

# BA2

THE MAGAZINE FOR ALUMNI AND FRIENDS OF THE UNIVERSITY OF BATH  
ISSUE 33

20

## BRINGING WARMTH TO WAR ZONES

How we're supporting victims of conflict in Gaza and Ukraine

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## INSIDE BATH'S RUGBY MACHINE

A closer look at the trophy-winning programme

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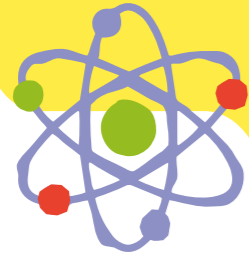
## SIXTY YEARS OF BATH

Looking back at 60 amazing years – one decade at a time



UNIVERSITY OF  
**BATH**

# Welcome



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Welcome to BA2, your alumni magazine. We're thrilled to bring you the latest from our community.

In this issue, find out how our research is making the future more sustainable through palm oil substitutes, hydrogen-powered aviation and retrofitting social housing. Meet our rugby stars and dig deep into why Bath keeps winning trophies and producing world-class athletes. If that's not enough, to mark our 60th anniversary, indulge in some nostalgia as we look back on memories from our incredible history..

We hope you enjoy the issue. Let us know what you think by emailing [advancement@bath.ac.uk](mailto:advancement@bath.ac.uk)

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# On Parade

Highlights from the University of Bath



## Welcome to your alumni magazine

Enough for all, forever. I can't claim to have coined the expression, but it sums up what sustainability means to me.

In these pages, you'll find stories of just some of the sustainability innovations at the University that are moving us closer to making that phrase a reality. Alongside our incredible work in research and education, we are making changes on campus to reduce our environmental impact. Our recent success in the QS Sustainability Ranking recognises our progress, adding to our pride in reaching our highest ever overall position in the global university rankings.

As we approach the end of the academic year, Bath is moving in a positive direction on multiple fronts. This momentum is driven by our new strategy, underpinned by three priorities: Foundations for the Future, Building from our Strengths and Global Excellence with Impact.

Like all universities, we are operating within a challenging environment. We are addressing this by concentrating on fewer priorities and delivering them to a higher standard and with greater impact, an approach that has defined Bath since its founding 60 years ago.

Which brings me on to the University's big birthday; 2026 marks sixty years since the institution's Royal Charter was granted. We are marking the year with a wide range of celebrations, so keep an eye out for details on how you can join in the festivities.

There is much to celebrate, and I would like to thank everyone who has helped shape Bath's first sixty years and beyond.

With all my best wishes,

**Professor Phil Taylor**  
FREng CEng FHEA  
Vice-Chancellor and President



## Our honour

We were thrilled to welcome nine new honorary graduates in our summer and winter graduation ceremonies over the last year.



Among those who received the honour is mega entrepreneur Sunil Bharti Mittal. At just 19, Sunil founded Bharti Enterprises. What followed next was the building of an empire.

One of his greatest achievements is his telecommunications company, Bharti Airtel, which is in the top three mobile operators globally.

The businessman is also known for his philanthropy, having established the Bharti Airtel Foundation to support education and development across rural India. Delivering free, quality education, the foundation's work has helped over 3.7 million children.

Bath is close to Sunil's heart, with his daughter, Eiesha, and son, Shravin, both holding Bath degrees.

Speaking before the event, he said: "This moment is made especially meaningful by the personal connection my family shares with the University."

## Opening a new chapter

Last year saw the launch of our China and India Alumni Chapters: vibrant communities powered by Bath graduates, providing the space to share experiences and celebrate successes.

Members can take part in events, pursue mentorship opportunities and build connections with fellow alumni in their regions.

"Being part of the lifelong University community has brought me so much since I graduated in 2020," says Jai Shah, Chair of the India Chapter. "It's been amazing to connect to those who've shared in that special Bath something."

If you'd like to join your local chapter or are inspired to start something new where you are, we'd love to hear from you at [advancement@bath.ac.uk](mailto:advancement@bath.ac.uk)



## Three degrees of graduation

When Richard Abbott received his Bath diploma in 1966, he never imagined that both his daughter and grandson would follow in his footsteps. For three generations, Bath has been more than just a place of study.

Richard met his wife, Meryl, while studying at the Bristol College of Science and Technology, later the University of Bath. "We met at university, got married, and the rest is history," he says. "We were happily married until Meryl passed in 2019."

Meryl was a pioneer. "She was one of the first graduates of the Dip Tech and went on to have a varied career – first as a scientist, and later as a teacher. She was always prepared to try new things."

Richard's path to Bath wasn't linear. "It came to me really," he says.

During his apprenticeship at Bristol Aeroplane Company, he was one of the high achievers selected to receive further education: "I got told I was going to study for the Dip Tech and off I went."

Years later, daughter Christine studied Pharmacy at Bath, where she met her husband, Adam. "We're from similar areas and had known of each other for years," Adam says, "but it was Bath that brought us together."

That led to the birth of their son, Josh, who last year gained a degree in Civil and Architectural Engineering. He says, "I chose Bath because it was one of the top universities for engineering. Knowing we have that family connection is special. I know to my Gramps it means a lot."

Richard says, "He's matured an awful lot; I'm very proud of him."



## Cleaning up the laundry cycle

Alumnus Navjot Sawhney's groundbreaking invention, the Divya Washing Machine, landed a place on the coveted Time Best Inventions of 2025.

In 2018, Sawhney was volunteering in India with Engineers Without Borders UK when he discovered that his neighbour, Divya, spent up to 20 hours week hand-washing clothes.

Back in Bath, he went on to found The Washing Machine Project to support the 5 billion people worldwide who wash clothes by hand.

"This burden falls disproportionately on women and girls, denying them opportunities to work, study and rest," Sawhney says.

His team created the first flat-pack manual washing machine, 75% faster and using 50% less water than hand-washing, with no electricity required.

Fast forward to 2026, The washing machine has now reached over 46,000 people across 15 countries.



Share your stories with us!

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# TOP 10

Across all UK university guides for 2026

Research

## Global recognition for University's leaders

**Vice-Chancellor and President Professor Phil Taylor has been appointed as an Honorary Professor of Tsinghua University in Beijing, recognising his commitment to research collaboration between the two institutions, and the UK and China more broadly.**

Marcus says: "It's obviously an honour to be recognised in this way, but research is a team sport, and wouldn't be possible without the many academic, technical and professional services colleagues that contribute to any project."

Meanwhile, Professor Marcus Munafò, Provost and Deputy Vice-Chancellor at the University of Bath, has been named on the Clarivate 2025 Highly Cited list for the eighth year running, recognising the global influence of his research.

The award celebrates the researchers whose work is among the top 1% in the world by citations in their field each year.



Professor Marcus Munafò

Community

## New scholarship programme launched

**The University has launched a multimillion-pound global scholarship programme to support high-achieving international students to study at Bath.**

The £9.2 million fund has been set aside to ensure the University is able attract the best students from around the world and is available to up to 300 undergraduate and 250 postgraduate students.

Professor Manuel Barcia, Pro Vice-Chancellor for Global Engagement, says: "These schemes will help the University of Bath to continue to attract a truly diverse and international student body, something which I believe is fundamental to delivering a world-class education, as in my experience students don't just learn from our faculty, they also learn from each other."

"This multimillion-pound global scholarship fund reinforces Bath's commitment to fostering cross-cultural exchange which is essential preparation for our graduates who go on to enjoy excellent employability prospects."



Research

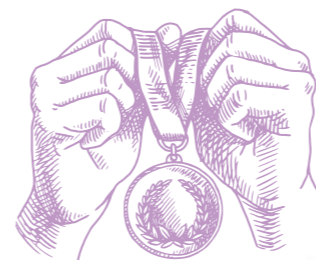
## Major award for team behind lifesaving tech

**A revolutionary handheld device that helps save lives by instantly detecting dangerous synthetic drugs has won its creators a prestigious Royal Society of Chemistry Horizon Prize.**

The device is the brainchild of Bath alumnus Professor Chris Pudney from the University's Department of Life Sciences and was developed by team 'Harm Reduction'.

The portable technology identifies lethal synthetic substances – such as the street drug spice – within seconds, enabling police and prison officers to issue immediate warnings to protect vulnerable drug users from potentially fatal substances.

Devices are already being deployed across UK police forces and prisons, where staff use them to rapidly identify dangerous drugs and alert communities about life-threatening substances circulating locally.



# SPORT UNIVERSITY OF THE YEAR 2026

The University was given the accolade by The Times and The Sunday Times Good University Guide

Community

## Bath MBA in top 100 worldwide



**The University of Bath School of Management has been ranked in the Top 100 business schools in the world in the Financial Times MBA Rankings 2026, one of the most respected international benchmarks for MBA education.**

This places the Bath MBA among programmes recognised globally for developing leaders who drive meaningful change in business and society.

Professor Steve Brammer, Dean of the School of Management, says: "We are proud of what this ranking represents for our community and excited about the continued impact our graduates will have on people, teams and organisations in the years ahead."

Community

## Global rankings success

**During this academic year, the University has seen widespread success across several areas of the QS rankings.**

Seven Bath subjects were ranked in the top 100 worldwide with Business & Management Studies (=82nd) returning to the tier alongside Psychology (=57th), Architecture, Social Policy & Administration, and Marketing, while Sports (13th) and Development Studies (=31st) reached the top 50.

The University was named 56th in the 2026 QS Global Sustainability Rankings, climbing 71 places since last year, and is now ranked 19th in the UK, reflecting Bath's growing reputation and influence as a global leader in sustainability.

Research

## In a nutshell

**How can we help convince people to give their carbon footprint a much-needed trim?**

Funny you should ask, there's a new tactic currently being sharpened to help with this. Hairdressers are famously chatty, so researchers wondered if they could be a powerful tool in influencing.

