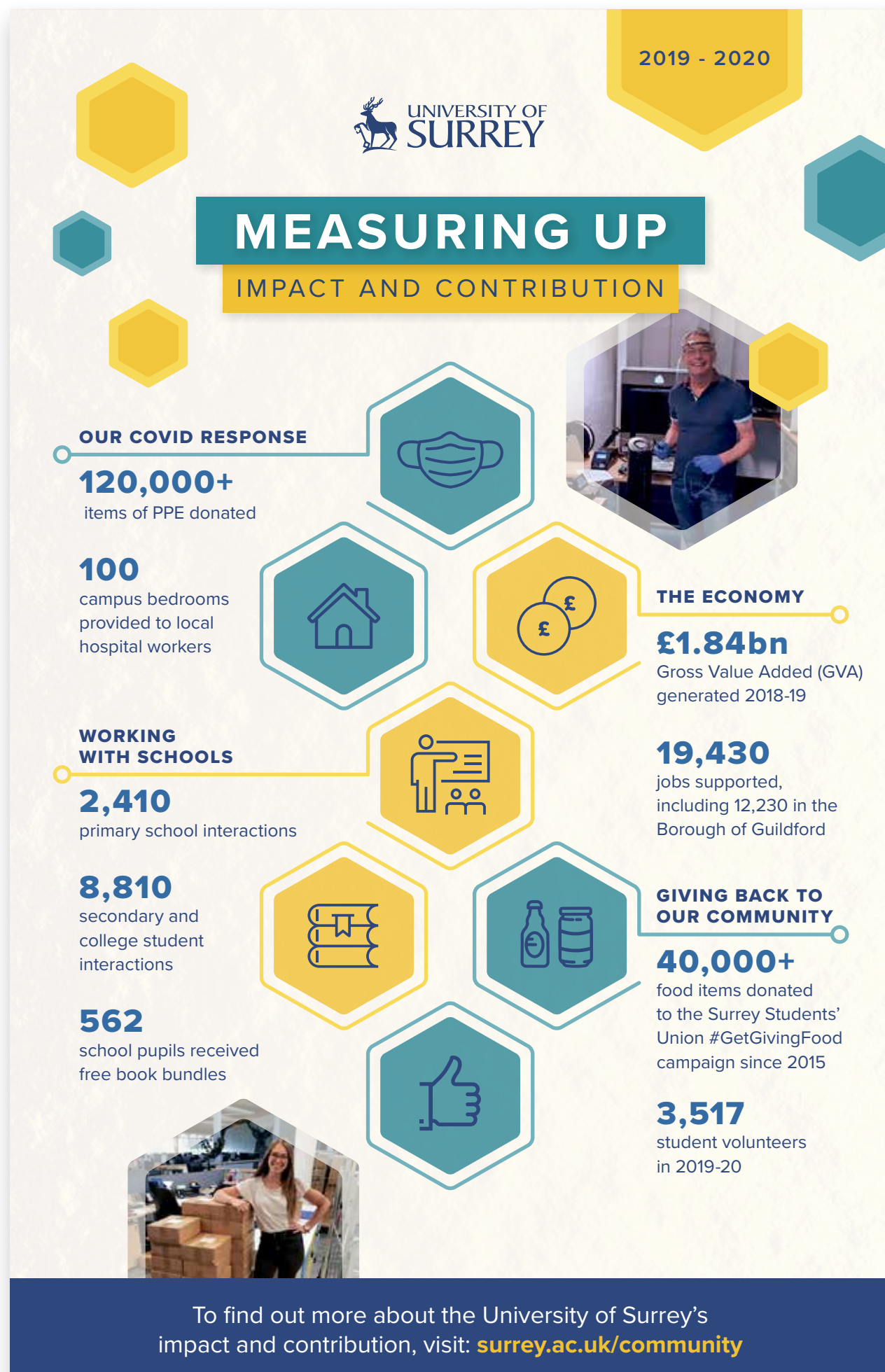
### New commitment

We're also extending our commitment to the role we play locally by joining the Civic University Network. This aims to better equip higher education institutions to engage in altruistic work in their local and wider communities. Its goal is to drive positive societal change and pool research that can be applied elsewhere.

### Collaboration

This lays the foundation for a range of exciting collaborative approaches in and beyond Surrey.

After analysing the requirements and plans of the local area, the University will work directly with both the Network and local stakeholders, using engagement tools such as Civic University Agreements, to help embed this duty at an institutional level.







## A MESSAGE OF 'COURAGE, VIBRANCY AND SUPPORT'

In 2020, we ran a competition inviting students to design a piece of floor art in support of anti-racism. Third-year law undergraduate Adaugo Yvonne Okenwa created the winning entry.

The idea for the artwork installation was proposed by languages student Sharna Piercy to act as a permanent reminder of our commitment to anti-racism.

This inspired Adaugo, who explains the story behind her winning entry, *The Pride of Heritage*: "I came to the UK from Nigeria about five years ago, leaving my family and friends. My confidence in myself and in creating art took a knock as I found myself very much in a minority.

"By being brave and bringing my identity and heritage as a Black woman into my art, I hope to educate and inspire others."

The contrasting colours, bold outlines and visual elements in *The Pride of Heritage* draw attention to the broad

range of textiles, cultures and feelings that they represent.

Adaugo continues: "I want people to see the independence and resilience of the people of Africa, and to honour my family links as they set me a great example in their courage, vibrancy and support for me."

Now installed at the heart of campus in front of the Amphitheatre, *The Pride of Heritage* is thought-provoking as well as eye-catching. Like our Rainbow Crossing representing our commitment to LGBTQI+, it helps to embed equality, diversity and inclusion in the fabric of the campus.



