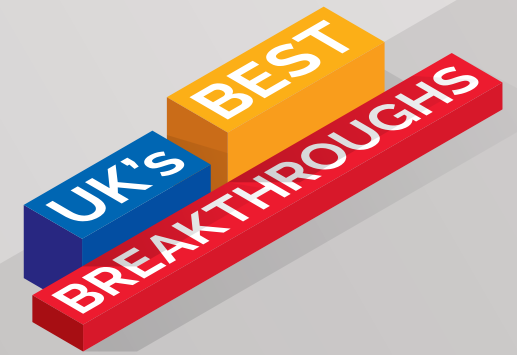


MADE ^{AT} UNI

THE 100+ WAYS
UNIVERSITIES
HAVE IMPROVED
EVERYDAY LIFE





The UK's Best Breakthroughs List is a celebration of the everyday impact that universities have on people, lives and communities across the UK.

UK universities are at the forefront of some of the world's most important discoveries, innovations and social initiatives, including work tackling plastic pollution, ultrasound scans to check the health of unborn babies and the establishment of the Living Wage.

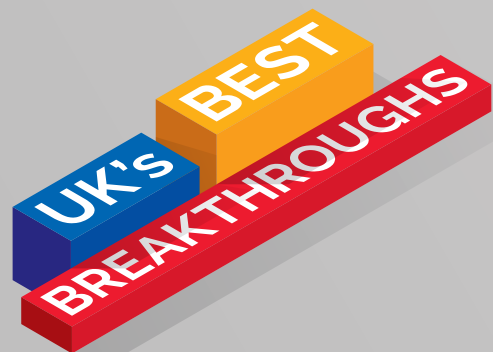
The list also highlights the less celebrated but vital breakthroughs that transform lives, regardless of whether you've been to university or not. These include a specially-designed bra to improve the treatment of women undergoing radiotherapy;

a toilet that flushes human waste without the need for water; the development of a new scrum technique to make rugby safer; a sports initiative that aims to use football to resolve conflict in divided communities – and even work to protect the quality of the chocolate we eat.

It was put together in partnership with universities across the UK. As part of the MadeAtUni campaign, universities around the country were invited to nominate the one thing from their institution which they believe has had the biggest impact on people, lives or communities.

Over 100 universities submitted a nomination and the entries cover health, technology, environment, family, community and culture & sport.





DISCOVER SCOTLAND'S
UNIVERSITY NOMINATIONS
OR EXPLORE ALL THE
BREAKTHROUGHS BY THEME

THEMES



- >University of Aberdeen
- >Abertay University
- >University of St Andrews
- >University of Dundee
- >University of Edinburgh
- >Edinburgh Napier University
- >Glasgow Caledonian University
- >University of Glasgow
- >The Glasgow School of Art
- >Heriot-Watt University
- >University of the Highlands and Islands
- >Queen Margaret University
- >Robert Gordon University
- >Royal Conservatoire of Scotland
- >University of Stirling
- >Strathclyde University
- >Scotland's Rural University
- >University of the West of Scotland



UNIVERSITY OF ABERDEEN

The world's first full-body MRI scanner

Professor James Hutchison and his team built the Mark 1 machine that successfully scanned its first patient on 28 August 1980. He also helped to patent a game-changing technique, known as spin-warp imaging, which dramatically improved the quality of the images and is still used by every single MRI scanner in the world today.

Many in the scientific community had dismissed MRI as a non-viable technology prior to the spin-warp breakthrough.



EDINBURGH NAPIER UNIVERSITY

Research into the benefits of staying active after cancer diagnosis

With one in two people in the UK being diagnosed with cancer in their lifetime, Edinburgh Napier University is researching the physical and psychological benefits of staying active after a cancer diagnosis.

Dr Anna Campbell, an Associate Professor in the university's School of Applied Sciences, has created two exercise DVDs for cancer survivors and set up the first free community-based exercise programme in the UK.

In 2016, she was awarded an MBE for her services to exercise and cancer survivorship. She also teaches students how to perform exercise consultations and design individualised exercise programmes for patients.



UNIVERSITY OF EDINBURGH

Enabling cancer survivors to have children

Some cancer therapies can leave women infertile or bring on early menopause, denying survivors the chance to have a family. Freezing eggs is often not practical because the process takes several weeks, which can delay the start of urgently-needed treatment. This approach is also not appropriate for girls and some younger women.