**Interesting... so you mean they could keep their ice caps frozen while topping up the frosted tips?**

That's right! It's about recognising influence where we don't usually expect it – they're called 'everyday climate influencers'. Hairdressers have a unique opportunity to engage people in climate conversations.

**That idea sounds a cut above – how does it work?**

Hair stylists are trusted people who create safe spaces for discussion and are skilled at 'reading' their clients. In the study, stickers with eco-tips were placed on salon mirrors to prompt conversations around sustainability.

While the setting off point was often around sustainable haircare and the salon's approaches, because hairdressers are very good at weaving in narrative, they often moved on to bigger topics such as transport, food and extreme weather.

**This is great – but how do we make this work more perm-anent?**

Hairdressers are a prime example of 'everyday influencers', and yielding their power – not just relying on politicians and celebrities – to build public consensus is an under-utilised strategy which demands new approaches to climate policy.

According to Sam Hampton, one of the academics leading on the research, "there is lots of potential to expand this research with everyday influencers. Other groups we want to target are nurses, midwives, sports coaches, teachers and taxi drivers. We'll have a PhD student starting this September who will take the next steps in this work."

Net zero – just a trim off the top?





Research



## University celebrates full CERN membership

The University of Bath has been welcomed as a full member of the Compact Muon Solenoid (CMS) experiment at CERN, the world's largest particle physics laboratory, strengthening our commitment to global research.

The CMS experiment is actively searching for dark matter, exotic particles and extra dimensions, while studying the Higgs boson and Standard Model particles.

It is one of the largest international scientific collaborations in history, involving more than 6,100 scientists from 256 institutions in 59 countries.



Research

## Buzzwords

What our researchers are talking about

### Lab on a chip

These tiny devices concentrate the efficiency of an entire laboratory onto a minuscule chip. They've been used by Bath scientists to create cutting-edge devices, like the LoCKamp COVID test.

### Trophy spouse

Research from the School of Management shows that the 'trophy spouse' phenomenon continues into marriage, seeing husbands and wives trading money and status with attractiveness.

### Bioelectronics

Bath researchers are creating health monitors and medical devices that run on the body's natural sugars. The GLUTRONICS project aims to revolutionise implantable medical devices – like pacemakers and diabetes monitors – by harnessing energy contained in blood glucose. Read more on page 18.

### Dread

Fear of future losses far outweighs excitement over gains, a study has shown. Anticipatory dread fuels impatience and risk avoidance, which influence choices in finance, careers, health and everyday decision-making.

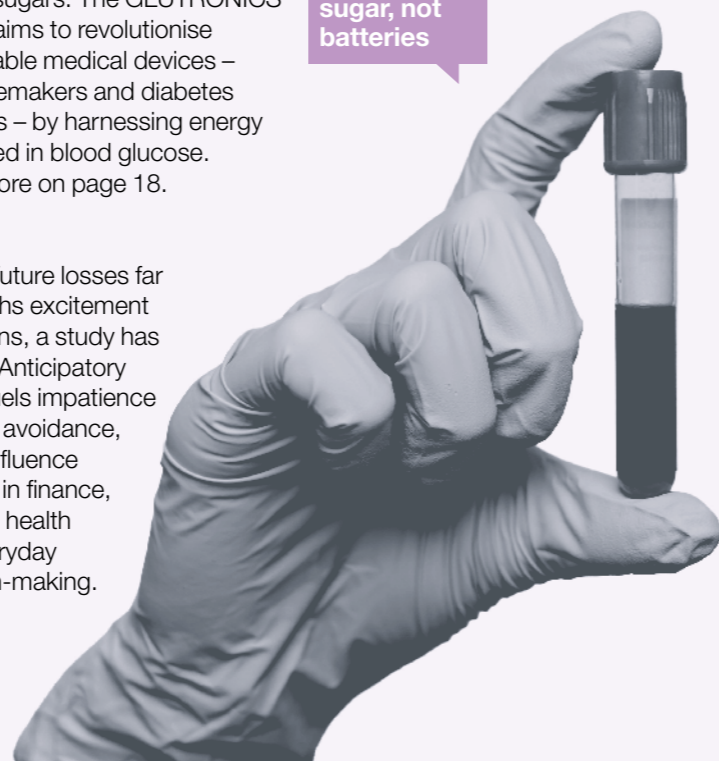
### Cost per wear

Bath research shows that labelling clothes with cost per wear helps consumers spot the true price of fast fashion, resulting in shoppers investing in durable, high-quality garments and reducing overconsumption.

### Ferroelectricity

Researchers have developed a new way of 3D printing to create infection-fighting materials which generate ferroelectricity, a characteristic of certain materials which has the power to selectively eradicate bacteria. The breakthrough has the potential to make medical implants safer for patients. Read more on page 19.

Powered by sugar, not batteries



On Parade

# 5 things about Sharon Flood

Sharon Flood says her life has been packed with full-circle moments. Maybe the most significant is being back at the University of Bath. She arrived in 1984 as a first-generation student studying Mathematics and left with a sense that her life had changed forever. Now, as Chair of Council, she's thinking seriously about the next 60 years.



01

**Bath still feels like home**

Sharon is clear about what coming to Bath meant. "This place changed my life. I would never have had these opportunities if I hadn't come to university." As the first in her family to pursue higher education, the decision carried weight – and Bath delivered. "Everybody you meet who's been here recognises it's just something quite special." She and her husband – also a Bath alum – recently celebrated their 60th birthdays in Bath with over 100 friends in tow. "Walking through the centre was like being a student again." The city, she says, has never stopped feeling like home.



02

**She once snuck into lectures she had no business attending**

Sharon found it difficult to choose between her love of humanities and maths. The latter won, but that didn't stop her from pursuing other interests. She admits she used to sneak into European Studies lectures to improve her French. It is the kind of example that says everything about her approach to learning. "If you come from somewhere where these things aren't available to you, you see the opportunities and just want to take them." That habit paid off in ways she never imagined. She studied her MBA at Paris-based INSEAD and now serves on the board of Getlink, the French company behind the Channel Tunnel.



03

**She has a clear vision for Bath's next 60 years**

Her leadership philosophy comes down to two things: being forward thinking and people centred. "A strategic vision where you don't take people with you is worth nothing." She credits her time at John Lewis for solidifying this thinking – the idea that looking after your people, who in turn look after your customers, creates a virtuous circle. As Chair of Council, Sharon wants Bath to stay true to what has always made it distinctive, while being ambitious about what comes next. She talks about Bath's potential to become a UK MIT – technically rooted, research-led, with humanities strengthened by scientific heritage. "Bath is really good at knowing what it's brilliant at – and then trying to do more of that."



04

**Widening participation is a personal passion**

For Sharon, widening participation is not just a policy priority, it's something she and her husband have backed as long-standing donors.

They initially funded a scholarship for women in STEM before becoming supporters of Bath's Gold Scholarship Programme. Their donations help give students from less privileged backgrounds not just financial support, but mentoring, networking and the kind of social capital that some take for granted. "I know the advantages we have been able to give our children. Gold does a really good job of trying to fill those gaps."



05

**She refuses to make the coffee, and you should too**

Ask Sharon Flood what she would tell a woman aspiring to reach the top of her field, and the answer comes without hesitation: never make the coffee. She delivers the answer with wit, but the point holds weight. In rooms where assumptions about gender linger, small signals matter. Her broader advice follows the same logic: cultivate a growth mindset, keep learning, look after yourself when things get hard, and don't let difficult experiences stop you. "For me," she says, "resilience has been key."



Community



## Bath's big birthday



Sixty years ago, in 1966, the Bath University of Technology was granted university status by Royal Charter and our first students and staff began using the campus, becoming the University of Bath five years later.

Since then, more than 150,000 students have graduated from the University, coming to Bath from more than 170 countries. The university has grown in size, influence and reputation, while maintaining its founding principles of collaboration and deep connection with industry.

We've got a lot planned to mark the occasion, so to keep up to date with the celebrations, head to [bit.ly/Bath60th](https://bit.ly/Bath60th).

To tuck in to some Bath nostalgia right now, turn to page 30 to look back on 60 years of milestones – you might even spot a familiar face or two.

We're always keen to hear your alumni stories, but if you've got one that you think is particularly relevant in this anniversary year, then please get in touch at [advancement@bath.ac.uk](mailto:advancement@bath.ac.uk)

Community

## Alumna back in low Earth orbit

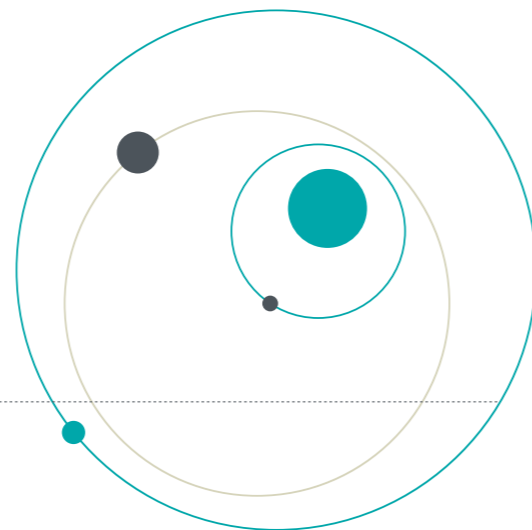
Anne McClain (MPhil Aerospace Engineering 2004) was selected as commander for the SpaceX Crew-10 mission to the International Space Station (ISS) which saw her return to low Earth orbit for a second time.

She spent five months aboard the ISS, leading a team of four astronauts from the US, Japan and Russia which carried out multiple experiments including tests of human biology in space, lunar navigation and fire safety.

"The ISS is an orbiting laboratory where we can work with universities and research labs across the world to develop things that can benefit us on Earth," she says.

"On the ISS you have moments where you realise that we are operating at the edge of what humans are capable of and that's such a special moment – it's that intersection of the magical and the technical.

