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Surrey's suffragette composer re-imagined in many ways

13 February 2026



Rediscovering long forgotten music does not mean recovering how it was meant to be performed, and that is a major challenge for the arts, finds a new study from the University of Surrey. An expert found that rediscovered music comes with no shared understanding for how it should sound, leaving performers to make radically different interpretive choices that reshape the work itself.

In an article published in Performance Research: A Journal of the Performing Arts, a researcher focused on a little-known piano miniature by Surrey-based British composer Ethel Smyth, written in the late nineteenth century and forgotten for 120 years. When the piece re-emerged in the 1990s and began to be performed again, no traditions of interpretation had survived. There were no clear instructions for tempo, expression or dynamics, and no recordings of historical performances to learn from.

To understand what happens when performers face this problem, the research compared all professional recordings of the same rediscovered work. Using specialist audio analysis software, each performance was measured beat by beat to track tempo and rhythmic fluctuation across the piece.

Each pianist approached the music in a fundamentally different way, particularly at its unfinished ending. Some slowed dramatically, others pushed forward and none aligned closely with one another. Even the earliest modern recording failed to establish a shared interpretive reference point.

Dr Christopher Wiley, author of the study and Head of Music and Media at the University of Surrey, said:

"When musicians open a score like this, they are standing on empty ground. While written in standard notation that is commonly understood, there is no inherited wisdom to lean on as to how the piece is supposed to be played. What I found when analysing modern recordings was not small variation in interpretation but completely different musical identities emerging from the same notes. This is creative and exciting, but also unsettling."

The research argues that this challenge will only grow, as more pieces by historically marginalised composers are rediscovered. Nor is it an issue unique to music: performers across arts disciplines such as theatre and dance will likewise increasingly encounter works stripped of their original interpretive traditions.

Rather than relying solely on manuscripts, the study proposes more imaginative solutions: performers may need to draw on unconventional sources such as letters, memoirs and personal writings to guide interpretation. In this case, Smyth's later autobiographical descriptions of the person she aimed to portray through her music offered valuable insight into its character, mood and emotional intent.

Surrey University

Image: Ethel Smyth with score to her composition March of the Women in the background. Sources: English composer and suffragette Ethel Smyth (1858-1944) Library of Congress's Prints and Photographs division under the digital ID ggbain.33693, Author George Grantham Bain Collection; Restored by Adam Cuerden Score: https://www.bl.uk/collection-items/smyth-march-of-the-women. Creative Commons CC0 1.0 Universal Public Domain Dedication. Montage created by Epsom and Ewell Times and is copyrighted.

Epsom and Ewell Times adds: Dame Ethel Mary Smyth DBE (22 April 1858 – 8 May 1944) was an English composer and a member of the women's suffrage movement. Her compositions include songs, works for piano, chamber music, orchestral works, choral works and operas. She lived in Surrey from childhood.

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Surrey Uni on challenging AI decisions

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AI systems already decide how ambulances are routed, how supply chains operate and how autonomous drones plan their missions. Yet when those systems make a risky or counter-intuitive choice, humans are often expected to accept it without challenge, warns a new study from the University of Surrey.

Epsom and Ewell Times adds that the Civil Aviation Authority has granted Amazon a licence to deliver items by drone. It is uncertain when this service will actually begin.

The research, published in the Annals of Operations Research, looked at the use of optimisation algorithms in relevant areas such as transport, logistics, healthcare and autonomous systems. Optimisation algorithms are systems that decide the best possible action by weighing trade-offs under fixed rules such as time, cost or capacity. Unlike prediction models that estimate what will happen, optimisation algorithms choose what should be done.

Optimisation algorithms decide what gets prioritised, delayed or excluded under strict limits such as weight, cost, time and capacity. Yet those decisions are mathematically correct but practically opaque.

The research team's findings implies that our increasing 'blind trust' creates serious safety and accountability risks in the increasing areas of everyday life where optimisation algorithms are used.

Using a classic optimisation challenge known as the Knapsack problem, the research demonstrates how machine learning models can learn the structure of an optimisation decision and then explain it in plain language. The method shows which constraints mattered most, why certain options were selected and what trade-offs pushed others out.

The study shows how organisations can challenge optimisation algorithms before their decisions are put into practice. Rather than replacing existing systems, the approach works alongside them, using machine learning to analyse decisions and explainable AI to reveal why one option was chosen over another and which constraints and trade-offs shaped the outcome.

Dr Wolfgang Garn, author of the study and Associate Professor of Analytics at the University of Surrey, said:

"People are increasingly asked to trust optimisation systems that quietly shape major decisions. When something looks wrong, they often have no way to challenge it. Our work opens those decisions up so humans can see the logic, question it and intervene before real-world consequences occur."

This is particularly important for autonomous systems such as delivery drones. Drones must constantly decide which packages to carry while balancing battery life, payload weight and safety requirements. Without transparency, regulators and operators cannot easily justify or audit those decisions.

Rather than replacing existing optimisation software, the approach works alongside it. Machine learning is used in this approach to analyse solutions, explain feasibility and identify brittle or high-risk decisions before deployment.

The research introduces a structured framework that ensures explanations are tailored to real decision makers. Instead of technical outputs, systems can provide human-readable reasoning, such as: "too many heavy items were selected, or battery limits were prioritised over delivery value."