*The Pride of Heritage* (left) and (above) Adaugo at the unveiling of her artwork



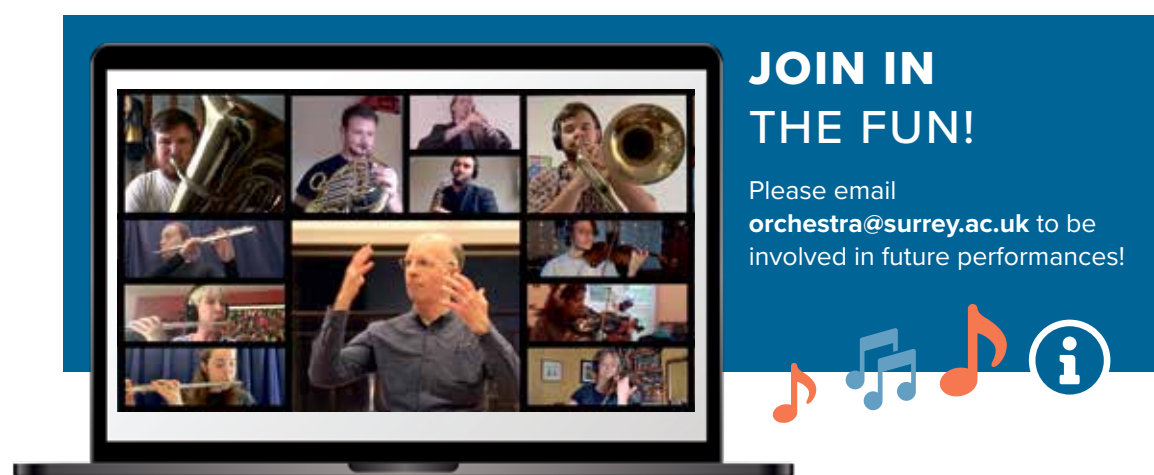
## THUNDERBIRDS LAUNCH ORCHESTRA DAY

After long months of restrictions, the University of Surrey Orchestra dusted off its brass and strings sections and reunited virtually for Community Orchestra Day.

This event has been a proud collaborative University tradition since 2017. This year, musicians across campus and the local community came together online to record the uplifting Barry Gray classic, *Thunderbirds March*.

Streamed live via Facebook, the performance was organised by our Department of Music and Media and featured more than 30 musicians, including students, staff, alumni and members of the local community. Overseeing proceedings was the University's Director of Conducting, Russell Keable.

You can watch the performance at [@surreydm](https://www.facebook.com/surreydm) on Facebook.



### JOIN IN THE FUN!

Please email [orchestra@surrey.ac.uk](mailto:orchestra@surrey.ac.uk) to be involved in future performances!



5... 4... 3... 2... 1... Russell and orchestra are go!

## LEGAL ADVICE FOR REFUGEES



The University of Surrey's prestigious School of Law has an Access to Justice Clinic. This helps people within our local community understand their rights and investigate legal solutions.

This year, in collaboration with Lawyers Against Poverty, the School and its Clinic will be working with local refugee support workers, law students and lawyers to assist those in need in the local community.

The sessions are designed to inform refugees with a right to remain status in the UK of their legal rights and obligations in their new host country.

The sessions cover topics such as the UK constitution, the role of the police and criminal law, family life in the UK, education and healthcare services, and employment.

For more information, contact [legalconfidencesessions@surrey.ac.uk](mailto:legalconfidencesessions@surrey.ac.uk)







## MAKING A DIFFERENCE IN NORTH WEST GUILDFORD

As part of our North West Guildford 2030 project, researchers at the University have been working to better understand the social, environmental and health challenges facing those living and working in that area.

One offshoot of this wider venture is our Greening Southway initiative. After consulting with residents and other stakeholders, one key concern was the lack of green leisure spaces and green infrastructure at the top of Southway in Park Barn.

University researchers are continuing to talk, listen and record the community's ideas and concerns via a series of questionnaires and interviews.

The findings from this study will inform recommendations for environmental changes to the area. Allied to this is an ambition to secure future funding to help implement those changes via co-created citizen science activities.

If you live on or near Southway and want to get involved, please email: [publicengagement@surrey.ac.uk](mailto:publicengagement@surrey.ac.uk)



## ALISON STEADMAN RAISES FUNDS FOR CANCER RESEARCH AT SURREY



Working with our charity partner, Topic of Cancer, Alison Steadman OBE hosted an online event to raise funds for our pioneering immunotherapy research...

During the fundraiser, Alison was interviewed by former BBC news reporter Yvonne Hall.

She discussed her life and career in the TV and film industry, talking about some of her most famous roles including fan-favourite Pam Shipman in the BBC comedy *Gavin & Stacey*. Alison became a Patron of Topic of Cancer after her late mother was diagnosed with pancreatic cancer.

Money raised at the event will be used to fund ground-breaking immunotherapy research being carried out by our cancer scientists. This aims to see how we can increase the strength of our bodies' natural immune response against cancer cells.

Our researchers are working with long-term cancer survivors who

may hold the key to unlocking new therapies. These individuals respond to typical treatments and go into full remission, being cancer-free for the rest of their lives.

But what makes them different?

We believe long-term cancer survivors have immune systems that recognise cancer as an infection because of the bacteria present. The body's response to this may then reduce cancer cell growth.

From this study, we're looking to develop a treatment that could be approved for a clinical trial in two to three years. And some of that amazing progress could be thanks to Alison!

So, watch this space!

“

"Our researchers are working with long-term cancer survivors who may hold the key to unlocking new therapies."

See how you can get involved with Topic of Cancer at [surrey.ac.uk/topic](https://surrey.ac.uk/topic)



## WOKING MUM WINS SUSTAINABILITY HERO AWARD

Companies across the county who've embedded sustainability into their business practices were honoured in the recent CREST (Corporate Responsibility for the Environment and a Sustainable Tomorrow) 2021 Awards.

Initiated by our Centre for the Environment and Sustainability in association with the *Woking News &*

*Mail*, the presentation ceremony was streamed live from Woking's Lightbox art gallery.

Two of the shortlisted businesses, protein bar makers HOP® and sportswear brand Instant Swim, were formed under the banner of Student Enterprise, a support network to encourage skills development for would-be entrepreneurs at Surrey.

Sadly, neither scooped one of the six major honours on offer. But it was better news for young mum Mel Hemmings (pictured left), who launched Bare + Fair, Woking's first zero waste and refillables shop. She picked up the top prize as the Judges' Choice for CREST21 Sustainability Hero.