"I can look across the amazing beauty of the Earth but I can see also this amazing creation, the ISS, which doesn't belong to me or to NASA anymore that it belongs to every single human on earth; it's a beacon of hope for all of humankind so that people can look and say this is what we can accomplish when we work together."



On Parade



Is that a bird!?



Community

## Deafblind alumna aiming for Everest first

Alumna Karolina Pakėnaitė (PhD Computing 2025) has been dreaming of becoming the first deafblind person to summit the highest mountain on Earth ever since a chance encounter on the Himalayan peak in 2023.

"I was on a trek to Everest base camp when I met a group attempting to be the first deaf people to climb the mountain. I thought the hike would be the biggest thing I would ever do, but I realised then that no deafblind person had ever summited and it made me think 'what if?'," she says.

"That question never left me, and I felt that if I were to summit it could bring awareness about my condition and the spectrum of blindness."

Karolina, 29, was born deaf, and was diagnosed with Usher syndrome, a rare genetic disorder causing progressive sight and hearing loss, at the age of 19.

This mission has been her motivation and now, two Himalayan mountains and many hours of training later, she is raising funds to support her Everest attempt next year. She has had help along the way from the Bath Alumni Fund to join the University mountaineering club and to support her journey.

This money helped Karolina make attempts at Mera Peak (6476m) and Himlung Himal (7126m) – essential preparation for the challenge she will face on the world's highest mountain.

"I like to think that me being deafblind makes me a better mountaineer. I am forced to move slowly as I have to plan each step carefully and I can't focus on the summit because of my restricted vision – both important skills when climbing at high altitude," she says.

You can follow her journey at [instagram.com/deafblindeverestproject](https://www.instagram.com/deafblindeverestproject)



Community

## Sky-high scrum

Alumnus, ex-Bath Rugby player and long-time supporter of the University, Iestyn Lewis (BSc Building & Civil Engineering 1995), has leapt from an airplane at 24,000 feet – just below the summit of Mount Everest – while clutching a rugby ball.

The skydive, which saw him fall through the air at 180mph facing temperatures of -30C, raised money for Bath Rugby Foundation that will help support vulnerable and disadvantaged children in Somerset.

Pulling in more than £24,000, Iestyn described the stunt as "the most frightening but exhilarating moment of my life."

"Initially I lost my bearings, but once I'd settled into the experience, I was able to witness the most amazing views and enjoy the thrill that not many people can say they've had," he says.



# Powering progress

How Bath research and industry collaboration is shaping a sustainable future

Words by Tom Dale

The Earth's climate is in crisis. The decade from 2016 to 2025 was the hottest on record and marked by extreme weather that caused widespread disruption and devastation, exposing the vulnerability of our interconnected global systems.

We are in the midst of an existential threat to our way of life that demands action, and as a university, we are uniquely positioned to act. Bath is taking this responsibility seriously.

Interdisciplinary research on campus and collaboration with industry is embedding a whole-system approach to tackling the most polluting areas of our lives: food, transport, construction and power.

Bath innovation is changing the way we power transport, growing more efficient and secure food systems, cutting the carbon emissions of the built environment and transforming the national grid in preparation for green energy.

## Food for the future

For Professor Chris Chuck from the University's Department of Chemical Engineering, the future of food isn't a lab-based hypothetical, it's something he is building now.

"Research that started at Bath has generated spinouts and is doing important work across the whole spectrum of food production," he says. "And it's already having impact."

Palm oil is everywhere, showing up in close to 50% of products on supermarket shelves, from foods to cosmetics. Its farming, however, is a major driver of deforestation, habitat destruction and the release of millions of tonnes of greenhouse gases.

Bath research has developed an alternative. Years of trial and error and lab-based accelerated evolution led to a yeast strain that can be fed on food waste to produce a 'clean' palm oil alternative.

This research has spun out a start-up – Clean Food Group, co-founded by Chris – that has recently moved into new premises to scale-up production.

"We're now by far the biggest yeast oil producer in the world," says Chris. "It's gone from a lab project 10 years ago to an exciting startup in 2022, to actual commercial reality in the last six months."

Clean Food Group's new setup has the potential to produce up to 5,000 tonnes a year and has a range of products which match the uses of palm oil.

Another of food's most prominent polluters is beef farming. But now, research led by Chris is cutting out the cow and creating protein directly from grass.

"It's a phenomenal crop. Climate-resistant, flood-resistant, and there's enough of it available at any one time in the UK to basically feed the whole country's protein requirements," he says. "And cows are actually quite inefficient at converting grass protein to meat."

"There's enough of it to feed the whole country"

Entrepreneur and environmentalist Dale Vince heard of the concept, invited Chuck to his office and has since been co-funding the work with the UK Government.

The team now operates a food-safe pilot facility in Bath, where they process grass, extract protein, and experiment with turning it into food products, including grass burgers.

For Chris, it represents a crisis-proof protein source available to almost the entire world. "It's maybe just the Western Sahara that it wouldn't work for."

The team of researchers is now working with the European Food Standards Agency to assess the product, while the core protein, rubisco, has been cleared for human consumption by the US food standards agency.

Chris doesn't see it directly replacing meat, but it does represent a fallback option for food security.

"People love meat – that's not going to change – but if with climate change we see prices spiralling, it means we have a protein source at our fingertips from a reliable crop that can be grown almost anywhere," he says.

Another Bath innovation that could boost UK food security is a coating for greenhouses that optimises light wavelengths for plant growth.

Due to the UK's short growing season, we rely on European imports for most of our fruit and vegetables.

Now Bath researchers, working with commercial partner Lambda Agri and colleagues at University of Cambridge, have developed a spray coating for greenhouses that could help British farmers to produce more crops in the future using the same or less energy.

Coating the glass like a varnish, it absorbs blue light from the sun's rays and converts it to red light, increasing the energy that can be used by the plants and therefore the crop yield.

"It's similar to when you go to a night club and your gin and tonic glows under the UV light – compounds in the tonic absorb UV and re-emit it as visible light," says Professor Petra Cameron, from the Institute of Sustainability and Climate Change.

"Our coating boosts red light by up to 90%, making photosynthesis more efficient. In field trials we've seen a 9% increase in crop yield, and it could even make fruit sweeter by boosting the sugar content."



## Molecular momentum

Transport is the UK's largest emitting sector, and while a clear path forward for cars and other vehicles is present through electrification and behaviour change, air travel is more complicated.

Professor Lorraine Whitmarsh of the University's Department of Psychology and Director of the Centre for Climate Change and Social Transformations (CAST) says that while it is easier to influence public behaviour on other forms of transport, cheap air travel presents a much bigger challenge.

"People have got so used to it, it's almost a right," she says. "It's the single most challenging area for behaviour change, so we need a technological fix."

With the country working hard to meet its legally binding Net Zero target by 2050, hydrogen has emerged as a focus for decarbonising aviation.

And Bath's researchers are playing a pivotal role in facilitating this transition, with expertise spanning renewable hydrogen production, storage, and its use in powering flight.

IAAPS, a University of Bath institute focussing on propulsion systems research and innovation, is home to the South West's first green hydrogen production plant, powered by solar panels on the centre's roof.

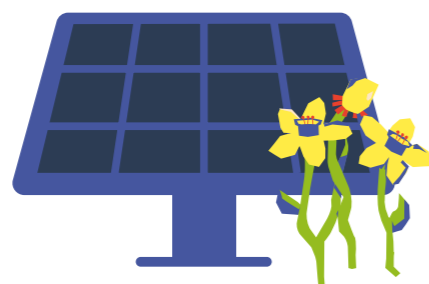
At IAAPS, Director Professor Chris Brace and colleagues work in partnership with industry – collaborating with more than 200 commercial partners – to move the transport sector to more sustainable options, and hydrogen-powered flight is a focus.

"Working closely with industry gives us a fantastic opportunity to influence change from the inside," says Chris. "It means we can work directly with partners to ask: what do you need to solve your most pressing problems? We begin with the real-world challenge, and if innovation alone can't get us there, we identify the fundamental research required to unlock progress."

Brace and IAAPS engineers are investigating both key routes to hydrogen propulsion – direct combustion and fuel cell technology, in which hydrogen is used to generate electricity.



"We can see the horizon, but there's a lot of work to get there"



IAAPS is working with some of the biggest companies in aviation to advance hydrogen-powered flight, testing and refining internal hydrogen combustion and fuel cell propulsion systems and their associated cryogenic cooling systems.

One of the main challenges, says Chris, is how to store the fuel. Hydrogen contains much more energy per kilogram than fossil fuels, but being the lightest element in the universe, the issue is energy density.

"You can compress it or liquefy it – both of which are energy intensive and present engineering challenges. In other words, it's very hard. But there is a third way," he says.

Fortunately, Bath researchers lead not only IAAPS, but UK-HyRES, a national research hub investigating the more fundamental problems of hydrogen across the entire value chain, and Chris is director of both.

Professor Mi Tian, Deputy Head of the Department of Chemical Engineering and co-director of UK-HyRES, is a leading researcher in solid-state hydrogen storage.

Her innovative research has developed a near-room-temperature hydrogen storage system, representing a step change toward making hydrogen a viable and scalable clean energy carrier for the future.

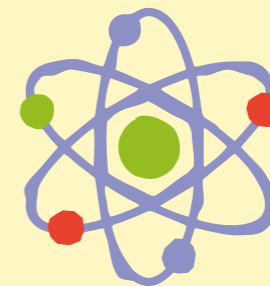
The technology binds hydrogen with solid materials temporarily inside the structures either chemically or physically, ready to be released when needed as fuel.

"I'm proud to contribute through to this vital work, helping build a connected hydrogen ecosystem," she says. "Hydrogen is a systems challenge, and it's exciting to see Bath at the forefront."