Dr Garn continued:

"Regulators are starting to ask harder questions about automated decisions. If you can't explain why your system chose one option over another, you'll struggle to get approval — or defend yourself when something goes wrong. This framework makes that explanation possible."

Surrey University

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Royal visit to Surrey University

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On 28 January, HRH The Duchess of Edinburgh and the University of Surrey's Chancellor, HRH The Duke of Kent, visited Surrey to celebrate the University's innovation, research and hands on learning. During their visit, they met students and staff from across campus, gaining insight into Surrey's multidisciplinary approach to education.

Medical students at the first and only medical school in Surrey met The Duchess of Edinburgh to demonstrate the collaborative training that will shape their careers in the NHS. The Duchess returned to the University of Surrey's Kate Granger Building six years after she opened it as the home of its School of Health Sciences. Her Royal Highness met some of the University's first cohort of UK government-funded medical students who began their studies in September 2025.

The Duchess also met medical, nursing, midwifery and paramedic students learning together in the collaborative training wards before joining a virtual reality anatomy teaching session.

The University's Chancellor, The Duke of Kent, joined her Royal Highness at the Surrey Space Centre, where they visited labs to see a student-designed satellite deploy pod which will push a payload from a rocket into space.

At the Space Centre, The Duchess visited the satellite clean room toured by Her Late Majesty Queen Elizabeth II in 1998. In the clean room, Her Royal Highness helped to fit a panel engraved with Their Royal Highnesses' Royal Cyphers to Jovian-1, a satellite which Surrey students helped develop.

Schoolchildren who took part in the University's widening participation summer schools returned to campus to show off the hands-on STEM projects they enjoyed last year, with The Duke and Duchess joining in. Students from the University's Engineering Design Centre also had the opportunity to show His Royal Highness a range of projects, including rocket designs and Formula E racing cars.

Professor Stephen Jarvis, President and Vice-Chancellor of the University of Surrey, said:

"Training medical students alongside nursing, midwifery and paramedic students reflects how the NHS operates in practice. Our students graduate already equipped to work effectively in multidisciplinary teams, rather than having to learn this solely once they enter the workplace. The Duchess saw this first-hand in our training wards, where students from different disciplines learn together in realistic clinical settings.

"Her Royal Highness also saw our engineering students working on satellites they have designed and built themselves – hardware that will ultimately be launched into orbit. That combination of world-class research and practical, employer-ready skills lies at the heart of what we do. For our students, whether still studying or already well into their careers, having two members of the Royal Family witness this work first-hand is an experience they will long remember. It was a truly memorable day for our entire community."

The visit marked a return to sites with strong royal connections. Queen Elizabeth II visited the University's Guildford campus three times during her 70-year reign: in 1992, where she inaugurated the University's Centre for Satellite Engineering Research; 1998, when she once again paid a visit to the Surrey Space Centre; and in 2015, when she opened Surrey's School of Veterinary Medicine.

Patrick Degg, Vice-President, Global at the University of Surrey, said:

"We thank both The Duchess of Edinburgh and The Duke of Kent for their continued support for Surrey. The Duke has served as our Chancellor since June 1976. To have him return in this 50th year of his Chancellorship alongside The Duchess, and for them both to see the breadth of the research and teaching Surrey delivers has been a moment of collective pride.

"A programme that took in our pioneering space engineering, our new medical school and other aspects of our multidisciplinary research and teaching, spoke to the transformation The Duke has witnessed and championed throughout his tenure. His presence continues to inspire our community and affirm the values at the heart of this institution."

About Surrey Space Centre

Since its founding in 1979, the Surrey Space Centre has been a leading space engineering hub and is widely seen as the birthplace of the small satellite revolution. Professor Sir Martin Sweeting spun out Surrey Satellite Technologies Limited from his work at the Centre, and its recent missions have included RemoveDEBRIS, which demonstrated ways to capture debris in orbit.

The University recently announced the creation of the Surrey Space Institute, which brings together expertise across engineering, law, biosciences and artificial intelligence to build skills, partnerships and future space missions – with a particular focus on protecting Earth's resources and critical orbital infrastructure.

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Surrey University

HRH The Duchess of Edinburgh looking at a picture of Her Late Majesty Queen Elizabeth II at the University of Surrey. Credit Surrey University

Surrey Uni powering hydrogen and low carbon energy

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A new partnership between the University of Surrey and leading clean energy technology company Ceres aims to speed up the development of next-generation clean power systems and hydrogen production – supporting the UK's net zero ambitions and helping address a growing skills gap in electrochemical energy technologies.

The collaboration brings together Ceres' expertise in solid oxide fuel cells (SOFC) and solid oxide electrolysis (SOEC) with Surrey's research strengths in electrochemical energy systems, digital and multiscale modelling, and advanced materials characterisation. Solid oxide electrolysis allows for highly efficient hydrogen production using electricity and heat, while solid oxide fuel cells can generate low carbon power for applications ranging from industrial processes to data centres.

Under the partnership, the teams will focus on improving the efficiency, durability and performance of these technologies, using advanced modelling and mechanistic insights to help translate fundamental research into real-world systems more quickly. Together, they will pursue joint research projects, collaborative funding bids and new training and placement opportunities for students.

Professor Qiong Cai, Professor in Sustainable Energy and Materials at the University of Surrey, and academic co-lead, said:

"Solid oxide electrolysis and fuel cells have huge potential to underpin the UK's future energy systems, from large-scale hydrogen production to low-carbon power for industry. But real progress depends on improving efficiency, durability and performance so these systems can operate reliably in the real world. This partnership gives us the opportunity to tackle those challenges head-on, combining fundamental science with a clear route to application."