This could now change thanks to researchers at the University of Edinburgh who have developed new procedures for freezing ovarian tissue.

They discovered that ovarian tissue obtained via keyhole surgery could be frozen for long-term storage.

The research has shown that ovarian cycles and fertility can be restored by placing the frozen tissue back into the original donor in an animal model.

The team also showed that this procedure can be performed safely using minimally invasive keyhole surgery in adult women and girls, raising hopes of a rapid approach to preserve fertility for women with cancer.



UNIVERSITY OF GLASGOW & THE GLASGOW SCHOOL OF ART

The ultrasound scan

Now a standard feature on hospital wards, ultrasound was developed as a diagnostic tool over 60 years ago as the result of a collaboration between experts in clinical obstetrics, engineering and industrial design. Together they created the first prototypes and production models of ultrasound scanners for obstetrics scanning in hospitals.

Ultrasound scans have made pregnancy and labour safer, allowing for more effective detection and treatment of foetal abnormality. Ultrasound scanning is used in many other areas and recent advances have enabled real-time 3D images to be produced. It has become an indispensable, non-invasive diagnostic tool.

Professor Ian Donald, from the University of Glasgow, pioneered the development of ultrasound for obstetrics in collaboration with fellow obstetrician Dr John McVicar and engineer Tom Brown, from the Glasgow firm Kelvin Hughes.

Crucial to making the technology more fit for use was the work of industrial designer, Dugald Cameron. As a final year student at The Glasgow School of Art, he persuaded Tom Brown to reconsider the design to facilitate its use by both medics and patients. Dugald Cameron went on to design the first ever commercially-produced ultrasonic scanner, the Disonograph.



SCOTLAND'S RURAL COLLEGE

Better mental health support in rural communities

Scotland's Rural College formed a partnership with Support in Mind Scotland (SiMS) to carry out the first national rural survey targeted at those with experience of mental health problems.

The project examined people's experiences in their community and established how they would prefer to connect with services, with the aim of ensuring that those with mental health problems were taken seriously.

Those experiencing poor mental health said they wanted to connect in local, non-clinical settings, before personal crises occur.

The findings have changed the approach taken by SiMS to tackle mental health issues and is helping to shape policy in Scotland.



UNIVERSITY OF THE WEST OF SCOTLAND

Transforming dementia care

Scotland's National Dementia Champions Programme was the result of a commission for a collaborative programme to teach qualified staff to become 'change agents' in dementia care.

In 2010, the Scottish government gave NHS Education Scotland funding to create this programme, which is delivered by University of the West of Scotland (UWS) and Alzheimer Scotland.

Since the inception of the programme, there are over 800 Dementia Champions working to improve dementia care across Scotland. These are health and social care professionals who work with people living with dementia and have completed the eight-month UWS-led programme.

The programme has had a transformational impact on the knowledge and skills of the participants and was praised by the Mental Welfare Commission for Scotland.





UNIVERSITY OF STIRLING

Helping to change the law on tobacco advertising

The Institute of Social Marketing at the University of Stirling has conducted research which examines the impact of marketing on the nation's health.

Through this research, it has provided important evidence to guide policy and legislation, improving the health of current and future generations.

Its research played a key role in the UK and Scottish governments' decision to change the law to state that all packaging for tobacco products must have a standard colour, shape and font.

This change in law is designed to cut the number of smokers and deter non-smokers – particularly young people – from taking up smoking. The Department of Health estimates that this policy will have a net benefit to government of £25 billion, 10 years post-implementation.



THEMES

HEALTH

ABERTAY UNIVERSITY

The first degree in video gaming

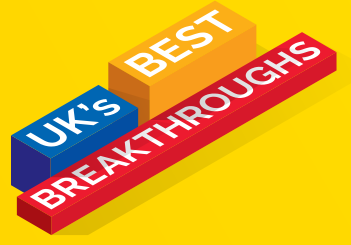
Abertay University was the first university in the world to introduce degree programmes in video games. It did this back in 1994, following discussions with the nascent games industry. It has gone on to produce thousands of games graduates who now work or own video games companies internationally. One of its first games alumni was Dave Jones, founder of DMA Design, who went on to create the video game Lemmings and the very first version of Grand Theft Auto.