Other winners on the night were:

- Efficiency Champion Award: Pennypot Day Nursery
- Sustainability Impact Award: Mesh Energy
- Transforming Food Award: Binary Botanical
- Going Circular Award: Silent Pool Distillers
- Resilience in Crisis Award: Silent Pool Distillers





Mental health nurse Laurence Drew (left), biochemist Dr Ian Bailey (middle) and paramedic Simon Downs (right) are the show's hosts



UNIVERSITY OF SURREY



## NEW MENTAL HEALTH AND WELLBEING PODCAST

Our new podcast, *A Safe Space*, features candid conversations about mental health and wellbeing. We caught up with hosts Laurence, Ian and Simon to find out more...

**Where did the idea for the podcast first come from?**

**Laurence:** This is a key time for mental health in the UK – there's a lot of activity around awareness and encouraging people to think differently. We wanted to join that conversation.

**Are there any personal motivations for this?**

**Ian:** I've had my own struggles with mental health and I've been lucky to find others who've had similar experiences to me who I can speak to. As a society, we're very shy and coy when it comes to speaking about our wellbeing. We need to challenge and change the stigma around this.

**What topics will you be talking about?**

**Simon:** We're going to be talking about everything from body image to bereavement. We'll also be interviewing guest speakers to bring in their unique perspectives.

**What would make the podcast a success in your eyes?**

**All:** It's about having open and honest conversations while having some fun! It'll all be worthwhile if we can help just one person.

“No issue will be off-limits – as the name suggests, this is *A Safe Space*.”

Find out more about our hosts and listen to our latest episodes: [surrey.ac.uk/safe-space](https://surrey.ac.uk/safe-space)



Melaine, Lizzie and Jackie unveil the mural

## A TRIBUTE TO OUR COVID-19 HEROES

A new commemorative mural has been unveiled to honour our health sciences students who helped fight the Covid-19 pandemic across the UK.

The mural celebrates students who went into paid placements, organised in conjunction with NHS England and Health Education England, for the final part of their degree programme. These students were employed to support colleagues across various settings, assisting with the care of patients suffering from Covid-19.

All 2020 final-year students rose to the challenge and completed their professional qualification and degree while also working full-time. More than 300 students were deployed during the first wave of the pandemic, each playing an integral role in the NHS's ongoing service to the nation.

The mural, which features a rainbow to symbolise the message of hope in the face of the Covid-19 pandemic, is located in the reception area of the Kate Granger Building. Professor Melaine Coward, Head of the School of Health Sciences, Lizzie Rodulson, nursing graduate and 2020-21 Students' Union President, and Jackie McBride, Senior Teaching Fellow in Integrated Care, unveiled the mural.

## PLAYING THE VICTORIAN FAME GAME

PhD student Helen Victoria Murray reveals how her research at the Watts Gallery Artists' Village is helping us redefine the idea of 'celebrity artists'.

PhD student Helen's project, *Artists at Home: Self-Representation and Celebrity 1860-1914*, examines photographs and textual accounts of famous Victorian artists in their home studios.

Helen's been working with Watts Gallery Artists' Village in their Rob Dickins Collection, an extensive Victorian photographic archive. And

her research is throwing new light on the idea of fame and celebrity culture.

Helen reveals: "We tend to view 'celebrity artists' as a modern concept, picturing glossy magazines.

"However, my research shows that, thanks to 19th-century developments in photography and print journalism, the Victorian art world was every bit as performative and image-driven as today.

"I hope my research can help the culture and heritage sectors share the importance of artists' homes, such as Watts Gallery Artists' Village, as historical sites."

GF Watts posing in his studio at Compton in the early 1900s







Surrey's Professor  
Jim Al-Khalili

## JIM'S £2.1M JOURNEY INTO TIME...

Professor Jim Al-Khalili is known for his TV and radio work as an acclaimed science communicator. But Surrey's theoretical physicist hasn't abandoned the day job – he's just secured a £2.1m research grant to examine the nature of time...

### You've been awarded a CBE for services to science...

I'm delighted to have been honoured in this way by Her Majesty The Queen – and gratified to know I've been successful in exciting and interesting others in science.

### You've won a £2.1m research grant. Can you tell us about it?

It's an award from The John Templeton Foundation to establish Surrey as a world-leading centre for research into the fundamental nature of reality. You could say we're looking for the meaning of life, the universe and everything.

### The research involves quantum biology. What's that?

Quantum biology uses the principles of quantum mechanics, which describes the physical properties of natural phenomena on the very small scale, to understand the workings of living cells.

### What does the research involve?

We're collaborating with Oxford and Bristol universities in the UK, and several US institutions. One of the big questions we'll be addressing is: where does the direction of time come from?

### That sounds very *Doctor Who*...

Common sense tells us time has a direction. It flows from past to future. But at the quantum scale, time is symmetric. It can flow forwards and backwards. So where does this direction of time come from?

### Are you excited by this?

Absolutely. This is a very interdisciplinary project, bringing together physics, chemistry, biology, maths and philosophy. Who knows where it might lead?

## EVERYBODY NEEDS GOOD NEIGHBOURS...

In September, Guildford's streets come alive with Surrey students moving into off-campus private lets and venturing out to taste the town's brilliant nightlife. This comes with its challenges, though, both for students and local residents.

So we're rolling out a number of schemes to reduce noise and anti-social behaviour, and keep students safe at night.

The annual *Sshh* campaign, with its eye-catching posters on lamp posts, reminds students to respect their neighbours and stay safe. Alongside these messages, a 'welcome home guide' for those living off-campus features important pointers, such as behaving considerately and the all-important bin etiquette.

Meanwhile, our Street Marshal team provides a highly visible presence to keep students safe at night and reduce their noise footprint, so local residents aren't unduly disturbed.

We also work closely with Guildford Borough Council and Surrey Police dealing with complaints and mediating situations where students come into conflict with local residents.



## STUDENT VOLUNTEERS GET STUCK IN!

Coordinated by our Students' Union, our willing helpers were out making a difference in Guildford.

The new Vice-President Community, Nat Williams, and a team of students (pictured below) headed down to Guildford Park Avenue in July. Armed with hi-vis jackets and litter pickers, they helped ensure the area was cleared up and tidy after the end of term.

And there were many other stories of student support, too. Throughout lockdown, our undergraduates and postgraduates continued volunteering with local, regional and national charities. Working with Voluntary Action South West Surrey, we helped place 30 students in local support services. These roles included working in a kitchen in Farnham for Brightwells Gostrey social centre for the elderly, assisting the Citizens Advice Bureau in Southend and helping out at Royal Surrey County Hospital.