Professor Jin Xuan, Associate Dean of Research and Innovation for the Faculty of Engineering and Physical Sciences, who is also a co-lead at Surrey, said:

"There is a growing skills gap in hydrogen and electrochemical energy technologies, at a time when demand for these capabilities is increasing rapidly. Working together with Ceres, we aim to help train the next generation of engineers and scientists in these fields through placements and hands-on research, ensuring the UK has the expertise it needs to support a net zero economy."

The partnership is outlined by a three-year Heads of Terms agreement and will see the teams work together to develop a pipeline of joint research projects and funding bids.

A symbolic signing ceremony, which took place at the University of Surrey on 14 January 2026, formally marked the start of the collaboration and provided an opportunity for both parties to set out priorities for the work ahead.

Dr Subhasish Mukerjee is Chief Scientific Officer at Ceres and was recently appointed a Visiting Professor within Surrey's School of Chemistry and Chemical Engineering. He said:

"We are delighted to expand our collaboration with the University of Surrey across fundamental electrochemistry research, modelling and digitalisation, and strategic testing to develop the next generation of clean energy technology. This collaboration strengthens our leadership in the solid oxide field and supports the UK's drive toward achieving its net zero targets."

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Neurodiversity good for business Surrey study shows

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Businesses and policymakers risk missing out on workforce potential by misunderstanding neurodiverse conditions and the biological differences that shape entrepreneurial strengths, according to new research led by the University of Surrey. Instead of considering ADHD, dyslexia and bipolar conditions only as static clinical challenges, researchers build on the existing entrepreneurship literature to argue that these conditions can equip people with unique abilities that drive entrepreneurial action, innovation, and business growth.

In a study, published in Neurodiversity in Entrepreneurship, researchers carried out a systematic review of scientific evidence published between 2011 and 2023, mapping 139 papers and 28 core studies across business and management. Importantly, they focused on using organisational neuroscience evidence, spanning from brain activations to genetic mechanisms linked to ADHD, dyslexia and bipolar conditions.

Researchers found evidence that entrepreneurs with ADHD often show high entrepreneurial alertness and strong performance in innovation and risk taking. Dyslexic entrepreneurs may instead compensate for reading and writing challenges by developing advanced delegation strategies to accelerate business growth. Meanwhile, traits linked to bipolar conditions correlate with creativity, idea generation and willingness to pursue bold ventures.

Dr Sebastiano Massaro, co-author of the study and Associate Professor (Reader) of Organisational Neuroscience at the University of Surrey, said:

“We often behave as if neurodiversity automatically means a deficit. The biological evidence shows something completely different. These conditions span a continuum and there is strong evidence that in entrepreneurial contexts they bring valuable strengths. Simply put, we need to stop treating them as problems to be fixed.”

The research advocate for a shift in how businesses support programmes and employers view neurodiversity. It argues for business environments that value difference rather than seeking to normalise it and calls for practical organisational strategies that actively harness neurodiverse strengths. The study also highlights policy implications, noting that entrepreneurial settings can provide pathways to work and equality for people who are often miscategorised as unemployable.

Dr Sebastiano Massaro continued:

“To the best of our knowledge, we are presenting the first grounded explanation of why neurodiversity matters in business by drawing a direct connection between neural mechanisms and entrepreneurial behaviour. If universities, industry and governments overlook how these biological foundations impact entrepreneurship, they might miss valuable capability hidden in plain sight.”

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Surrey Uni study may show way to reverse vision loss

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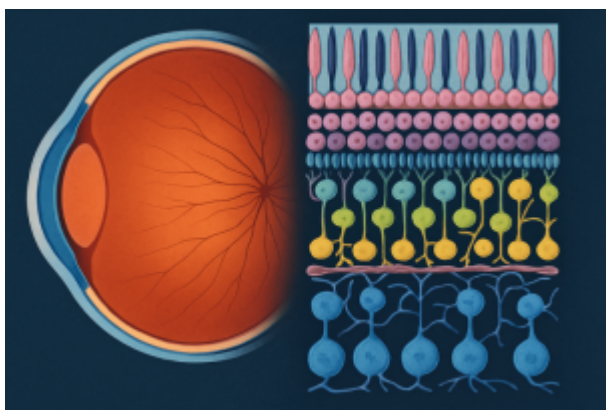

New computer modelling could help scientists better understand how the retina regenerates, opening the door to new treatments for vision loss, according to a study from the University of Surrey.

The first-of-its-kind model is capable of detailing how the retina – the light-sensitive layer at the back of the eye – can build its complex structure from just one type of stem cell, deepening our understanding of how sight develops and how its development could inform studies of injury or disease.

Using advanced agent-based modelling, the research team have simulated key stages of retinogenesis – the process by which identical progenitor cells diversify into the six types of neurons that make up the retina.

The model shows how simple genetic rules and subtle randomness work together to form the retina's precise layered architecture, a structure essential for how we see.

The paper was presented at IWWBIO 2025 and published in Lecture Notes in Computer Science (LNCS).

Cayla Harris, lead researcher from the University of Surrey's Nature Inspired Computing and Engineering Group, said:

"The beauty of biology is that complex structures can emerge from simple rules. Our simulations show how genetically identical cells can, through intrinsic bias and chance, self-organise into the retina's highly ordered layers – a pattern that underpins how we see the world."