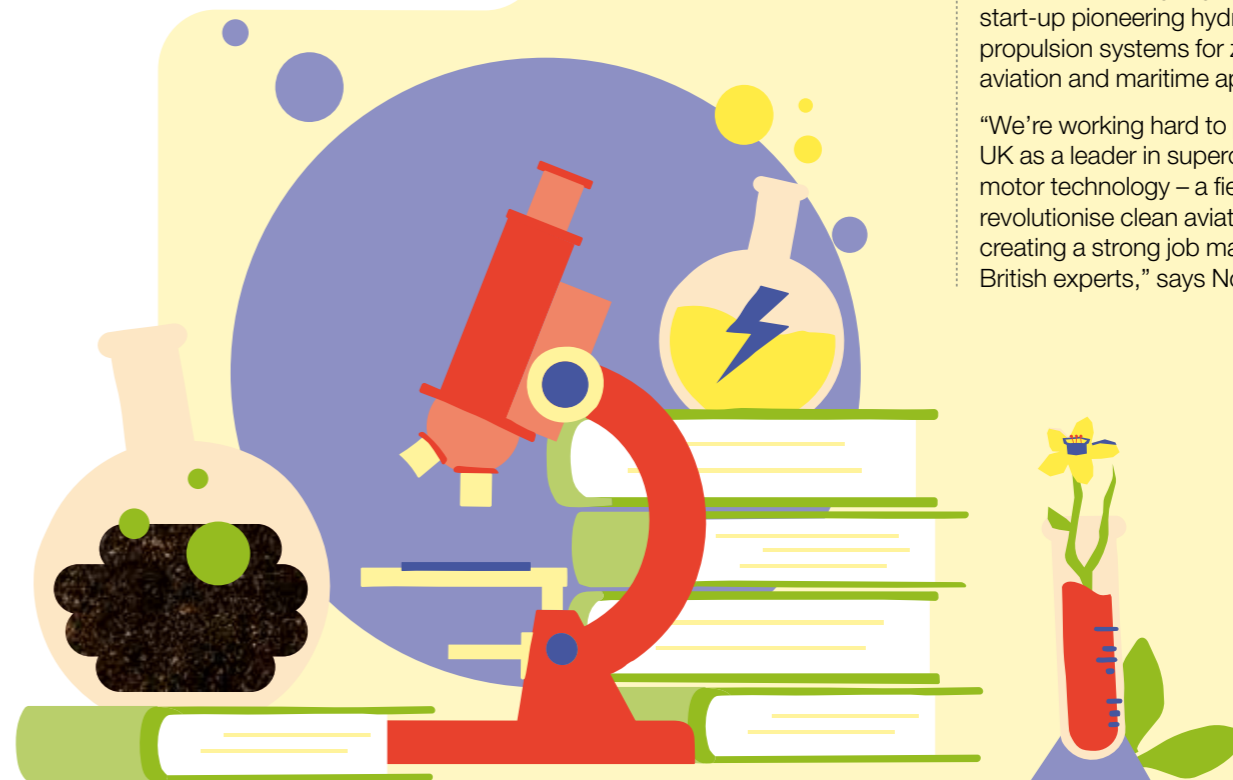
These technologies are not limited to air travel, and can be used across marine, haulage and other hard-to-decarbonise sectors. However, a sea change across infrastructure and public opinion is needed before these technologies are adopted.

"UK-HyRES is working on that, too," says Chris. "How you make it, how you move it and store it, what public acceptance looks like, what the commercial environment looks like. We can see the horizon, but there's a lot of work needed to get there."

Now, UK-HyRES is preparing to commission a purpose-built lab on the IAAPS site, funded by the West of England Mayoral Combined Authority, to accelerate the integration of both centres' innovations, moving zero-carbon transport one step closer.



"We're working hard to revolutionise clean aviation"



## Alumni impact

Alongside this, Bath alumni are working to bring hydrogen technologies to market.

Two Bath grads are working together on technology that can efficiently transform organic matter – such as agricultural, food or plastic waste – into hydrogen, biomethane, CO<sub>2</sub> and biochar: a soil enhancement.

Working at Equisera, founder James Milner (BEng Electrical & Electronic Engineering 1992) and Junior Chemical Engineer George Gooderham (BEng Chemical Engineering 2025) are developing a commercially available Rising Pressure Reformer (RiPR).

"The technology uses supercritical water – water heated and pressurised past its critical point – where it acts like a powerful solvent. In this state, it can dissolve and break down complex organic molecules," says James.

The units could soon be available for use on farms or waste processing plants for example, powering the vehicles of the future or heating homes with waste.

Meanwhile, co-founders Paul Perrera (Aeronautical Engineering 1995 and MBA 2021) and Noora Alfaez (MBA 2021) are working together at HyFlux, a start-up pioneering hydrogen-electric propulsion systems for zero-emission aviation and maritime applications.

"We're working hard to position the UK as a leader in superconducting motor technology – a field that can revolutionise clean aviation – while creating a strong job market for British experts," says Noora.

## Building tomorrow

Buildings account for 31% of global CO<sub>2</sub> emissions. About half of these emissions come from the energy used to operate homes, such as heating and electricity, while 18% come from embodied carbon – those associated with materials and construction throughout the building's life cycle.

The UK has an urgent need for housing – with government targets of 300,000 new homes a year – and yet is bound by zero-carbon targets, so new approaches are needed.

David Coley, Professor of Low Carbon Design in the Department of Architecture and Civil Engineering has found that if business-as-usual construction methods were used, the entire carbon budget allotted to housing until 2050's net-zero goal would be exhausted by 2036.

However, new research authored by David reveals that, by using factory-built modular buildings that adhere to the Passivhaus standard – a building standard achieving ultra low energy use – hitting this target is still possible.

These timber framed homes use dramatically less energy, generate much of it on site through solar power and carry far lower embodied emissions than conventional builds.

Better still, installing solar panels on the homes could tip them into carbon-negative territory over their lifespan.

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Our tool allows  
designers to maximise  
sustainability  
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While new approaches are vital for decarbonising the future of construction, the need for more energy-efficient buildings extends beyond new builds, and nowhere is this more critical than in homes.

In the UK, around 1.1 million council-built low-rise houses constructed between 1920 and 1940 are still in use today. These now fall well behind energy efficiency standards and are unsuitable for modern living.

To address this, the University of Bath is leading on a project to find insulation solutions using bio-based and non-extractive materials, together with renewable energy supply and storage, that can be used to retrofit social housing to make it fit for future generations.

And Bath is not just looking outward in its approach to creating more efficient buildings. The University plans to build eight new blocks of student accommodation on our Claverton Down campus which would adhere to the strict Passivhaus standard.

Known as Residential 7, the development will house 926 students in buildings that require little-to-no heating year-round by using high-quality insulation and glazing, airtight construction and heat recovery ventilation.

Sustainability was central to this project from its inception. And, according to David, this is the critical point to make carbon-cutting interventions, ensuring designs are as sustainable as possible.

“Currently, at that stage, architects often lack the level of detail they need to analyse the materials and construction processes involved in the final build,” he says.

The tools currently used require precise material breakdowns, accurate quantities and specialist engineering knowledge, which are all determined later in the process.

So, Bath researchers have developed the first AI tool that predicts the carbon footprint of buildings from simple text descriptions, giving architects immediate feedback.

“Our tool allows designers to quickly assess and refine their plans to maximise sustainability long before formal specifications are locked in,” David says.

## Grid upgrade

As of 2025, new homes in the UK cannot be built with gas boilers and by 2035, all new cars and vans sold in the UK must be fully zero emission.

These shifts to electrify our daily lives will put an unprecedented strain on the nation's outdated power grid.

“Until very recently, our energy system has been very centralised – with a few hundred large power stations, dominated by coal, gas and nuclear,” says Professor Furong Li, a world-leading expert in electricity power networks based in the University's Department of Electronic & Electrical Engineering.

“This energy is passively supplied, assuming individuals have very little ability to shift their demand. This rigid model makes it difficult to rely on home-grown clean energy.”

Furong's work is moving the network to a 'smart' system to better predict energy usage patterns, supplying more power when it is required. This is crucial if we are to move to a more decentralised, renewable energy system.

Critical to this is the 'last mile', the part of the national grid that supplies our homes from a network of one million small substations.

Furong has been working with the National Grid to carry out the largest smart-grid innovation project and the research generated a model which accurately forecasts electricity usage.

The resulting programme, covering 7.9 million customers, generated annual savings of £116 million for customers and saved approximately 575,000 tons of CO<sub>2</sub> emissions every year.

Now, Furong has been awarded a prestigious Research Chair position by the Royal Academy of Engineering.

In this role, she will develop a 'whole energy system' model for the UK's power networks, improving access to open data, models and evidence to help drive decarbonisation in the sector.

“Moving to a demand-driven decarbonisation model is crucial if the UK is to achieve its Clean Power 2030 and Net Zero 2050 commitments,” she says. “Our research is helping us transition to a new, more agile and flexible model fit for rapidly changing low carbon systems.”

## Systems approach

It's not just these practical, technological fixes that Bath is focused on. The University has interdisciplinarity built into its DNA, and that shines through in our whole-system approach to tackling the climate crisis.

“The original campus was built around the Parade so academics would mingle,” says Professor Marcelle McManus, Director of the Sustainable Energy Systems Research Centre.

“They wanted to design interdisciplinarity into the architecture of the campus. And that ethos has really stayed at Bath. We've been designed to see the bigger picture.”

Marcelle – who was recently recognised as one of the UK's most influential leaders in the journey to net zero – works on whole-systems approaches to tackling climate change, focusing on life-cycle assessments. And she has investigated many of the areas discussed here, from alternative protein sources to hydrogen fuel production.