The games industry is worth more than the music and film industries combined, so the economic and cultural worth of this sector is not to be dismissed.





University
of Dundee



UNIVERSITY OF DUNDEE

Pioneering research leading to flat screen television

Every time you look at your smartphone or your flat screen television you are seeing the work of academics at the University of Dundee.

The technology that made the ubiquitous LCD screen possible can be traced back to a former jute shed at the university, which in the 70s and 80s became the world centre for pioneering research in electronics. The research was led by Professors Walter Spear and Peter LeComber who were fascinated by the potential of materials like solidified rare gases to act as conductors for electrical charge and their attention was drawn to thin film amorphous silicon.

Together with their students, they developed new techniques that were summarised in a breakthrough scientific paper in 1975, where they demonstrated that dramatic changes in conductivity were possible.

They followed that with another world first when the amorphous silicon thin film transistor was announced. This was demonstrated in the active matrix liquid crystal display made jointly at RSRE (the Royal Signals and Radar Establishment) in Malvern. This device is found in virtually every notebook display and mobile phone screen in the world and forms the basis of the multi-billion dollar market in flat panel displays.



THEMES

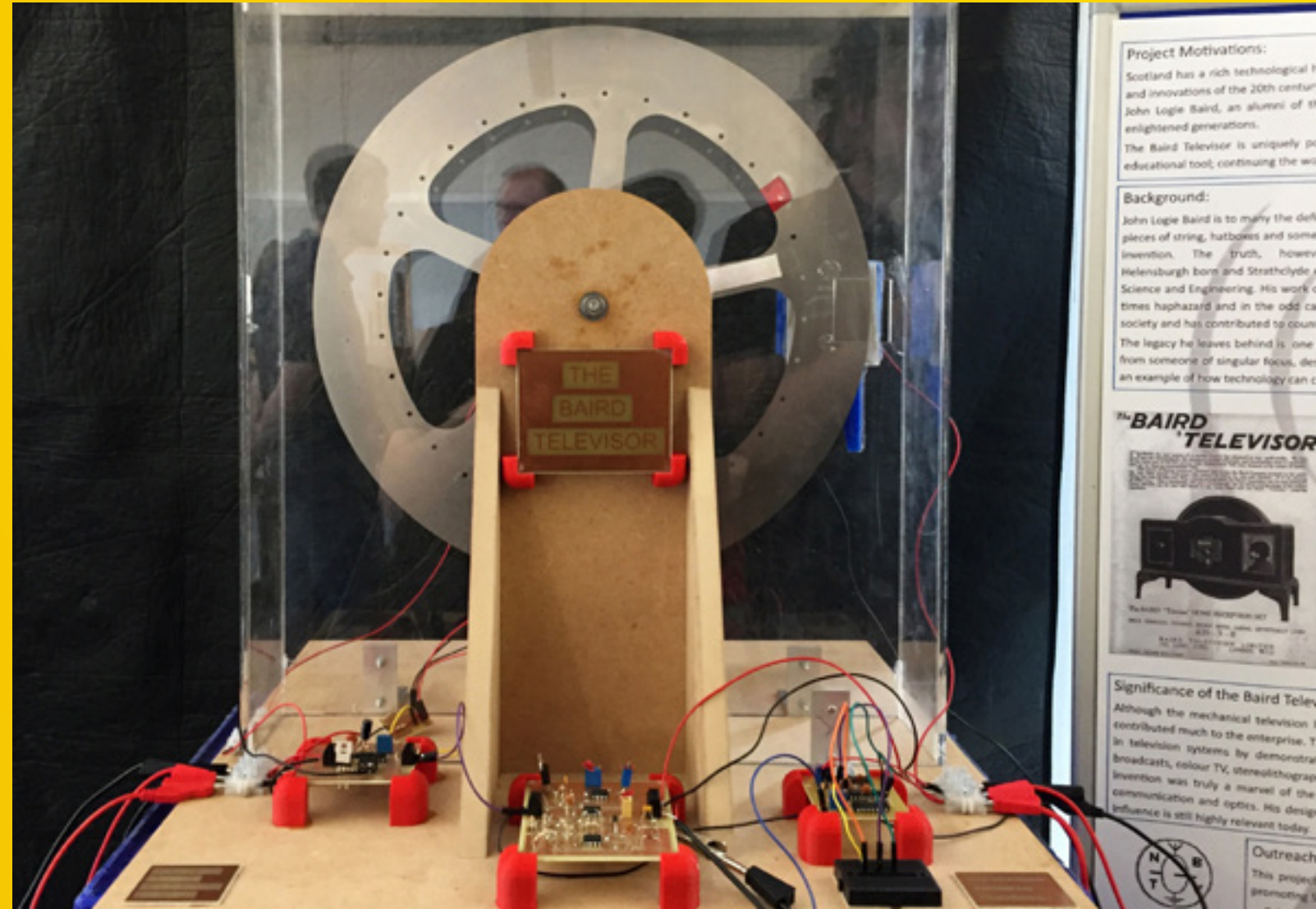
TECHNOLOGY

UNIVERSITY OF STRATHCLYDE

The invention of television

Television was the technological achievement of John Logie Baird, alumnus of Strathclyde University's precursor, the Royal Technical College, where he studied for a Diploma in Electrical Engineering.

His early experiments led to the broadcast of a static image in 1924, which gained international fame after its screening in 1926. By 1928, Baird Television Company Ltd had made the first transatlantic television transmission – from London to New York – and produced the first broadcast for the BBC.



UNIVERSITY OF ST ANDREWS

Protecting Scotland's oceans

The Scottish Oceans Institute has brought together over 300 staff from across the University of St Andrews to promote interdisciplinary marine research, ensuring Scotland remains at the forefront of marine science.