Using the BioDynaMo software platform, the team modelled virtual "cells" that grow, divide and make fate decisions based on internal gene-regulation logic, mimicking biological behaviour. They tested different network designs for how genes might interact when cells decide what kind of neuron to become.

Two particular designs – called the Reentry and Multidirectional models – reproduced real biological data most accurately, suggesting that retinal cells may make their fate decisions through overlapping and flexible genetic pathways, rather than a fixed sequence.

This approach could help researchers better understand not only healthy eye development but also what happens in retinal diseases and in regenerative research exploring how stem cells might rebuild tissue.

Dr Roman Bauer, senior author on the study from the University of Surrey, added:

"Computational modelling gives us a powerful way to explore biological processes we can't easily observe in real time. By simulating every cell's decision and interaction, we can test hypotheses about how tissues like the retina form – and how to restore them when damaged."

This research is supported by the Engineering and Physical Sciences Research Council (EPSRC).

Cayla Harris added:

"We think that our research is a step forward in linking genetics, computation and developmental biology to understand one of the body's most complex neural structures."

Surrey University

Is Epsom and Ewell ideal for remote working?

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When remote work is supported well, it can raise job satisfaction, reduce commuting stress and give people meaningful control over their work life balance. However, the recent drive by some organisations to bring staff back into offices risks reversing these gains and widening the gap between regions, according to a new study that University of Surrey researchers contributed to as part of the R-Map project.

A new study, published in Nature's Scientific Data, details how access to reliable internet, local services, green space and community facilities can determine whether remote work improves quality of life or deepens inequalities. The research is based on a survey of more than 20,000 workers from across Europe and explores how remote work is influencing relocation patterns, wellbeing, job satisfaction, productivity, travel behaviour and the pull between urban and rural living.

The study gathered responses from people living and working remotely in Europe through a large, structured survey. Participants were asked about their preferences, experiences and the practical realities of working away from a traditional office. The survey was distributed across multiple languages and included workers in both rural and urban environments.

The study highlighted that remote work, either fully or partly i.e. hybrid work, is often associated with higher job satisfaction and a stronger sense of personal autonomy, particularly because people can choose where and when they work. This can support better work life balance, reduce commuting stress and create more space for family time or personal priorities.

However, where remote work is discouraged or unsupported workers may lose these benefits. Returning to a daily commute or living far from their workplace can limit choice, increase strain and reduce the positive local impact remote work can bring to smaller towns and rural communities.

Dr Nikolas Thomopoulos, Principal Investigator of the study from the University of Surrey, said:

"Remote work is changing how our towns and cities function and who gets access to good and rewarding jobs. When remote work is supported properly it can reconnect residents and tourists with their communities and boost local economies. When it is not, it risks deepening divides. We are hopeful that this research will provide policymakers with the clear evidence needed to shape a fairer and more sustainable future of work."

Dr Tracy Xu, Co-Director of the Future of Work Research Centre at the University of Surrey, said:

"Our research shows that remote work can genuinely improve quality of life by giving people more choice in where and how they live. Without strong digital access and supportive environments, remote workers can feel isolated and overlooked. This study gives us the detail needed to understand where remote work thrives and where it needs to be improved."

The R-Map findings suggest that remote work can revitalise some rural or suburban areas, especially when people are able to move away from expensive city centres in search of more space, affordability or proximity to nature.

However, the benefits are not shared equally. The study shows that access to everyday amenities such as green spaces, grocery shops, healthcare and public transport within a short walking distance plays a key role in whether remote work feels sustainable and supportive of wellbeing. Where these amenities are lacking, and where digital connectivity is weak, remote workers were more likely to report feelings of isolation and difficulty maintaining work life balance. In contrast, participants with reliable internet and access to local services reported greater satisfaction with remote work and stronger ties to their communities.

Surrey University

Surrey's Satellite bio-diversity project promoted at COP30 Brazil

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Surrey's Space4Nature project, which uses satellite data and community science to protect biodiversity across the county, is currently being showcased by the UK Government at the COP30 UK Pavilion in Belém, Brazil (10–21 November 2025). The display forms part of the UK's official presentation of research and innovation tackling global climate and nature challenges.

Co-led by the University of Surrey's Centre for Environment and Sustainability (CES) in collaboration with Surrey Wildlife Trust, Buglife, and the Painshill Park Trust, Space4Nature brings together scientists, local communities and conservation groups to map and monitor key habitats across Surrey – from chalk grasslands to heathlands and acid grasslands that support some of the nation's rarest species.

Using advanced satellite imagery and artificial intelligence trained with data from local volunteers, the project can classify habitats to Level 4 of the UKHab system – producing one of the most detailed environmental maps of its kind. This allows conservation partners to pinpoint where biodiversity is under threat and focus restoration efforts, such as reconnecting fragmented chalk grasslands – often called the "rainforests of Europe" for their carbon storage and rich biodiversity.

Surrey Wildlife Trust plays a central role in Space4Nature, leading the project's citizen science programme, training volunteers and coordinating the collection of field data that makes its satellite and AI mapping possible. The Trust's on-the-ground expertise connects technology and conservation, turning local knowledge into invaluable data for protecting Surrey's landscapes.