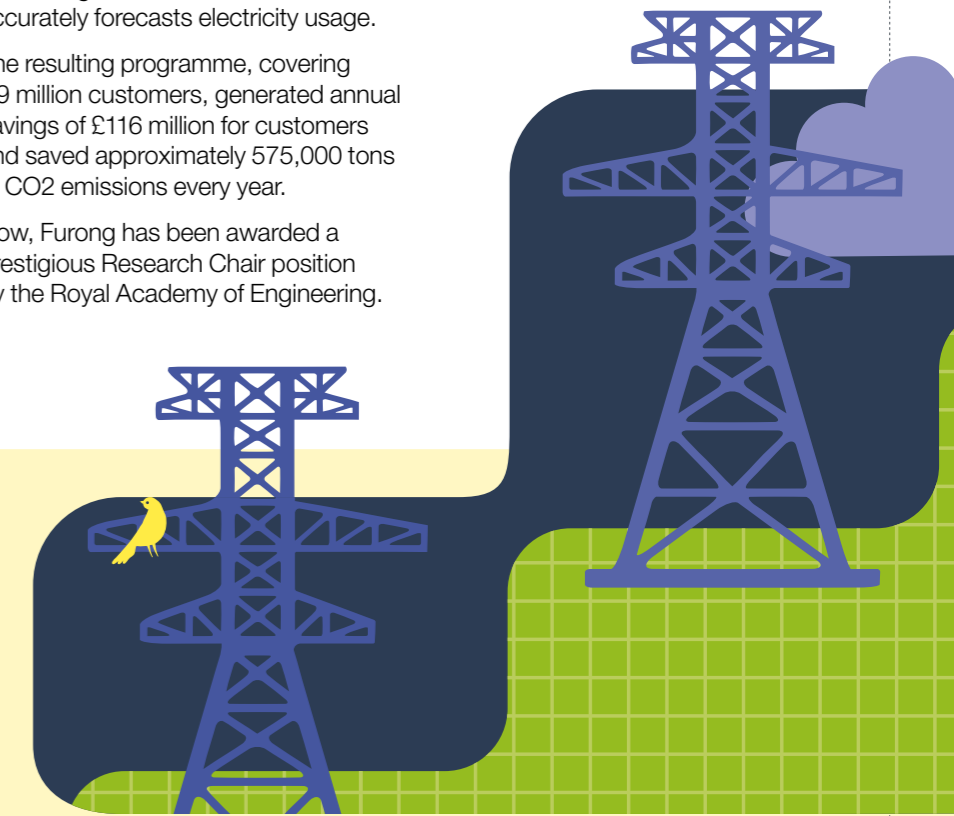
Calculating all the emissions associated with an activity – even those that claim to be sustainable – is vital, she says, “in order to ensure we are making the best, most effective use of the resources we have.”

And Bath is also researching the most important variable in the widespread adoption of these technologies: people.

The University's Department of Psychology is investigating public perceptions of innovations that will help move us towards a more sustainable future, and how to shift them. And, for Professor Lorraine Whitmarsh, this focus on individuals is directly linked to the more practical, engineered solutions.

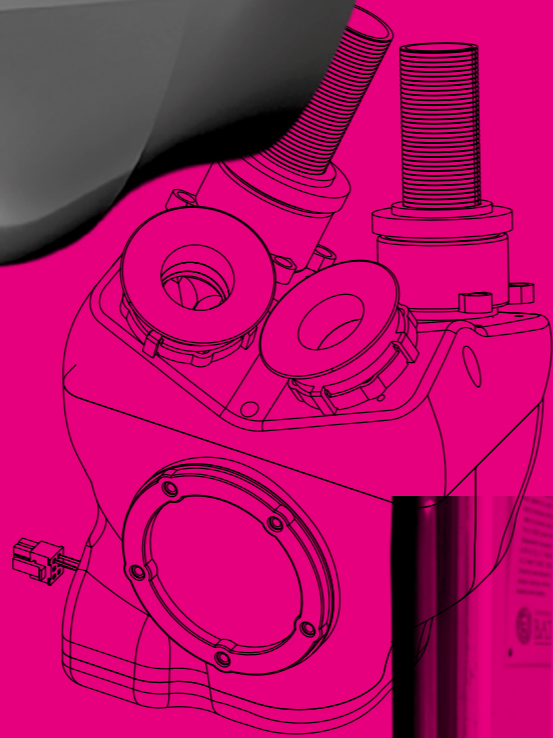
“Often individual and systems change in response to the climate crisis are presented as two distinct topics,” she says. “This can lead people to feel hopeless that their actions – however positive – are only a drop in the ocean compared to the enormity of the problem.”

“Our message instead is a more positive one: individual actions do matter and combined, they determine the broader social transformations required from policymakers and industry.”



# THE BEAT GOES ON

TBH24, the third iteration of Team Bath Heart's artificial heart



How breakthrough biomedical engineering developments at Bath are laying the groundwork for the future of cardiac devices

Words by Tom Dale



## Research

The heart is the body's tireless engine, beating more than 100,000 times every day. Until it doesn't.

Around 10% of the UK population is living with heart disease, and roughly a quarter of all deaths are heart related.

Medical research is vital in reducing the impact of these conditions, but a growing sector is proving to be a powerful tool in the fight against heart disease and failure.

Clinical investigations into breakthrough medical devices reached record highs in 2025, and the University of Bath is emerging as a hub of innovation at this intersection of engineering and medicine.

From the student-led project, Team Bath Heart, working towards developing a fully artificial heart to groundbreaking battery-free medical implants powered by the body's blood sugars that could revolutionise pacemakers, Bath is unlocking a new era of bionic heart health.

## Team Bath Heart

Worldwide, 50,000 people urgently need a heart transplant, while only 5,000 procedures are performed each year. This shortfall is due to a scarcity of donors – the biggest challenge in heart transplantation – leading to long and unpredictable waiting times for patients.

Now, a group of Bath students is tackling this problem with tech. Team Bath Heart is a student-led project developing and refining a total artificial heart (TAH), an implantable device that does the pumping normally performed by a heart while patients wait for a transplant.

Since 2022, the team has entered the annual HeartHackathon – a global student competition to design and build a TAH – and is one of the most decorated in the contest. Team Bath Heart won the competition two years running and last year was awarded Most Advanced Design.

“Inclusive practices continue to guide our mission”

The team – now comprising more than 100 students spanning 18 disciplines – followed up on this international acclaim with a double win at the Engineering Talent Awards 2025.

Last year's success was driven by their equity-focused device designed for smaller patients and women, groups frequently underrepresented in cardiovascular device trials.

One study found that women made up just 29% of participants in cardiovascular device studies, while only 61% of female patients are compatible with the SynCardia, the only artificial heart made for women. Cardiovascular disease remains the leading cause of death in women.

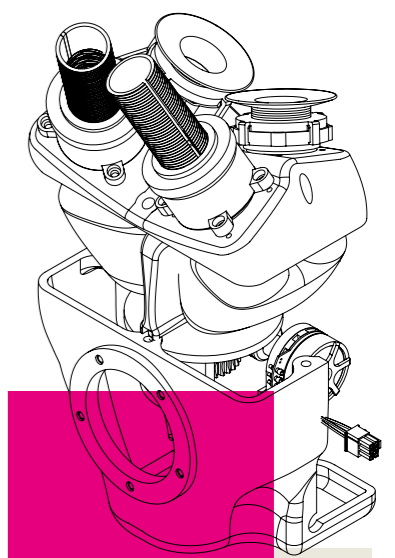
The female-led 2025 team set about changing this, building on previous years' innovations to shrink the design further, refine the wireless charging system, and test its surgical compatibility.

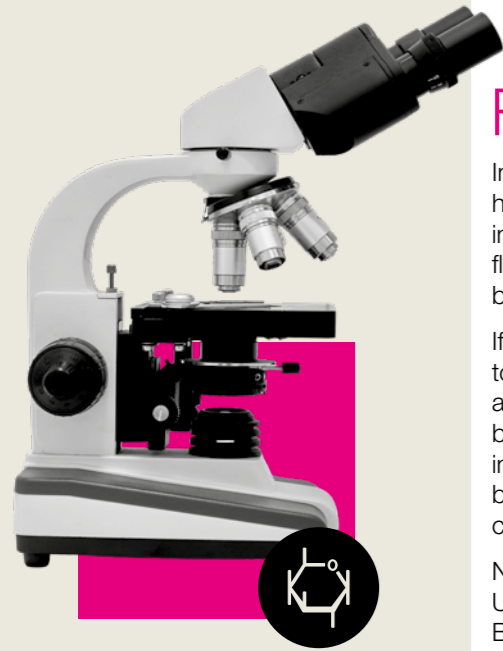
“Our mission to design a total artificial heart tailored for female and smaller patients reflects our commitment to embedding EDI principles directly into our engineering work,” says team lead Alabama Cawley.

The team is currently engaging with legal experts to ensure that, if there is commercial interest in the device in the future when it is sufficiently advanced, they have the relevant documentation to ensure regulatory compliance.

“The whole team has worked incredibly hard over the last year to manufacture a working prototype. The experimental testing they've done demonstrates the progress of the technology from design towards a functional artificial heart,” says Dr Katharine Fraser, lead academic advisor to the project.

“Over the past few years, the team has experienced remarkable growth. Throughout this expansion, TBH has remained deeply committed to embedding inclusion into everything we do – shaping our culture and guiding our mission.”





## Fluid dynamics of blood

In the development of implantable heart devices that pump blood either in place of or alongside the heart, the fluid dynamics of blood is a crucial – but complicated – consideration.

If the forces acting on the blood are too great, then the sensitive cells and proteins that it comprises can be damaged, causing clots and increased risk of bleeding. But, because of a lack of research, calculating these stresses is difficult.

Now, a team of researchers at the University – the Cardiovascular and Biofluids Engineering Research Group – is studying and modelling blood to gain a greater understanding, leading to more advanced devices and fewer complications for patients.

Led by Dr Katharine Fraser, the multi-disciplinary group has several research areas and partnerships with industry that are pushing the field forward. Their motivation? “Cardiovascular disease is one of the leading killers in the world, so we want to make devices that allow people to live longer, healthier, fuller lives – it’s as simple as that,” says Katharine.