Seeing the oceans as a rich resource for future human life, the collaboration has identified a marine invertebrate which can regenerate major body parts, which may unlock new understandings of regenerative medicine and stem cell research.

They have improved fish welfare and reduced the number of porpoise being accidentally caught by 90% around the UK coast.

This work was awarded the Queen's Anniversary prize in 2011 for excellence in research supporting better governance of the ocean and improved monitoring of climate change.



HERIOT-WATT UNIVERSITY

Revolutionising help for the homeless

Heriot-Watt University's Institute for Social Policy, Housing, Equalities Research (I-SPHERE) uses global research to drive change for people affected by extreme disadvantage. I-SPHERE's state-of-the-nation Homelessness Monitor provides an authoritative analysis of the homelessness impacts of economic and policy developments for each of the four UK countries.

Conceived by Professor Suzanne Fitzpatrick in collaboration with homeless charity Crisis, it has been pivotal in pioneering new homelessness prevention legislation (Homelessness Reduction Act 2017), securing an overhaul of official homelessness statistics in England, inspiring an Australian Homelessness Monitor and driving local authority homelessness strategies.



GLASGOW CALEDONIAN UNIVERSITY

Changing children's future aspirations

The Caledonian Club is an initiative designed to widen access, which was established in 2008 by Glasgow Caledonian University to support and raise educational aspirations. It has enabled young people in five communities across Glasgow to develop life skills and build their confidence.

These communities serve largely deprived neighbourhoods, which were identified as having particularly low progression rates to further and higher education.

The club now operates in London with another one planned to open in New York. In the academic year 2015-16, over 2,300 pupils and over 400 parents directly participated in Caledonian Club activities – 90% expressed an increase in confidence, 92% had a better understanding of university and 68% of pupils reported that they aspired to go to university.