Dr Ana Andries, Lecturer in Remote Sensing and GIS at the University of Surrey, and project lead, said:

"We're using satellite data and artificial intelligence in a way that directly supports conservation on the ground. Citizen scientists help train our machine learning models, thus turning local field data into high-resolution habitat maps that reveal where biodiversity is under threat. To see our work featured on a global stage at COP30 highlights how our region's innovation and collaboration can help shape the future of biodiversity monitoring."

Andrew Jamieson, Space4Nature Project Manager at Surrey Wildlife Trust, says:

"It's time for conservation organisations like ours to step outside traditional boundaries and focus not just on land management and individual species recovery, but also on delivering the tools and partnerships that will drive change on a landscape level. This project exemplifies that approach."

Space4Nature was among the first projects in the United Kingdom to receive Space for Climate Observatory (SCO) accreditation from the UK's Space4Climate network, recognising its excellence in using Earth observation data to tackle environmental challenges. This year, it has been selected as one of just 19 organisations featured in the UK Government's Pavilion at COP30, with a video and QR-linked display presented by government representatives throughout the conference.

Dr Zoe M Harris, Director of Surrey's Centre for Environment and Sustainability and Co-Director of the Institute for Sustainability, said:

"The Centre for Environment and Sustainability was founded on the idea that solving environmental challenges means bringing disciplines and people together. Space4Nature embodies that vision – combining engineering, data science and community insight to create practical tools for nature recovery. Seeing this work recognised at COP30 highlights Surrey's role as a global leader in sustainability research and innovation."

Surrey University

Image: Centre for Environment and Sustainability, University of Surrey

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Epsom and Ewell Times adds – the Surrey project is one of only twenty presented by the UK at the COP30 summit. See the full list HERE.

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Surrey Uni show AI systems based on the human brain's save energy

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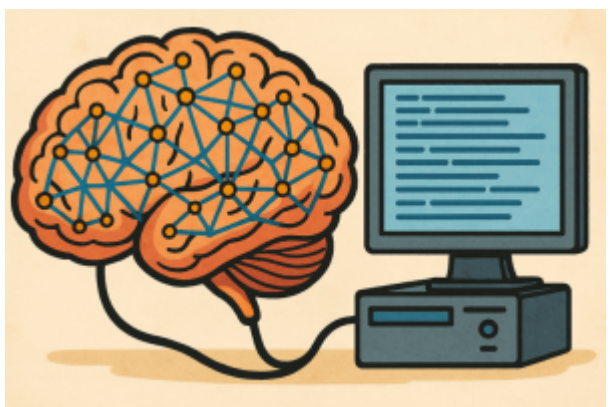

Artificial intelligence (AI) could soon become more energy-efficient and faster, thanks to a new approach developed at the University of Surrey that takes direct inspiration from biological neural networks of the human brain.

In a study published in Neurocomputing, researchers from Surrey's Nature-Inspired Computation and Engineering (NICE) group have shown that mimicking the brain's sparse and structured neural wiring can significantly improve the performance of artificial neural networks (ANNs) – used in generative AI and other modern AI models such as ChatGPT – without sacrificing accuracy.

The method, called Topographical Sparse Mapping (TSM), rethinks how AI systems are wired at their most fundamental level. Unlike conventional deep-learning models – such as those used for image recognition and language processing – which connect every neuron in one layer to all neurons in the next, wasting energy, TSM connects each neuron only to nearby or related ones, much like how the brain's visual system organises information efficiently. Through this natural design, the model eliminates the need for vast numbers of unnecessary connections and computations.

An enhanced version, called Enhanced Topographical Sparse Mapping (ETSM), goes a step further by introducing a biologically inspired "pruning" process during training – similar to how the brain gradually refines its neural connections as it learns. Together, these approaches allow AI systems to achieve equal or even greater accuracy while using only a fraction of the parameters and energy required by conventional models.

Dr Roman Bauer, Senior Lecturer at the University of Surrey's School of Computer Science and Electronic Engineering, and project supervisor, said:

"Training many of today's popular large AI models can consume over a million kilowatt-hours of electricity, which is equivalent to the annual use of more than a hundred US homes, and cost tens of millions of dollars. That simply isn't sustainable at the rate AI continues to grow. Our work shows that intelligent systems can be built far more efficiently, cutting energy demands without sacrificing performance."

Surrey's enhanced model achieved up to 99% sparsity – meaning it could remove almost all of the usual neural connections – but still matched or exceeded the accuracy of standard networks on benchmark datasets. Because it avoids the constant fine-tuning and rewiring used by other approaches, it trains faster, uses less memory and consumes less than one per cent of the energy of a conventional AI system.

Mohsen Kamelian Rad, a PhD student at the University of Surrey and lead author of the study, said:

"The brain achieves remarkable efficiency through its structure, with each neuron forming connections that are spatially well-organised. When we mirror this topographical design, we can train AI systems that learn faster, use less energy and perform just as accurately. It's a new way of thinking about neural networks, built on the same biological principles that make natural intelligence so effective"

While the current framework applies the brain-inspired mapping to an AI model's input layer, extending it to deeper layers could make networks even leaner and more efficient. The research team is also exploring how the approach could be used in other applications, such as more realistic neuromorphic computers, where the efficiency gains could have an even greater impact.

Surrey University

Epsom and Ewell Times asked ChatGPT to explain the above press release from Surrey University and this is what it wrote:

"Artificial intelligence models like ChatGPT rely on vast numbers of digital connections between "neurons", mimicking how the human brain works – but they use enormous amounts of electricity to do it. Researchers at the University of Surrey have developed a new way to wire these networks that could make them dramatically more efficient.