Their work is underpinned by new ways of understanding and modelling blood flow using ultrasound and AI, which is deepening the understanding of how blood behaves, informing the optimisation of mechanical cardiac pumps.

The picture for the one in 1,000 babies born with imminent heart failure is bleak. The present clinical standard device is bulky, invasive and is known to cause dangerous clotting, leading to a 20–30% risk of strokes. The alternative – using pumps designed for adults – comes with its own potentially fatal complications.

So, the group is using its data to develop the NeoVAD, a specialised heart pump for infants alongside academic partners at Texas Heart Institute and Baylor College of Medicine.

Another project run with industry partners Cardiology Devices is MyoCaid, a small pump that sits inside the aorta, in contrast to the current standard known as an LVAD, which acts as an extra ventricle, the heart’s pump.

“It works with the heart, rather than alongside it. That means it doesn’t need to pump as fast. Slower spinning means less blood damage and a smaller device,” says Katharine.

“Often, it’s older people who need these devices, but the procedure to implant them would be too traumatic. This smaller pump will reduce the impact of the surgery and mean more people are eligible, saving more lives.”

Katharine and a team of PhD students are also working with industry to develop a TAH – Scandinavian Real Heart. The University is assisting with the computational modelling of blood flow through the device.

The device, the first in the world with atria, the reservoirs that hold blood before being pumped, mimics a natural, gentle blood flow pattern, reducing the risk of complications – developments made possible by the University’s simulations.

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We want to make  
devices that allow  
people to live longer  
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## Blood glucose-powered pacemaker

A new generation of implantable medical devices powered by natural sugars in the body could enable unprecedented miniaturisation of devices like pacemakers after a Bath-led research team received over £2 million in funding.

The GLUTRONICS project is set to develop glucose-powered fuel cells, eliminating the need for bulky battery packs that may require recharging or replacement.

Despite downsizing, batteries still often account for more than 80% of a device’s volume and weight and require risk-carrying surgeries for replacement and maintenance.

The project team is creating miniature, lightweight, and long-lasting glucose fuel cells that convert blood sugars into useful energy at the scale of millionths of a watt, mimicking the way organs extract power from sugars in the food we eat.

The project’s leader, Professor Mirella Di Lorenzo, Associate Dean in the University’s Faculty of Engineering and Design says: “Our ambition is to advance research into glucose fuel cells beyond the state-of-the-art, with a system approach that goes beyond electrode chemistry, to include electronics, device-body integration strategies, manufacturing, regulatory frameworks and solutions co-developed by patients and the public.”

## Ferroelectric fabrication

Biomedical implants save countless lives every year, yet every surgically implanted device carries a risk of infection. Around one in ten implant procedures can lead to complications when bacteria cling to surfaces.

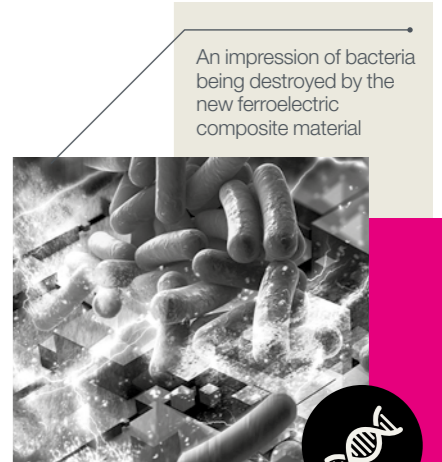
Now, a team of Bath researchers has developed a way to eliminate the threat. The team has created a new ferroelectric composite material with anti-microbial properties by 3D-printing multiple materials together.

Ferroelectricity is a characteristic of some polar materials that generate a surface charge in response to a change in environment. This leads to reactions that create free radicals known as reactive oxygen species that selectively eradicate bacteria by breaking cell walls or damaging their DNA.

Using a multi-material manufacturing process, Bath engineers have embedded electrically responsive particles into a biodegradable polymer to produce porous “scaffolds” that generate these microscopic electrical charges.

In lab tests, the ferroelectric composite showed remarkable performance, killing around 70% of aggressive E. coli within just 15 minutes of contact and completely eliminating bacteria in contaminated samples.

Dr Hamideh Khanbareh, lecturer in materials and structures at Bath’s Department of Mechanical Engineering, says that the breakthrough has wide-ranging implications for future medical implants like heart pumps, stents and artificial valves. The approach could dramatically reduce post-surgical infections, improve patient outcomes, and ease the cost burden of further treatments.



An impression of bacteria being destroyed by the new ferroelectric composite material

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The approach could  
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## Gamechanger for patient monitoring

Every year in the UK, 100,000 people are admitted to hospital with cardiac failure. The event, though undeniably a traumatic experience, is only the beginning.

Once in hospital, patients are subjected to regular scans to diagnose the cause, assess severity, and monitor response to treatment, exposing them to stress, discomfort and radiation.

However, a new development at the University of Bath could change this. Offering a revolutionary alternative, researchers have built a first-of-its-kind wearable device capable of continuously scanning the lungs and heart of hospital patients while they rest in bed.

A soft, ergonomic, belt-like device, attached around a patient’s chest, uses sophisticated ultrasound and works like a CT scanner. Rather than taking an isolated snapshot, it generates a series of dynamic, high-resolution images in real time, giving doctors deeper insight into a patient’s condition.

The breakthrough device – designed with patient comfort in mind – has been developed at the University of Bath in collaboration with Polish technology company Netrix.

Professor Manuch Soleimani, who leads the University’s Engineering Tomography in Bath’s Department of Electronic & Electrical Engineering, says that the device has the power to enable earlier detection of deterioration or recovery in cardiac patients.

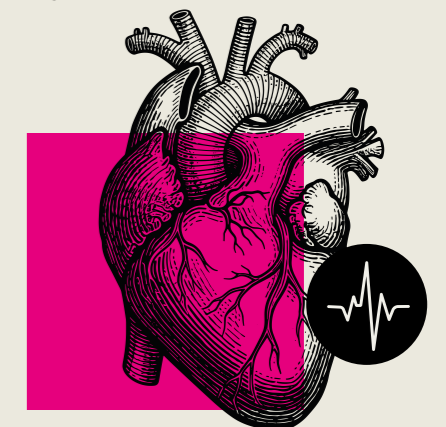
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This is much needed  
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“This could fundamentally change how we monitor patients in critical care or post-surgical settings. The imaging quality of the device can be on par with an X-ray or CT scan, but instead of a snapshot, we can monitor how the heart behaves over time, which is far more informative when managing dynamic conditions.

“Human testing has shown the technology to be reliable, and it has the potential to save resources too. Low-cost, safe and easy-to-operate monitoring of this kind is currently much needed by healthcare professionals in intensive care.”

Future iterations may even offer AI-assisted analysis for clinicians, identifying warning signs before they’re visible to the human eye.

The research team is currently working on plans for further clinical trials in collaboration with partner hospitals, aiming to refine the technology for regulatory approval. ✨



# BRINGING WARMTH

# TO WAR ZONES

How Bath research is supporting victims of conflict in Gaza and Ukraine

Words by Tom Dale

**W**hile the flood of images and information in our news feeds from the many crises facing the planet can feel paralyzing, a team of Bath academics is working to improve living conditions for people whose lives have been shattered by war.

According to the United Nations (UN), there are currently more than 110 million people forcibly displaced worldwide due to war. An estimated further two billion live in areas affected by conflict.

"Facing that," says Professor David Coley from the University's Department of Architecture & Civil Engineering, "anyone would think, 'how can I help?'"

"Through interviewing a large number of refugees, we discovered that their first concern was security, but their second was shelter – and that's somewhere we can make an impact," he says.

David took his career-long research into low-energy buildings and applied it to temporary housing solutions for those affected or displaced by conflict. "I wanted to know what we could take from our work into unheated and uncooled buildings in the UK and apply it to refugee camps," he says.

"When we started this work, we found that the mortality rate among babies and the elderly was high in many refugee camps due to the temperatures inside the shelters. We had the knowledge, so wanted to do what we could to address it."

**"Anyone would think,  
how can I help?"**



The two most publicly prominent conflict zones of the decade so far are Ukraine and Gaza, and David and his team have been working to alleviate suffering in both.

In Ukraine, the targeting of civilian areas with drone strikes has resulted in an estimated 367,000 windows being shattered across frontline towns. During winter, temperatures plummet to -20C, and the loss of this insulating barrier puts lives at risk.

"In most war zones windows are one of the first casualties, making buildings uninhabitable in winter," David says. "The most common solution is to replace the lost windows with sheets of a wood composite material known as OSB, but this provides little insulation and creates a cave-like feel with no natural light."

He was approached by charity Insulate Ukraine to assist in testing the effectiveness of shatterproof plastic windows made from recycled PET – commonly used in drink bottles. Now, Bath research to understand the impact on occupants of the novel triple-layer design is supporting the replacement of many of the windows destroyed in the conflict.

One resident of an apartment block in the city of Sloviansk in contested eastern Ukraine lost all her windows in Russian attacks. "When there was a strike near the store at around 6am, all our windows were blown out. They put in OSB boards, but it didn't seal properly so the house stayed freezing cold," she says.

Windows installed by Insulate Ukraine have since made her home habitable and warm again.

**"In war zones windows are one of the first casualties"**

David and his team have helped establish a temperature monitoring scheme to measure the insulating power of the windows and are also quantifying the psychological benefits. This data then informs thermal modelling, demonstrating the value of the intervention in conflict areas worldwide.



"Our data will help Insulate Ukraine to approach funders to prove the difference their windows make and support them rolling out the solution across the war-torn nation, improving the lives of thousands of Ukrainians," he says.

More than 1,000 miles south, refugees in Gaza are in dire need of properly insulated dwellings. In summer, temperatures typically reach 30C, while in winter they can fall below freezing, with the cold compounded by heavy rain and high humidity.