UNIVERSITY OF THE HIGHLANDS AND ISLANDS

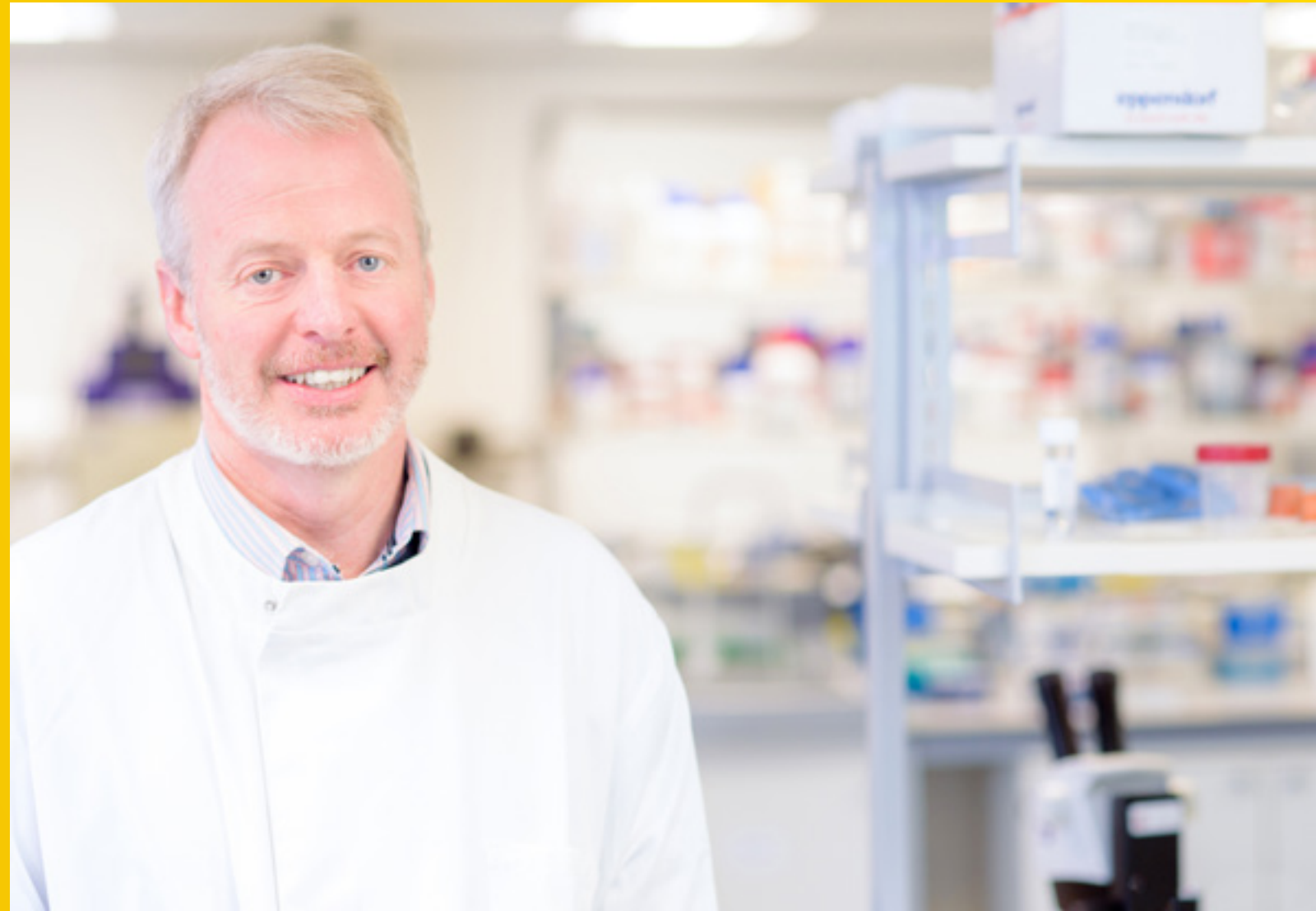
State of the art community access

Using a £9m award from the UK government, the University of the Highlands and Islands will collaborate in a city-region deal to establish commercialisation, academic and clinical capacity to deliver projects in health, social care and life sciences.

A custom-built facility on Inverness campus will operate as a flexible open access unit, supporting interaction between the health service, the academic sector and commercial partners.

Resulting projects will generate new products and services, business start-ups and licensing deals, as well as service quality improvements and new models for clinical delivery for the NHS.

A key focus is to expand the range and scope of the commercial life science sector in the Highlands and Islands, providing the infrastructure and personnel to draw in new investment and create jobs.



THE ROYAL CONSERVATOIRE OF SCOTLAND

First full-time undergraduate degree course for deaf performers in the UK

The BA Performance in British Sign Language and English programme at the Royal Conservatoire of Scotland is the first and only full-time undergraduate degree course for D/deaf performers* in the UK. The first cohort made history when they graduated from the three-year course in 2018.

These highly-employable performing arts pioneers are already making their mark on the professional world and playing their part in changing attitudes and perceptions not only on stage, but also behind the scenes.

*D/deaf students refer to people who are Deaf (sign language users) and deaf (who are hard of hearing but who have English as their first language and may lipread and/or use hearing aids).