Instead of connecting every artificial neuron to every other, the Surrey team copied the brain's habit of linking only

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nearby or related neurons. Their method, called **Topographical Sparse Mapping**, cuts out unnecessary connections, saving energy while maintaining accuracy. A refined version, **Enhanced Topographical Sparse Mapping**, even "prunes" the network during learning – like the brain trimming unused connections as it develops. The result is AI that can train faster, use less memory and consume less than one per cent of the energy of current systems.

If this approach proves scalable, it could mean greener, cheaper and quicker AI – taking inspiration not from bigger computers, but from the extraordinary efficiency of the human brain."

Defibrillators delivered by drone?

13 February 2026



A groundbreaking project testing how drones could be integrated into the UK's 999 emergency response system to deliver defibrillators to out-of-hospital cardiac arrest patients has been launched by the **University of Surrey**, **Air Ambulance Charity Kent Surrey Sussex**, and the **South East Coast Ambulance Service NHS Foundation Trust (SECAmb)**.

Funded by the **National Institute for Health and Care Research (NIHR)**, the 16-month initiative will explore how drones can rapidly deliver Automated External Defibrillators (AEDs) to the scene of an emergency — potentially saving lives where every second counts.

The research will take place in two phases. The first will simulate 999 call handling, Air Traffic Control coordination, ambulance dispatch, and drone operations to develop and refine delivery procedures. The second will involve interviews with out-of-hospital cardiac arrest survivors, family members, emergency responders and members of the public to assess perceptions of drone technology, ease of use, and any concerns.

Dr Scott Munro, Lecturer in Paramedic Practice at the University of Surrey and project co-lead, said:

"This research is the first step towards integrating drone technology into our emergency response systems. Our ultimate goal is to develop and test the procedures needed to seamlessly introduce drone delivery of AEDs into the 999-emergency system."

Professor Kevin Munro, Director of the NIHR Research for Patient Benefit Programme, added:

"Using drones to deliver defibrillators could help emergency teams reach patients faster, improve survival after cardiac arrest, and bring cutting-edge technology directly to the NHS frontline."

Dr Craig Mortimer, Research Manager at SECAmb, said:

"Rapid intervention is vital in managing out-of-hospital cardiac arrests. Integrating this technology into future healthcare systems represents real progress in strengthening the chain of survival and giving patients the best chance of a positive outcome."

With UK survival rates for out-of-hospital cardiac arrest currently below 10%, the research aims to tackle one of the biggest challenges in emergency care: getting a defibrillator to the patient in time.

About NIHR
The **National Institute for Health and Care Research (NIHR)** is the UK's largest funder of health and social care research. It invests in high-quality studies that benefit the NHS, public health and social care, supports researchers and facilities, and partners with patients and communities to improve outcomes both in the UK and globally.

Surrey University

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Surrey Uni to open in India after UK PM’s visit

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Surrey joins new UK Universities in India Alliance while on UK trade mission to India

The UK’s universities can be a “skills and research accelerator” for the potential of the strengthening UK–India trade partnership, which was the focus of Sir Keir Starmer’s trade mission this week. This is according to Professor Stephen Jarvis, newly appointed President and Vice-Chancellor of the University of Surrey – and a participant in the trade mission.

On his return from India, where the multi-sector delegation met with Prime Minister Narendra Modi, Professor Jarvis highlighted the strong fit of the University of Surrey’s ‘purpose-driven’ approach to education and research, and the importance of the new Universities in India Alliance, which Surrey was proud to become a founder member of during the trip.

During the visit, the University of Surrey was presented with approval in principle from IFSCA (International Financial Services Centres Authority) to proceed with opening a new International Branch Campus at GIFT City, in Ahmedabad, Gujarat State.

On the trip, the University also celebrated its network of research and education partnerships with Indian universities – including its partnership with the Indian Institute of Science, Bengaluru (IISc) – which will see both institutions partner to drive research and innovation in semiconductor chip design and medical research, with a particular focus on human health and veterinary medicine.

Professor Stephen Jarvis said:

“I was honoured to be invited to join the Prime Minister on his visit to India to celebrate the enormous potential for UK higher education to partner and collaborate in India to drive international skills development and research to solve global challenges. India is an economic and skills superpower – it has its own thriving higher education sector, but also recognises the value that Britain’s globally recognised higher education sector can bring to meeting the extraordinary growth in demand for quality education in India.

“As we move towards opening our new campus in GIFT City, we’re delighted to have been invited to become founding members of the nine-strong UK Universities in India Alliance. Education is an immensely important export industry for the UK, and Surrey is proud to be standing shoulder to shoulder with our fellow universities, bringing our own unique brand of purposeful education, as we seek to expand the potential for higher education to be a skills and research accelerator, benefitting both the UK and Indian economies.”

Alison Barrett MBE, Country Director India, British Council, said:

“Congratulations to the University of Surrey on receiving approval in principle from IFSCA (International Financial Services Centres Authority) to establish its International Branch Campus in GIFT City, Ahmedabad, India. This reflects the UK’s commitment to accessible, innovative, and inclusive education, but also demonstrates the positive impact of the National Education Policy 2020. Aligned with the shared ambition outlined in the India-UK Vision 2035, bringing Surrey’s expertise to India will create exciting new opportunities for students and equip them with the skills needed to thrive in the future.”