During the 2020-2021 academic year, 1,100 students volunteered a whopping 24,945 hours at 42 different local, regional and national charity organisations. These included Watts Gallery Artists' Village, RSPCA Guildford, Marie Curie, Nightline, Shooting Star Children's Hospice, Parkinsons UK and Cancer Research UK.



**Surrey Volunteering**  
surreyvolunteering.com



Please get in touch if you have any concerns by calling our security team 24/7 on **01483 682002** or emailing our Public Engagement team on **publicengagement@surrey.ac.uk**





## HELPING UK MPs & G7 FIGHT ONLINE HATE

As racist reactions to England's Euro 2020 final defeat demonstrated, online hate speech remains a social ill. Surrey's Professor Nishanth Sastry is helping UK MPs and the G7 combat this...

### Can you tell us about your research into online hate speech involving MPs?

There are many kinds of hate speech. There's the overt and criminal type that uses abusive and offensive language. For example, it can be directed at female MPs because of their sex. But there's more subtle hate speech that isn't legislated for, and we're interested in that, too.

### How are you analysing this?

We have a large dataset of tweets by and directed towards MPs who are on Twitter and we're investigating that. This will help us understand what types of situations or exchanges create hate speech. It may help us draft guidelines for how we

can diminish the likelihood of hate speech occurring on a more widespread basis.

### Can you reveal any of your key findings yet?

As with the Euro 2020 events in July, we found that MPs from BAME backgrounds are targeted more than other MPs. We also found evidence for a 'pile on' effect whereby MPs are targeted more when they're already receiving high amounts of attention because of ongoing current affairs.

### And the G7 are taking note of your work?

Yes. A report on our initial findings was presented at the G7 Speakers' Conference in September.

“This research will help us understand what types of situations or exchanges create hate speech.”

## ARE MILK-ALTERNATIVE DRINKS LOWERING OUR IQ?

Iodine is found in many dairy products, including cow's milk, and it's an essential mineral for brain development. So how healthy are milk-free alternatives? Professor Margaret Rayman and Dr Sarah Bath reveal all...

**Margaret:** Iodine's crucial for our growth, metabolism and brain development. Lack of it accounts for the greatest number of preventable learning deficiencies in the world.

**Sarah:** We've done a lot of research into the impact of iodine in pregnant women, monitoring the development of babies in the womb and after birth. We found that mild iodine deficiency during pregnancy is linked to lower IQ and reading scores in developing children.

**Margaret:** We also investigated the nutritional benefits of iodine and found that cow's milk makes the largest contribution to iodine intake in the UK.

### But what impact do milk-free alternatives have on iodine intake?

**Sarah:** We analysed lots of alternatives, including soy, almond, oat and coconut, to find out how much iodine they

contained. We found that most had a very low amount of iodine in them – around 2% of that found in cow's milk.

**Margaret:** Our results showed that people who drank the alternative drinks had a much lower iodine intake than those who drank cow's milk.

**Sarah:** Since our study, many manufacturers of dairy-free alternative drinks are now adding extra iodine into their products.

**Margaret:** However, not all milk-alternative products have added iodine, so make sure you always check the label.

**Sarah:** We've been working with the British Dietetic Association to raise awareness about iodine and we've produced a free fact sheet that includes information on dietary sources. You can find details on how to access this below.



Professor Margaret Rayman (above) and Dr Sarah Bath (below) are on a mission to improve iodine awareness



“Mild iodine deficiency during pregnancy is linked to lower IQ and reading scores in developing children.”

Download a copy of our iodine fact sheet: [surrey.ac.uk/iodine](https://surrey.ac.uk/iodine)







## WILDLIFE IN GUILDFORD WINNERS

1<sup>st</sup>

Chris Boyle took this cute image of blue tits

In the last issue, we launched a competition for readers to send in images that captured the glory of spring in and around Guildford. And you certainly didn't disappoint!

The judges had a hard job deciding on the three winners. The successful entries are displayed here for you to enjoy as we have. The judges also gave an additional commendation for one avid nature lover who's been looking after her local hedgehog population. Well done all.

Frank Wijma snapped this sweet squirrel

2<sup>nd</sup>

3<sup>rd</sup>

Moira Thomas rounded up this robin pic for us

Commendation

Tammy Holiday's help for hedgehogs melted our hearts



## GUILDFORD GHOSTS & THE DEVIL'S SON!

Boo! It's our top five frightening local facts for Halloween...

**1. Angel Hotel:** Situated on the cobbled high street, the former coaching inn dates back to the Middle Ages. It's reported to have several spectres, including a ghostly nun.

**2. The Kings Head, Quarry Street:** Dating from the late 16th or early 17th century, the historic building is Guildford's oldest and most haunted pub. It also features on the popular Ghost Tour of Guildford.

**3. Guildford Castle:** A woman in Victorian dress has been seen strolling around the Castle grounds. Inside the stone keep, dating from Henry I's time, a phantom woman has been spotted on the staircase.

**4. Guildford Cathedral:** *The Omen* was a hit 1976 horror movie about a US diplomat living in England – and unwittingly bringing up the anti-Christ as his son. The Cathedral featured in a scene where the young boy, Damien, nears the holy site.

**5. Silent Pool:** Located outside Guildford, Silent Pool is supposedly haunted by the spirit of a woodcutter's daughter. Legend says she was swimming in the pool when approached by King John (1166-1216). She drowned attempting to escape his advances.

## CATCHING UP WITH REHOMED RUBY

Back in June 2020, we asked for your help to rehome our beloved teaching pony, Ruby. And you didn't let us down...

We caught up with her new owners, Fiona Graham and Alex Le Grand, to see how she's settled into the Berkshire Animal Connection Centre.