QUEEN MARGARET UNIVERSITY

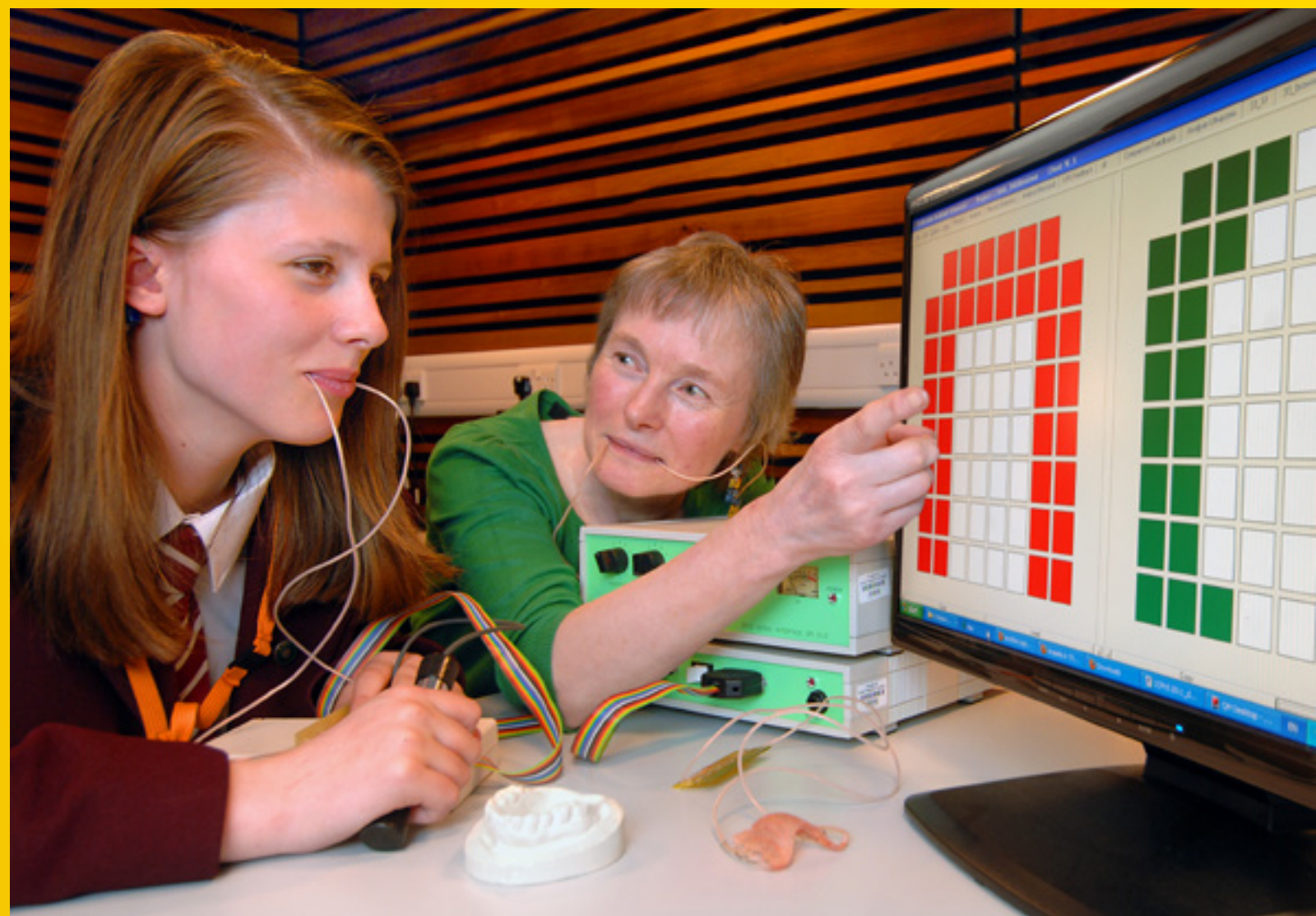
Improving speech therapy

Queen Margaret University's (QMU) pioneering technologies and speech therapy techniques are helping people who have struggled to improve their speech with traditional therapies.

QMU has developed electropalatography which, for the first time, allows users to see the position of the tongue in the mouth during speech. Children respond well to the visual feedback, which is not ordinarily available in speech therapy, and does not rely purely on what the child hears.