Surrey University

Image: 09/10/2025. Mumbai, India. Prime Minister Keir Starmer meets Indian Prime Minister Narendra Modi for a bilateral meeting at the Raj Bhavan. Picture by Simon Dawson / No 10 Downing Street

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Get paid for falling over in Surrey study

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With 219,000 fall-related emergency hospital admissions among people aged 65 and over in England in 2023/24, a new trial at the University of Surrey is exploring how smart flooring could help prevent serious injuries by cushioning falls – potentially easing pressure on the NHS and reshaping the design of hospitals, care homes and even private homes.

In the ongoing study, participants wear reflective body markers that are tracked by infrared cameras, allowing researchers to measure how different floor materials – ranging from soft to hard – affect a person's balance, movement and stability. The findings will form the foundation for designing new protective flooring that looks and feels like a regular surface but can absorb the impact of a fall.

The team is currently seeking healthy adult volunteers of all ages, particularly those aged 65 and over, to participate in the trial.

Silas Purja, Postgraduate Researcher at the University of Surrey's School of Engineering and lead researcher in the trial, said:

"Every year in the UK, hundreds of thousands of older adults experience a fall – many of which lead to lengthy hospital stays and, tragically, some fatalities. Government figures show that unaddressed fall hazards in the home alone cost the NHS in England around £435 million annually, while fragility fractures – often caused by falls – cost the UK an estimated £4.4 billion each year, including £1.1 billion in social care. To help ease pressure on the health service and protect lives, we're investigating how different flooring types affect balance – with the goal of supporting the design of safer, smarter surfaces in various settings."

The current phase of the study involves testing different age groups on their ability to stand and walk on various floor conditions in a controlled indoor environment at the University. Researchers can then analyse how different levels of stiffness affect participants' natural balance.

The long-term vision is a flooring system that remains firm during normal use but softens when someone falls – reducing the risk of broken bones or head injuries. From the outside, it would resemble standard synthetic tiles or rubber flooring, but with smart materials and systems hidden beneath. As the technology matures, the flooring could eventually be rolled out in hospitals, care homes and private homes where older people are most at risk.

Dr Iman Mohagheghian, Associate Professor (Reader) in Mechanics of Materials at the University of Surrey and Principal Investigator on the project, said:

"Trials like this are crucial for determining age-related differences in balance and movement, and how those differences interact with the surfaces we walk on every day. Volunteers who take part will play an important role in helping us design safer, more supportive environments, and their contributions could ultimately help prevent life-altering injuries. If you would like to be part of our research, we'd love to hear from you."

The study is part of the wider Engineering and Physical Sciences Research Council (EPSRC)-funded project Multifunctional Flooring: Design for Independent Living, led by Dr Iman Mohagheghian. The project brings together an interdisciplinary team of researchers, including Dr Matthew Oldfield and Dr Radu Sporea from the University of Surrey, and Dr Amy Drahota from the University of Portsmouth.

The team is working closely with commercial partners and manufacturers of flooring for healthcare settings and advanced sensor and touch technologies. Together they aim to develop an integrated flooring solution that provides passive fall prevention, real-time fall detection and impact protection in one.

Participants will receive a £10 expenses payment for their time along with free parking at the University. To register your interest or find out more, contact Silas directly at s.purja@surrey.ac.uk.

Surrey University

Surrey Uni finds gay vets face discrimination

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A new study from the University of Surrey and the Royal Veterinary College has highlighted the ongoing presence of discrimination and its impact on lesbian, gay, bisexual, transgender, and other (LGBT+) veterinary professionals and students in the UK.

The research, published in Vet Record, analysed 130 survey responses and found that over half (55.4%) of the participants had either experienced or witnessed some form of discrimination, ranging from microaggressions to outright threats of violence. This number highlights a concerning problem for LGBT+ veterinary professionals and students and a call to action for profession to collectively work to ensure everyone can work free from discriminatory behaviour.

The findings also reported that over half of the participants were not fully "out" to everyone at their workplace or place of study underlining that not all LGBT+ veterinary professionals and students feel safe or welcome to share who they are at work or study. However, in contrast, the positive findings from the study were that those who were "out" were more likely to report feeling supported at work and by the wider veterinary community.

Participants also cited a fear of negative repercussions on their career progression and educational attainment as a reason for not disclosing their identity. The study notes that such fear can lead to stress, anxiety and a sense of disconnection from colleagues.

Dr Charlotte S. McCarroll, Associate Head of School (Education) at the School of Veterinary Medicine at the University of Surrey, said:

"For our LGBT+ family, friends and colleagues, discrimination remains a pressing issue within the UK veterinary profession. More needs to be done by our institutions for these individuals to feel supported, including increasing and promoting support networks, improving education and training on anti-discrimination laws, and firmly promoting equality, diversity and inclusion initiatives."

Dr Mat Hennessey, post-doctoral researcher in veterinary social science at the Royal Veterinary College, said:

"The findings of our study highlight the ongoing work which needs to occur, both in places of work and education, to foster inclusive environments which are supportive of all people. Creating such environments, where people can be their authentic selves without fear of discrimination, is a team effort requiring both institutional support for EDI initiatives and active engagement with the wider community."

Peter Heather MRCVS, President of BVLGBT+ said:

"Within our profession there are many employers and colleagues who remain committed allies, but as this study shows, discrimination against LGBTQ+ people in the veterinary profession persists. To combat this, leaders in our profession need to educate others and themselves about discriminatory behaviour and learn more about the benefits of open and inclusive work and study environments that allow people to just be themselves."