The UN estimates that more than 90% of the region's housing has been destroyed in the recent bombardment, leaving millions of displaced people dangerously exposed. Tragically this winter, more than ten children under the age of one died due to hypothermia in Gaza.

Following their research into refugee populations in the region, David, alongside colleague and alumna Dr Dima Albadra (PhD architecture 2016) were called upon by Shelter Cluster Palestine, an inter-agency committee led by the UN Refugee Agency (UNHCR).

With the lack of materials available to build temporary accommodation, tents are the only available lifeline. David advised the group on winterisation of tents in the region, providing modelling data to show the lifesaving benefits of insulating floors.

Bath research has also been adopted into a framework to inform the building of more substantial accommodation to house refugees in the 25-mile strip. This included guidance on climate-appropriate insulation and ventilation, as well as cultural and social considerations.

"If you're going to provide temporary shelter, social design factors need to be taken into account as these can have a big impact on how the shelter is used and this in turn impacts its effectiveness," Dima says. "We used the knowledge from our work in Jordan to ensure that the new shelter could be designed with cultural sensitivity at its heart."

"Stand-alone shelters should be a last resort in most contexts, but often they are a necessary transitional solution. While challenging, balancing physical and social requirements is possible with the use of simple tools and an understanding of the local population needs."

The Bath academics' motivation to provide the best possible environment for conflict-affected people is behind all of the research they carry out into shelter accommodation.

First-hand experience gained through years of research in refugee camps across the world, says David, revealed a lack of engineering expertise being applied to the problem of adequately housing refugees.

**"It's important to use my work to alleviate suffering"**

The development of his team's assessment and modelling tools – that are democratised and free to use – has helped provide a framework which can be used in any location to help agencies decide the most appropriate design.

"Working in these places is impactful," he says. "The things you see and hear are horrific, and for those without resources, the long-term picture is not good – the average time spent in a refugee camp is 20 years."

"For me, it's important to find a way to use my work to try and alleviate some of that suffering."

**"I grew up in a humanitarian disaster, and I'm a disaster responder now"**



Above Noor, centre, in Afghanistan

### Alumni impact

Noor Kuchai (PhD Civil Engineering 2023) grew up in a refugee camp in Pakistan, having fled Soviet-occupied Afghanistan. What was meant to be a temporary solution turned into more than a decade living in a tent. Then, after returning to his home country, gaining an engineering degree and working to support refugee communities there, he had to flee again under threat of extremists and came to the UK.

He was offered a place to study for his PhD in Civil Engineering at Bath, working with David, "helping to develop the science behind refugee shelters so I could make an impact globally," he says. His education at Bath has shaped the engineer he has become.

He was guided to come up with his own problems and find his own solutions. "It gave me the opportunity to learn, grow and make mistakes, and I take that into my work now."

Since graduating, Noor has dedicated his career to working in disaster relief. Working as a humanitarian engineer for NGO RedR UK, he has been deployed to Morocco, Ukraine, Syria, Iraq, Turkey and his home country of Afghanistan where he has been training climate responders and building earthquake resistant homes made of mud.

"I've been shaped by my history. I grew up in a humanitarian disaster, and I'm a disaster responder now, rebuilding the lives of some of the most needy, while passing on skills to ensure local populations can manage disasters themselves." 🌟

# Inside Bath's rugby machine



After a decade of effort, the University of Bath men's 1st XV lifted the BUCS Super Rugby trophy for the first time. Behind the victory is a system designed to turn university players into rugby stars.

Words Amy Jones

## Ten years in the making

**A**lmost 300 miles away in Durham, on a Wednesday evening in March, the University of Bath men's 1st XV did something no Bath side had managed in the ten-year history of the BUCS Super Rugby competition. A confidently executed 17-7 away win – Bath's 11th successive victory – ensured the team finished two points clear of previous champions Loughborough.

It was a season of determined consistency. Bath fielded 49 players over the course of the campaign and won 15 of their 18 matches, scoring 101 tries and 73 conversions. The numbers tell one story, but the emotion on the pitch after the final whistle told another.

"It's been a long time, and we've been building, building, building towards this," said Head of Rugby Aaron James after the match. "This is a massive reward for so many people – the S&C coaches, physios, video analysis, facilities, groundsmen, senior management, the whole of Team Bath and the SU, everyone who works so hard for us. My role is five to 10%. This is a reward for the club and all of our supporters."

"After the game, it was a bit surreal," said player of the match, Freddy Rossignaux, who scored one try and set up the other. "For the boys who've been here longer, who've seen the ups and downs across a season, to finally win something meant a lot to them. It wasn't just the first team. The whole club got together. We had so much support."

Co-captain Max Pearce finished as top try scorer with 11 for the season, while prop Alfie Griffin and half-back Roman Andrews were vital in the matchday squad.

The title was the first in the competition's history for Bath. So, what was different this year, and what does it take to build a winning team?

## Passion over perfection

The BUCS Super Rugby triumph didn't happen overnight. It's the product of a rugby programme that has been carefully constructed to cater for players at every stage, from those who have barely laced up a pair of boots to those coming up through the academy system, already working towards professional contracts.

Bath's rugby programme brings together more than 300 men and women. At the top sits the BUCS Super Rugby 1st XV; at the other end, an open door for passionate students who want to play recreationally.

Aaron James, who joined the University in 2009, is clear that it's not just about the first team. "We're only as good as our second and third teams," he says. The coaches who run those teams are central. "They go to the lower teams and spot the next players coming through," he explains. "I've had student coaches say to me, you wouldn't have won the league if it wasn't for me – and they're right!"

Austin Emens (BSc Business 2026) is a perfect example of how that pathway works. Now a professional player with Bath Rugby, he began his first pre-season in the fifth team. "I wasn't in an academy at 18, so I kind of slipped through the net," he says. "It hit my ego a bit, but I thought, all I can do is play as well as I can and let that speak for itself."

It did. Within two weeks, he was playing BUCS league rugby for the second team. By his third year, Bath Rugby had noticed him. "I wasn't a big name at school level," he says, "but there is an opportunity playing in the development teams, and a strong link upwards. I was grateful that I was rewarded for playing well."

That pathway is supported by the environment that surrounds it. "It's important to create a really good culture," says Aaron. "Especially at university level, where your programme could change overnight because of poor behaviour." The Brothers culture – as Aaron calls it – is the result of a deliberate philosophy, crafted over years. "First years come here and join a rugby family."



The older ones help the younger ones. And what we've found is that good behaviour becomes self-perpetuating just as much as bad behaviour does."

Freddy Rossigneux agrees "We're really close – not just the ones and the twos, but the threes and fours as well. On a Wednesday after a game, we'll all be together. I don't know how many clubs can really say that the top players know everyone throughout the whole club and enjoy spending time with each other. The relationships off the pitch boost the relationships on it."

"I've had student coaches say to me, you wouldn't have won the league if it wasn't for me – and they're right!"

**Above** Freddy Rossigneux © BUCS Durham v Bath

**Right** Aaron James – BUCS Super Rugby Bath v Cardiff © Bob Bradford

The programme's mission is straightforward: to help every student become better educated, a better athlete, a better rugby player and a better person. Whether a player arrives with professional ambitions or simply a love of the game, that same framework applies. At the heart of it is the Team Bath Sports Training Village – a world-class facility giving students access to leading coaching, specialist support services and a stellar training environment.



## The long game

The coaching operation at Bath is led by a man who has been there and done that. Aaron James is a former Premiership player with Wasps who also coached Bath Rugby Academy, England Students and Great Britain 7s Students. He's supported by both experienced coaches and student coaches developing within the programme.

Aaron is solid in the belief that not every player is the finished article when they arrive. "They're still maturing physically," he says. "And you're generally a very different character between 18 and 20. We give them an opportunity to play and show themselves in the lower teams." Aaron recognises that occasionally good players will slip through the net, and some will also emerge as unexpected successes.

"If I hadn't ended up at Bath, I probably wouldn't have played professional rugby"

Iwan Coyle is one such story. He arrived at Bath with no professional ambitions – and is now in talks with two clubs. "He's gone from a quiet guy to a good on-field leader," says Aaron. "He just got a chance to grow."

Reflecting on his own journey through the ranks, Austin Emens said, "There have been countless examples of boys who have been nowhere near it in their first years and by their fourth year, they're playing first team, or they've been offered contracts. Cream always rises to the top."

For Tom Doughty (BSc Sports Performance 2019) – who captained the BUCS Super Rugby side in 2018-19 and went on to a professional career with Bath Rugby, Doncaster Knights and Bristol Bears before retiring, it was a similar story of development. "If I hadn't ended up at Bath, I probably wouldn't have played professional rugby."

The way training weeks were structured, the way I was educated about recovery and nutrition – it all helped me prepare for what a professional environment would feel and look like."

Aaron, he adds, was unlike any coach he'd encountered before. "He truly cared about everyone as a human being, not just as a rugby player. He used to get onto me about going to my lectures, making sure I was doing the right thing inside and outside of rugby."



Austin Emens

## Bath Rugby and beyond

The programme's ambition is solidified by a partnership with Bath Rugby – the reigning Premiership champions and one of the most successful clubs in English rugby history.

The partnership centres on shared coaches, aligned training and a joint commitment to player development, allowing players to progress along a pathway. The partnership, now in its eighth year, has entered a period of cohesion. "We started like girlfriend and boyfriend – but we're probably married now," Aaron says.

That approach also gives Bath Rugby more time to assess those who may still be developing key aspects of their game. "Traditionally, we make big decisions on players at 18, and that can be difficult," says Bath Rugby's Head of Academy, Craig Lilley. "What the partnership gives us is a longer runway, so players have more time to grow, and we can make better decisions on where their potential can take them."