The child wears a customised artificial dental palate containing 62 electrodes that detect the child's tongue movement on the roof of the mouth during speech. This allows the therapist to identify more accurately errors in the child's speech.

The therapist wears a customised palate, allowing them to demonstrate the correct patterns to the child on a computer screen. The child looks at these patterns, and then copies the therapist's tongue movements by recreating the pattern themselves.



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ROBERT GORDON UNIVERSITY

Transforming the lives of young people through the power of sport

Tens of thousands of young people in Scotland's North East have had their lives transformed by the power of sport, thanks to Robert Gordon University's Streetsport initiative.

The non-profit programme, delivered by the university and the Denis Law Legacy Trust, works to engage with communities and has helped reduce reports of youth crime, anti-social behaviour and wilful fire-raising by over 80%. Not only do Streetsport's free-of-charge local sport and creative activity sessions empower young people to be confident, but its volunteers support young people in raising their aspirations and employability.

This work towards developing the next generation of active and responsible citizens has been recognised by a number of awards over the years, including a Queen's Award for Voluntary Service and the TSB Community Partner award at the National Pride of Sport Awards.

On his visit to the North East in 2016, Prince Harry also spent time meeting with the Streetsport team, volunteers and dozens of young people who have thrived since being introduced to the programme.



MADE^{AT}UNI

Get in touch

Want to find out more?

**Visit madeatuni.org.uk
or madeatuni@gmail.com**



Press and media support

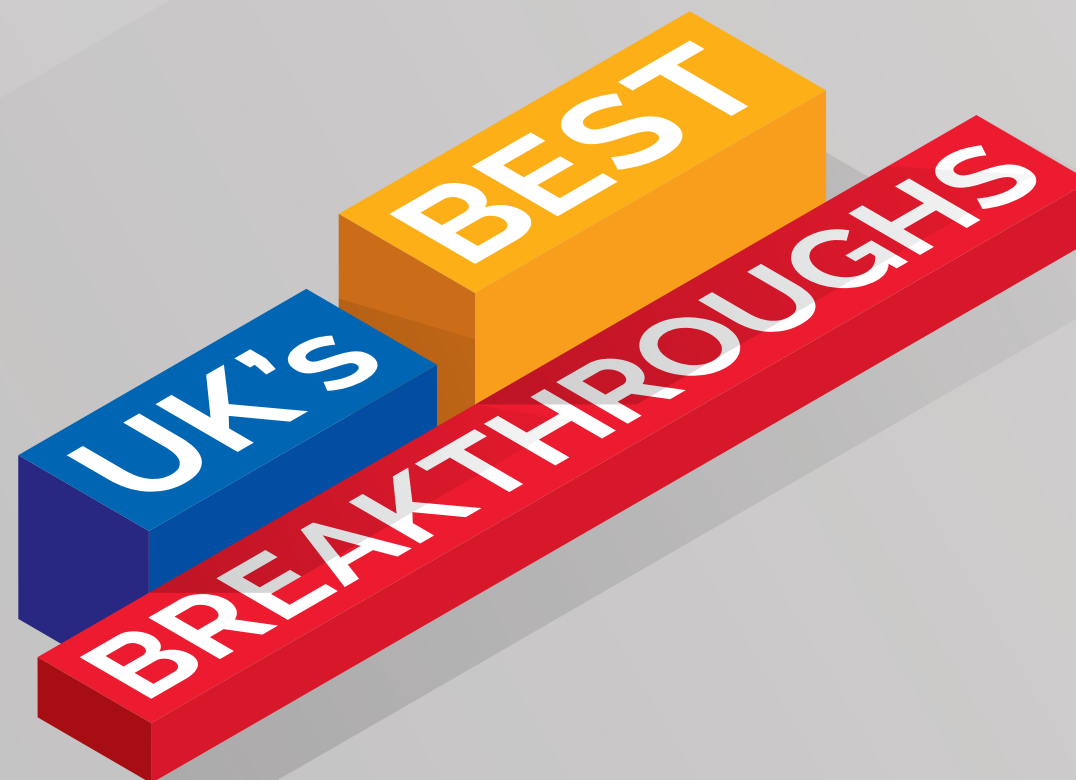
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