Surrey University

Prostate cancer vaccine research launched in Surrey

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In September 2025, The Prostate Project, a Guildford-based volunteer-led charity, will launch a £250,000 campaign to raise funds for a prostate cancer research project widely anticipated to be ‘game-changing’.

Work has begun to develop a vaccine to prevent the return of prostate cancer in men who have undergone a radical prostatectomy, the surgical removal of the prostate. Cancer vaccines have become an exciting area of research in recent years, and this new treatment could potentially save the lives of more than 1,500 men each year in the UK alone.

The Prostate Project, based at the Stokes Centre for Urology at Royal Surrey County Hospital, has a proven track record of funding research and treatment of prostate cancer, raising more than £11 million since its formation in 1998.

During this time the charity has provided funds for research at the University of Surrey, leading directly to breakthroughs in the diagnosis and treatment of prostate and other urological cancers. The university team is one of the leading groups for immunotherapy research in the UK, and is recognised around the world for its work.

This latest initiative is part of the charity’s longstanding and ongoing support for the work of Dr. Nicola Annels and Dr. Guy Simpson and their team based at the University of Surrey.

A patent has been applied for the vaccine and Dr. Simpson has already proven that it works in the similar treatment of bladder cancer. This new research is required to see if the vaccine works as effectively for prostate cancer patients.

Dr. Guy Simpson, Research Fellow Oncology at the University of Surrey explains:

‘The research will focus on a ‘prime-boost’ vaccine strategy. The new cancer-killing virus, known as HSV5-15 developed by our team at the University of Surrey will be used as an immune ‘priming’ vaccine along with a prostate specific mRNA vaccine to ‘boost’ and maintain this immune response against the prostate.

mRNA vaccines have already proven to be revolutionary in preventing COVID, and this technology is promising similarly effective results in treating cancer tumours.

The vaccine trains the body’s immune system to recognise cancer cells so any that return after surgery can be hunted down and killed, reducing the risk of the disease coming back. Around 5,000 radical prostatectomies are performed each year in the UK, but between 20% and 50% of men who have their prostates removed will have their cancer return, resulting in them undergoing further radiotherapy and/or hormone therapy.

This treatment is costly, time-consuming and can have unpleasant side effects, and is not always completely successful.’

Prostate Project Chairman, Martin Davies, expands on the fundraising initiative:

‘For over 25 years the Prostate Project has been proud to support a team that is quite rightly recognised by their peers for their work in immunology research, and this latest initiative is perhaps the most important yet. We are looking to raise £250,000, a target that we recognise as ambitious but completely achievable, especially given our past record, and the significance of the potential outcome.’

A final word from Dr. Simpson on the timescales for delivery.

‘This funding will support the initial 18 month research period, but the more money that we raise will have a significant effect on timescales.

The Prostate Project website www.prostate-project.org.uk features a comprehensive FAQ page with answers to many of the questions about the vaccine and details of how to donate.

Almost any listening environment on Earth coming to Surrey

13 February 2026



A new national audio hub featuring world-first acoustic facilities is being built at the University of Surrey, thanks to £2.2 million in funding from the Engineering and Physical Sciences Research Council (EPSRC). The facilities will allow researchers to simulate almost any listening environment on Earth, from a quiet living room or modern office to a vast concert hall, cathedral or bustling city street.

At the heart of AURORA³ (Anechoic and Universal Research Observation Rooms for Audio, Acoustics & AI) will be two world-class audio environments: a state-of-the-art anechoic chamber with a spherical loudspeaker array and a first-of-its-kind variable acoustics room capable of adjusting both reverberation time and physical volume at the push of a button. AURORA³ will be open to researchers from both academia and industry across the UK and globally, as well as to Surrey

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staff and students.

Professor Enzo De Sena, Director of the Institute of Sound Recording at the University of Surrey, and Fellow of the Surrey Institute for People-Centred AI, said:

“AURORA³ will create a national hub for excellence in sound and AI, allowing researchers to generate reproducible data, test innovations in controlled and lifelike environments, and shape technologies that benefit society.”

The initiative aims to unite the Audio, Acoustics and AI (A³) research community and fuel breakthroughs in sound technology by enabling more accurate modelling of the physical and perceptual phenomena involved in real-world hearing. AURORA³ will pave the way for voice assistants and remote communications that are more robust to noise and reverberation, more immersive Virtual and Augmented Reality experiences for entertainment and virtual prototyping, and smarter hearing aid devices that better understand and adapt to the acoustic scene.

AURORA³ will be hosted at Surrey’s Institute of Sound Recording – part of the School of Arts, Humanities and Creative Industries – and co-led with the University’s Centre for Vision, Speech and Signal Processing (CVSSP). The facilities will also work in collaboration with the Surrey Institute for People-Centred AI, the CoSTAR National Lab, and is backed by a consortium of 18 partners and 12 key users, including the BBC, Meta, KEF, Imperial College London, the University of Cambridge, and non-profits such as the Royal National Institute for Deaf People and the Institute of Acoustics.

Professor Enzo De Sena continued:

“Combined with the UK’s deep AI talent pool and rapidly expanding computing capacity, AURORA³ provides the missing facility for audio data capture, placing the UK at the centre of global audio and acoustics research.”

Image: Professor Enzo and the AURORA logo: credit Surrey University

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