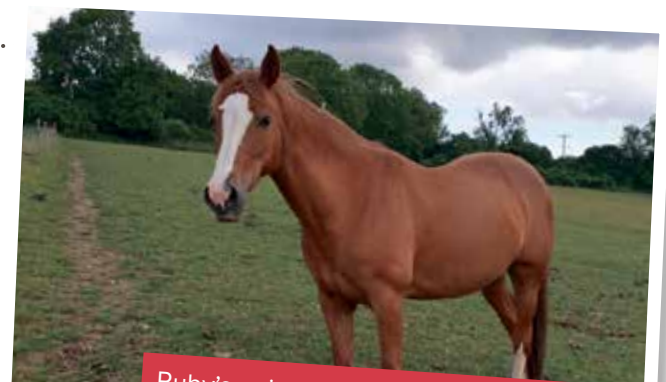
"One of our members shared Ruby's story with us," says Fiona. "Our ethos is that every animal's life has purpose and each one can enrich our lives, so adopting Ruby was a no-brainer!"

"She's settled in quickly and made lots of friends, including her bestie, Delboy," adds Alex. "She rarely lifts her head from the grass as she loves eating it so much. She also enjoys hay cobs and she's partial to a carrot!"

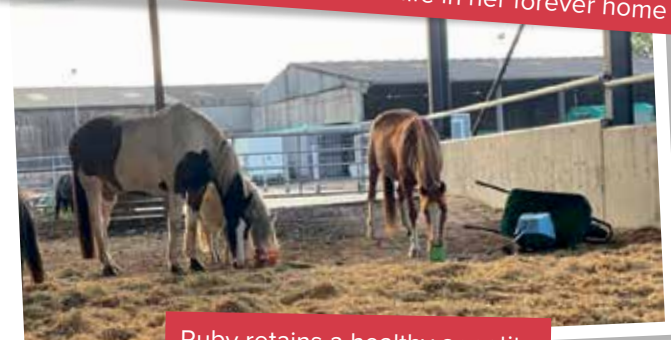
"When she's not eating, you can find her loafing under trees or chasing the Shetland ponies when they're being cheeky. She has the freedom to stay outside and play or come indoors when the weather's bad!"

"Ruby's a great addition to the Centre and such a joy to care for. She's been great with the farrier and she has a truly kind and gentle temperament. We're so pleased we're her forever home."

Read the full story: [surrey.ac.uk/ruby](https://surrey.ac.uk/ruby)



Ruby's enjoying a rich life in her forever home



Ruby retains a healthy appetite





## NEWS IN BRIEF

### MAKING SPACE FLIGHT SAFER

The University and industry partners Airbus have invented a state-of-the-art nano-barrier that will make space flight safer. The revolutionary coating is applied on spacecraft structures made of ultra-high-performance carbon-fibre-reinforced-polymer (CFRP) composites, which are widely used thanks to their lightweight and ultra-strong properties. The nano-barrier bonds with the CFRP structure, significantly strengthening it for the hostile environment of space.



### INCREASING OUR LIFE SPAN

A team of chemists from Surrey has used artificial intelligence (AI) to predict whether certain compounds can extend the life of a translucent worm that shares a similar metabolism to humans. The AI singled out three compounds that have an 80 per cent chance of increasing the worm's lifespan. This may pave the way for pharmaceutical innovations that extend a person's life.



### HEALTH INNOVATION IN GUILDFORD

The University and Guildford Borough Council have teamed up with a number of other prominent players to launch Guildford Digital Health Hub. The aim of this venture is to support new and established enterprises to collaborate, grow and bring innovation in digital health and wellbeing to market at a local and national level.



### END BITCOIN MINING

Surrey research has revealed bitcoin mining – the search for new bitcoins using sophisticated computers – could account for more than five per cent of carbon emissions generated via electricity use in China. Professor Yu Xiong, one of the academics involved, is calling on authorities to take immediate action. He says: "While bitcoin's potential is clear, this must not obscure the harm it could cause to our planet."



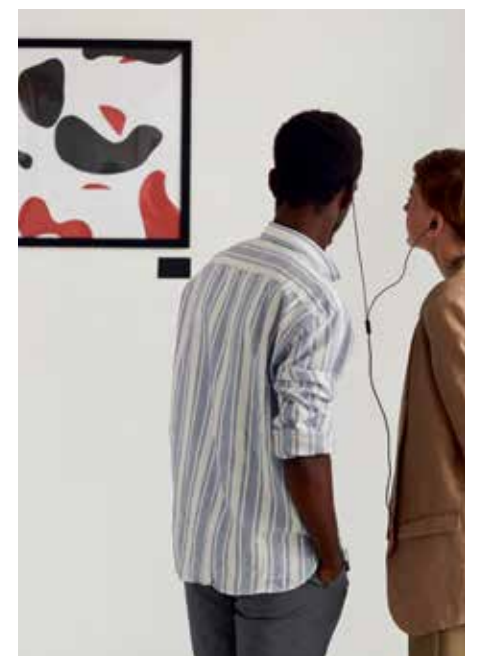
## BOOSTING THE GLOBAL ARTS AND HERITAGE SECTOR

Our academics are partnering with augmented reality (AR) app **Smartify**. The goal: to show arts and heritage organisations how AR can increase physical and virtual visitor engagement.

Smartify is already available at a worldwide network of more than 150 partner venues, including the National Gallery in London and the National Gallery of Art in Washington DC. Using image recognition technology, the app identifies artworks scanned on a smartphone, allowing users to unlock the stories behind the art.

The research team, lead by Surrey's Professor Caroline Scarles, will deliver virtual workshops to demonstrate how a solution like Smartify can facilitate knowledge transfer and organisational adoption of technological solutions. This will help the culturally curious broaden their horizons any time and anywhere.

Says Caroline: "The arts and culture sector has taken a huge financial hit during Covid-19. This project will provide solutions that enable



organisations to deliver online, virtual tours when on-site visits remain restricted."

## INVESTIGATING COMPLEX SYNDROMES IN KIDS

New and improved ways of supporting children with rare and complex syndromes are being investigated by Surrey academics...

The Cerebra Network for Neurodevelopmental Disorders is a unique research team that integrates knowledge, expertise and resources.

Funded by the charity Cerebra, the Network aims to improve the lives of children with rare genetic syndromes and other neurodevelopmental conditions associated with intellectual disability.

A cornerstone of the Network is its collaboration between researchers at four different universities – Surrey, Aston, Warwick and Birmingham.

The Network helps children with rare and complex disorders, such as Fragile X syndrome, Smith-Magenis syndrome, Tuberous Sclerosis Complex, Prader-Willi syndrome, Down syndrome and Cornelia de Lange syndrome.

Surrey's Dr Jo Moss, who's a co-director of the Cerebra Network, says: "This is a true collaboration that's integrated from the ground up to deliver a higher impact from its work and funding than any individual approach could offer."





Dr Khalily (second from left) and his team at 5G/6GIC

## PATCHY WI-FI A THING OF THE PAST?

Research in Surrey's 5G/6G Innovation Centre (5G/6GIC) may be about to consign one bane of modern life to the dustbin of history.

A research team led by Dr Mohsen Khalily from Surrey's 5G/6GIC have been developing a new technology called Reconfigurable Reflecting Surface (RRS). This could provide the solution to seamless mobile connectivity in built-up areas.

Having seamless broadband coverage is still a big challenge for network operators. Particularly in dense urban environments, buildings and infrastructures literally get in the way of electromagnetic waves – leading to patchy connectivity.

This is where RRS technology comes in...

It can be installed on buildings in urban areas where coverage

is poor or non-existent, and bounce the signal from a transmitter off several RRS to a receiver to ensure uninterrupted coverage.

Mohsen and his team tested this technology in 2020 by streaming a video in one room with the transmitter in another room. In the middle was a coverage blind spot.

By bouncing the signal off a precisely positioned RRS, the transmitter was able to cope with the blind spot and deliver a video stream. This, however, was only the start. Since then, they've developed a dynamic and smart version, which can even change the reflecting angle.

## CHAMPIONING DIVERSITY IN CLASSICAL MUSIC

The world-class facilities and expertise within the University's Department of Music and Media have helped to facilitate an important contribution to diversity in music.

Dr Samantha Ege is a leading music interpreter and scholar who's passionate about using her position to highlight composers from under-represented backgrounds. Florence Price is one such figure, so Samantha made the first full recording of all four of Price's virtuosic *Fantasie Nègre* showpieces at Surrey's Performing Arts Technology Studios.

This recording represents a mark of respect for Price as well as a conscious effort to bring the issue of racism to the fore in this discipline.

Samantha will also be providing the academic texts and sleeve-notes to

accompany, support and contextualise the release, addressing ethnicity and gender issues that have largely caused the works to be ignored for so long.

"As a young pianist, discovering Florence Price made me feel visible," says Samantha. "She belonged to a long legacy of Black composers who channelled their African heritage into classical forms."

"The classical mainstream must now work to realise the future that Price no doubt hoped to see, one where the concert hall welcomes Black classical artists – and not only posthumously."



Dr Samantha Ege is championing the work of Florence Price

## MAJOR ADVANCE IN CRIME SCENE ANALYSIS

A team of researchers at the University of Surrey have discovered how to identify the difference between the fingerprints of people who have touched cocaine compared with those who have ingested the drug.

The result of a collaboration with the National Centre of Excellence in Mass Spectrometry Imaging at the National Physical Laboratory and Ionoptika Ltd, this discovery marks a significant advance for crime forensics.

The smart science behind this advance employs mass spectrometry imaging tools, which can visualise the spatial distribution of molecules. This technology

is applied to the detection of cocaine and its metabolites – the chemical end product of a specific metabolism – in fingerprints. This analysis can then make the distinction between a user and somebody who has merely handled the drug.

Fingerprinting technology has long provided forensics with valuable information about gender and medication. Now, this new research will give experts the opportunity to reconstruct more detailed information from a crime scene – and help prove the innocence or guilt of those facing criminal prosecution.

Who knows? *CSI: Surrey* may yet become a reality!







Solar panels generate electricity for our Institute for Communication Systems

## MAKING THE MOVE TO NET ZERO

**The University has set an ambitious Net Zero by 2030 carbon target based on reducing demand, increasing on-site renewable generation and greening our supply...**

In January 2020, Surrey became one of only two UK universities to establish a science-based emissions reduction target. This means we've calculated our fair share of reducing global carbon emissions if we're to limit global temperature increase to 1.5°C. Over the next 10 years, we'll halve our carbon emissions, purchasing offsets in 2030 to meet the Net Zero target, while continuing to reduce emissions after this to reduce the amount of offsetting we must do.

Here's how we'll achieve our ambitious target:

- We'll continue to conserve energy through replacing existing systems with more efficient lighting, motors and pumps, and improving insulation.
- We'll increase on-site renewable energy generation from 1% to 20% of our annual demand by expanding our roof and ground-mounted solar systems.
- We'll purchase electricity renewables backed with the appropriate certification.
- In early 2022, we'll establish a long-term supply agreement from a new UK renewable scheme.
- We'll offset our remaining emissions using transparent and verifiable schemes with an emphasis on those in the local area.
- We'll reduce our offsetting by continuing to reduce energy demand after 2030.

It's not just carbon emissions we're tackling. We're committed to reducing our environmental impact in all areas. One example of this is our new on-site borehole on our Stag Hill campus. This provides clean, potable water, which relieves pressure on local networks and reduces carbon emissions. We're preserving and increasing biodiversity of our campus, too, which was recognised with a Hedgehog Friendly Campus Silver Award.

All of these initiatives have contributed to Surrey being named 61st in the world in the Times Higher Education Impact Rankings, which assess research and operational performance against the 17 United Nations Sustainability Goals.



## SOLAR ENERGY RESEARCH WINS £3M AWARD

**A university-industry consortium led by Surrey has won £3m in funding to help design next-generation solar cells.**

The collaborative effort, led by Professor Ravi Silva and Dr Wei Zhang of our Advanced Technology Institute, also includes academics from Oxford, Sheffield and Cambridge universities.

To date, crystalline silicon solar cells dominate the solar energy landscape. But they're unsuitable to power the rapidly growing portable electronics market, particularly wearables and Internet of Things (IoT) devices. These are expected to reach trillions of units in the next few years, leading to a potential IoT market that is worth US\$1 trillion by 2023.

Our research uses a mineral called perovskite. Over the past decade, this has emerged as a new class of semiconductor, which has important applications in next-generation solar cells and is much cheaper to produce.

"The need for clean and renewable energy sources is a global challenge we must solve in the next 30 years," says Professor Silva.

"We are confident that perovskite photovoltaics are a key part of the puzzle of meeting the net-zero emission target by 2050."

## MONITORING POLLUTION LEVELS IN WOKING

**Work conducted at our Global Centre for Clean Air Research (GCARE) has a worldwide reach. But that doesn't mean we ignore issues closer to home...**

GCARE's Guildford Living Lab (GLL) is working with Woking Green Party to set up the town's first air pollution monitoring network. This aims to measure pollution levels around Woking over 12 months. To do this, eight portable sensors have been installed at different locations, from southwest Woking to nearby Byfleet.

The GLL team, led by Professor Prashant Kumar, conducted laboratory assessments of the sensors in their state-of-the-art laboratories. GLL will also work closely with Woking Green Party to evaluate the results after three, six and 12 months, giving a full picture of pollution levels throughout the year.

Real-time readings from the network are being made available to the public via WeatherLink. The findings will also be published on the EU/EEA European Index of Air Quality.



Jennifer Mason of Woking Green Party with one of the sensors





## OCT GSA PROGRAMME

Guildford School of Acting looks forward to welcoming live audiences back for our autumn season.

For more information, email: [boxoffice@surrey.ac.uk](mailto:boxoffice@surrey.ac.uk)



GSA productions make a dramatic return in October!

## 20 OCT ANNUAL ARCHITECTURE LECTURE

The University is pleased to once again host this event with Guildford Society. Hear engaging discussions from speakers from the world of the built environment, often with a local focus.

For tickets visit: [www.guilfordociety.org.uk](http://www.guilfordociety.org.uk)

## 3 NOV SURREY BUSINESS SCHOOL WEBINAR: EMERGING MARKETS

Guest speaker Lord O'Neill, one-time chairman of Goldman Sachs Asset Management and a former Chair of Chatham House, will explore the evolution of emerging markets in the past two decades.

For tickets visit: [www.surrey.ac.uk/events](http://www.surrey.ac.uk/events)

## NOV SURREY SCORCHERS

Witness high-energy basketball action at Surrey Sports Park. Prepare to be dazzled as Surrey Scorchers take on the best of the rest as they strive to be No.1 in the UK!

For fixtures visit: [www.surreyscorchers.co.uk](http://www.surreyscorchers.co.uk)



Expect fun and games with Surrey Scorchers

## NOV COMMUNITY ORCHESTRA

After a stint as a virtual orchestra during the pandemic, this autumn sees our Community Orchestra return in person. Sign up to take part or to join the audience.

Email: [orchestra@surrey.ac.uk](mailto:orchestra@surrey.ac.uk)



## NOV FESTIVAL OF SOCIAL SCIENCE

The ESRC Festival of Social Science is an annual celebration aimed at policymakers, business, the public and young people. Its aim: to raise awareness of the importance of social science.

Visit [www.surrey.ac.uk/impact-acceleration-account/events](http://www.surrey.ac.uk/impact-acceleration-account/events)

## 10 NOV GUILDFORD TWINNING ASSOCIATION GERMAN FILM FESTIVAL

Join Surrey academics and the Guildford Twinning Association for an insight into German movie-making. A film showing is preceded by an academic talk.

Visit: [www.guilfordtwinning.uk](http://www.guilfordtwinning.uk)  
or email: [publicengagement@surrey.ac.uk](mailto:publicengagement@surrey.ac.uk)

## 24 JAN 2022 FACULTY OF ARTS AND SOCIAL SCIENCES FESTIVAL OF RESEARCH

The festival will include an exciting mix of topical panel discussions and presentations, plus the annual Postgraduate Research Poster Competition.

Visit: [surrey.ac.uk/events](http://surrey.ac.uk/events) or email: [fassresearch@surrey.ac.uk](mailto:fassresearch@surrey.ac.uk)

## PINT OF SCIENCE MAKES SPIRITED RETURN!

The pandemic meant closing time for many events this year. But our annual Pint of Science talks swapped the pub for the online environment...

Pint of Science Festival has been a popular fixture on the Guildford arts calendar in recent years. We usually take up residence in three partner pubs over three evenings and run events that bring University research to local people over a pint, a half or whatever you prefer!

This year, the national festival ran virtually – so Surrey joined in with its own event, *CTRL, ALT, DELETE: How do we reboot our way of living together and our society after Covid-19?* An esteemed panel of top Surrey academics came together to put forward their own points of view based on their research, debate with other panellists and answer questions from our virtual audience. The event was great fun and garnered viewers from across the UK.

Pint of Science should be back in a Guildford pub near you in May 2022. If you missed our 2021 event, you can check it out at [youtube.com/watch?v=IYJUP5cSG4](https://youtube.com/watch?v=IYJUP5cSG4)



Professor Graham Miller chaired our recent online discussion





## IMPROVING THE MENTAL HEALTH OF VETS

We caught up with trainee clinical psychologist Katherine Wakelin to find out how her research is improving the mental wellbeing of vets.

### What's your research about?

I've been investigating the first psychological intervention of any kind on vets. Veterinary surgeons have one of the highest suicide rates of all professions, with a vulnerability to psychological distress. It's suggested this is a result of high levels of self-criticism and perfectionism.

### What have you found out?

I carried out an online compassionate imagery intervention. The aim was to see if teaching vets self-compassion skills – or compassion-focused therapy (CFT) – could reduce their psychological distress. The results were positive, indicating the intervention was feasible, acceptable and showed evidence of improving mental

wellbeing. This supports the idea that CFT could largely benefit vets.

### What difference is your research making?

I've been working with Vet School staff to help them integrate wellbeing and self-compassion into their teaching. Seeing practical applications of my research is highly rewarding, and the feedback and appetite from the veterinarian population has been phenomenal!

### What do you plan to do now you've finishing your training?

I've just accepted a role as a qualified clinical psychologist working in a Community Learning Disability team, which I'm excited to start.



"Veterinary surgeons have one of the highest suicide rates of all professions."

Credit: Katherine Wakelin



Katherine's research is the first psychological intervention of its kind on vets



Find out more about our research: [surrey.ac.uk/intervention](https://surrey.ac.uk/intervention)

Daisy researching at our Advanced Technology Institute



Follow Daisy online at [www.notesfromthephysicslab.com](https://www.notesfromthephysicslab.com)



## DAISY'S DRIVE TO MAKE PHYSICS ACCESSIBLE

PhD student Daisy Shearer, who won a prestigious Institute of Physics (IoP) Award, tells us about her science outreach work.

### Can you tell us about your recent IoP Award win?

It's an Early Career Physics Communicator Award. I was part of a shortlist of four, and in the final we all had to give a 10-minute presentation.

### That sounds daunting. What did you talk about?

I discussed my journey into physics and my science communication work, both in local schools and on social media. The latter includes a blog and an Instagram page, which currently has more than 18,000 followers.

### What does this online work involve?

I use these online spaces to share what day-to-day life is like as an experimental physicist, explaining complex concepts in accessible ways. I was diagnosed with autism at 21, so I also discuss some neurodiversity and mental health topics.

### Can you tell us about your neurodivergent campaigning?

Autism isn't a disease. It's a certain neurotype that means we experience the world differently to most of the population. We sometimes

need extra support to function in a society built for the neurotypical mind.

### What are your future plans?

It was such an honour to win the IoP Award. Science communication is a passion of mine and it's something I wish to pursue alongside being a researcher. I'll keep writing for my blog and other science outlets, and I'm also keen to continue running some exciting new outreach projects. For instance, I'm helping organise a big event on Guildford High Street for World Space Week on 9 October.





## GRADUATION A SAFE SUCCESS

Graduation ceremonies were cancelled in 2020 and early 2021 due to the pandemic. So we were delighted to welcome our 2019, 2020 and 2021 cohorts to Guildford Cathedral for in-person events in July...

With Covid-19 still a factor, all our planning included appropriate social distancing measures. An outdoor overspill marquee with large video screens broadcasting events from the Cathedral also helped mitigate crowding.

One graduand was actress Ella Balinska. She's tackled assassins in the big-screen reboot of *Charlie's Angels* and faces the undead in next year's small-screen version of *Resident Evil*. Her return to Guildford, however, involved a far less life-threatening appearance! As our picture shows, the

Guildford School of Acting (GSA) alumna clearly enjoyed herself.

She's also not forgotten her GSA roots. Last year, she set up the Ella Balinska Scholarship 2021, a financial award to a first-year student on the Acting BA (Hons) course who's part of the Global Majority – a term used to describe people who identify as being from a BAME background.

We'd like to thank Ella and all our graduates who made our celebrations memorable – and safe for everyone.



Ella finally found a gap in her busy schedule to graduate

## ALUMNI HONOURED



Dr Reeba Oliver

**Our graduates weren't the only ones enjoying their success. Our VC Alumni Awards honoured four amazing former students who've made their mark in Surrey and beyond...**

Our Young Achiever Award went to Segun Akinwaleola. The East Londoner secured a first-class honours degree in Business Management in 2001 and set up the Gym Kitchen. This provides high-protein, macro-friendly ready meals for health-conscious individuals.

Our Outstanding Contribution to Society Award went to Dr Reeba Oliver. Graduating with an MSc in Advanced Gynaecological Endoscopy in 2013, the consultant at Barts Health NHS Trust in London conducts pioneering work with women who've suffered female genital mutilation in the UK and abroad.

Our Alumna of the Year Award went to Sue Kershaw, who earned a BSc in Civil Engineering and graduated in 1982. Sue's impressive career has seen her manage large infrastructure projects such as the Bangkok Mass Transit System and the Elevated Motorway in Thailand. Currently the MD Transportation at Costain, Sue was also Deputy Director of Transport for the Olympic Delivery Authority for the 2012 Olympic Games.

Finally, our Special Recognition Award went to University lecturer Dr Alan Millington. His 53-year commitment to teaching excellence at Surrey stretches back to our roots at Battersea College of Technology in the 1960s, where he studied for a BSc in Chemical Engineering. While researching his PhD at Surrey in 1968, Alan took on a part-time teaching role – and he's inspired thousands of students here ever since.





Surrey Research  
Park's Grant Bourhill

## PARK LIFE

Grant Bourhill launched Space Park Leicester. Now the Chief Executive of Surrey Research Park, he has similarly stellar plans for Guildford's hotbed of innovation...

### How are you finding Guildford?

I'm staying on Manor Park. It's taken me back to my own university days, although I feel like I'm the oldest student in town!

### What's the aim of Surrey Research Park?

Our primary aim is to house, support and grow innovative businesses. We're home to 170 companies, who employ about 4,500 people, and we've created specific clusters of excellence. These include space and satellites, human and animal health, environment, digital games and cyber. This is exciting: if you think about the building blocks of a future economy, you'd name most of those areas as key components.

### Is the Park a key contributor to the local economy?

Yes. Last year, we contributed £525m GVA\* – that's 10 percent of the local economy. We also champion the University, Guildford and region as a hub for innovation.

### What established companies work there?

As an example, Surrey Satellite Technology Limited, who have an international reputation. Formed as a spinout from the University in 1985, they moved to the park in 2006 and

were bought by Airbus in 2009. They employ about 350 staff and have an annual revenue of about £75million.

### What's an example of a newer company?

Superdielectrics were formed in 2016. They create low-cost, energy storage devices. With renewable energy, there are times when supply exceeds demand and we need to find a way to store the excess energy, which can be used when demand then exceeds supply. Their device could become a critical component of a low-carbon energy infrastructure.

### What are your plans to develop the park?

We're laser-focused on adding value to businesses to enable them to grow. We can do that, for example, by providing companies with access to student talent or by connecting them with the wider innovation ecosystem. For example, the University's new People-centred AI Institute has huge potential to connect the University with business.

### Finally, how do you relax away from work?

I sometimes watch the Scottish football team, but that's rarely relaxing! I'm also a yoga instructor, teaching classes in person and online.

Surrey Satellite Technology Limited are just one of the Park's success stories



## PARK LIFE BY NUMBERS

**31 buildings**

**70 acres**

**170 companies**

**4,500 employees**

**£525m GVA\*  
contribution to  
the economy**

\*Gross Value Added is the measure of the value of products and services produced in an area.

## FIND A GREAT MENTOR

SurreyConnects is our new online platform bringing alumni and students together for networking and mentoring. Features include job vacancies, news, events and integrated video calling and messaging.

**VISIT [SURREYCONNECTS.CO.UK](https://surreyconnects.co.uk)**



**SURREYCONNECTS**

The place for alumni and student  
networking and mentoring