Twenty-five playing members of the Bath Rugby squad that completed a historic trophy treble in 2024-25 were either current students or graduates of the University. Orlando Bailey (BSc International Development with Economics 2025), Tom Carr-Smith (BSc Management 2025) and Max Ojomoh (BSc Business Administration 2025) are just a few Bath alumni who balanced their studies at Bath with blossoming professional careers.

The pipeline from lecture theatre to professional rugby pitch is now a well-trodden path. Austin Emens made 11 appearances for Bath Rugby during their treble-winning campaign and describes the transition as smooth. "The University is run as a professional environment – the drills we do, the conditioning – it's all very closely aligned."

Four of the five students who joined the Senior Academy in 2024 – Charlie Griffin (BSc Economics & Politics 2027), Tyler Offiah (BSc Politics & International Relations 2027), Kepu Tuipulotu (BSc Sport Management & Coaching 2027) and Jack Woods (BSc Sport Management & Coaching 2027) – made their Bath Rugby debuts while also playing for the University men's 1st XV.



## Honorary degree for Maggie “The Machine”

In January 2026, Maggie Alphonsi MBE became the latest legend to receive an honorary degree in recognition of her contribution to rugby and public life. A 2014 Rugby World Cup winner, she was dubbed “The Machine” for her power in the back row. In her career, she earned 74 England caps and scored 28 tries. She helped Saracens secure a league and cup double before retiring in 2015.

Post-retirement, she made history as the first female commentator on men’s international rugby. She constantly champions diversity and inclusion, making waves for women in the industry.

Ever humble, on receiving the award, she said, “I’m very honoured. But it’s not about me! It’s about the students in the room. I hope I can give some knowledge that will support them on their journey.” ✨

### Past, present and future

The title win is the headline, but it sits within a much bigger story. Eleven University of Bath students represented their countries during the 2026 Six Nations Under-20s Championship. Enoch Opoku-Gyamfi made his senior Italy debut in November 2025.

As for alumni, the roll call stretches back decades – Steve Borthwick (BSc Economics & Politics 2003), now England’s Head Coach, studied here. In the women’s game, Bath has produced the likes of Amy Wilson-Hardy (MEng Integrated Mechanical and Electrical Engineering 2015), Grace Crompton (BSc Sport Management & Coaching 2023) and Natasha Hunt (BA Coach Education and Sports Development), a Red Roses stalwart and double England Women’s World Cup champion. “I have very fond memories of being here,” Natasha has said. “I played with the likes of Izzy Noel-Smith, Nicola Hall and Jen Floyd, and I still have really good links with them.”

The league title is secured, but for Aaron, there’s a bigger challenge on his mind. “We’ve now created an expectation,” he says. “It’s easy chasing – maintaining is harder. I’ve never been there before, so we’ll see what it’s like. I’m happy to find out.”

“  
It’s easy chasing –  
maintaining is harder  
”

For a programme that has been “building, building, building,” this title may be the first, but it shouldn’t be the last.

**Above** Natasha Hunt  
Rugby World Cup Final 27  
© World Rugby.



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**SIXTY YEARS OF BATH**  
Looking back at 60 amazing years, one decade at a time.

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**ALUMNI SPOTLIGHT**  
Meet Emma Heal, Lucky Saint’s Managing Director.

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**BATH’S BEST...**  
Student Tom Gravell on the best run club in Bath.



**Picture this.** It’s an October day in 1974, and you’re late to your next lecture. If you hurry, you might just make it. As you bustle through campus, you’re stopped in your tracks by an unusual obstruction. You rub your eyes. Are you seeing things? No, it’s real alright.

Over 600 students are gathered on The Parade hoping to break the world record for the longest ‘unsupported chain.’

Unsurprisingly, this attempt was a part of RAG week. One of the first societies on campus, RAG was known for its exuberant fundraising efforts.

They didn’t break the record in 1974, but they’ve raised thousands for various charities through the years, and they’re still going strong today. Were you part of it? Drop us a line at [advancement@bath.ac.uk](mailto:advancement@bath.ac.uk)



# years *of* Bath

We're 60! We know, we don't look a day over 59, but the evidence is hard to argue with. To celebrate our big birthday, we're revisiting every decade since our founding in 1966.

Words by Amy Jones

## 1966

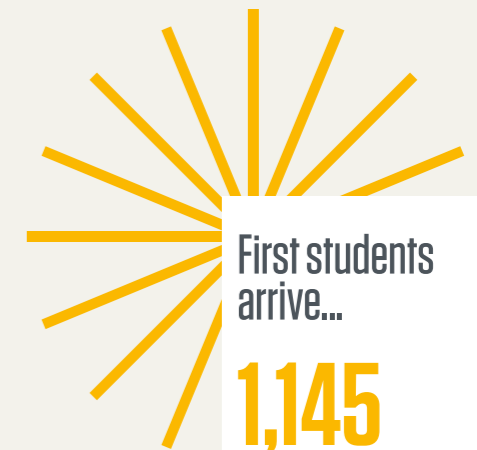
### What's that on top of the hill?

The University of Bath almost never happened. It took a chance conversation during a school play interval in 1963 for everything to change. Bristol College of Science and Technology principal, Dr George Moore, mentioned his struggle in finding an expansion premises to the city of Bath's Director of Education, Mr H Brand, who knew just the place: Claverton Down.

From that moment, things moved quickly. By 1966, the Royal Charter was granted, establishing Bath University of Technology.

*"Most second-year students still lived in Bristol. At first, there were no halls of residence in Bath and so first-years were staying all over the city in guest houses, hotels and 'digs'. The result was that if there was a party, it was just announced on the notice board outside the common room and we all turned up."*

**John Connolly (BSc Economics and Administration 1969)**



First students arrive...

**1,145**  
undergraduates

**115**  
postgraduates

**470**  
members of staff,  
many transferring  
from Bristol.

**A university  
was born.**



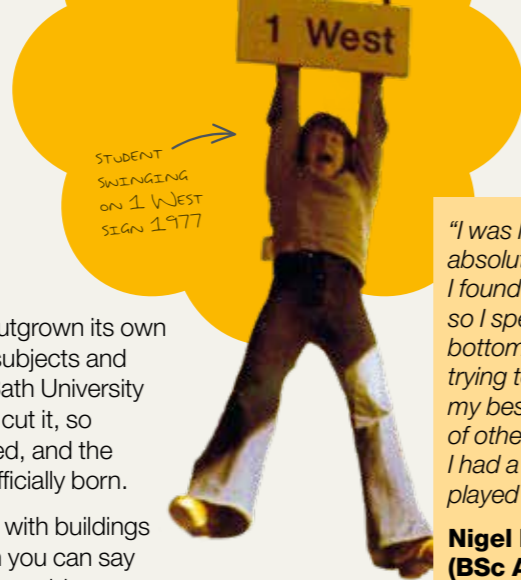
# 1976

## The University of Bath is born

Ten years in, Bath had outgrown its own name. A broadening of subjects and specialities meant that Bath University of Technology no longer cut it, so the Charter was amended, and the University of Bath was officially born.

It was a decade of firsts, with buildings popping up quicker than you can say Claverton Down. Student residences opened in 1970, the Chaplaincy Centre in 1972 and URB went on air in 1973, and our beloved ducks had settled into their new lakeside abode.

Perhaps the most significant first came in sport. Bath became the first university in the country to award sports scholarships, with the first given to British Canoe Slalom champion Martyn Hedges.



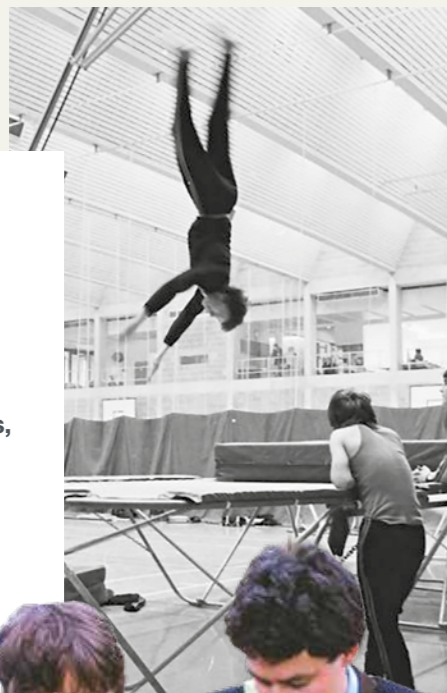
STUDENT SWINGING ON 1 WEST SIGN 1977

*"I was like most university students – absolutely broke. After first year, I found a place to live down in Bath, so I spent most of my time at the bottom of the hill with my thumb out, trying to get a lift to campus. I gave my best to the course, but I did lots of other things outside of university. I had a mobile discothèque and I played in a band."*

**Nigel Dick (BSc Architecture 1976)**



STUDENT HALLS – 1974



By 1976, Bath was home to

# 2,891

undergraduates, and

# 451

postgraduates

# 1986

## Thespians unite

'Mother of drama' Pat Bishop was awarded an Honorary MA for her work as Director of Drama and the Arts. Never missing her cue, the late Dame Maggie Smith graced Bath with her presence to collect her Honorary DLitt.

In 1986, the School of Humanities and Social Sciences secured a £1 million donation from the EEC Commission – at the time, one of the largest research grants ever awarded to a British university, equivalent to more than £3 million today.



GRADUATION 1978

## 60th anniversary



BATHWICK HILL RACE – 1994

# 1996

*"I remember the journey up the hill to get to campus from my 2nd year house-share in town. We had one unreliable Ford Escort between us, so often we had to walk. And the long queue for the pay phone – our only way in a pre-internet world to stay in touch with the outside world aside from writing letters!"*

**Caroline Marsh (BA Modern Languages and European Studies 1986)**



1995 LIBRARY TRANSFORMATION

## A milestone for night owls

In 1995, Bath hosted the European Youth Olympic Days, bringing the best young athletes in Europe to campus, with Roger Bannister opening a gleaming new athletics track.

The '90s gave birth to Team Bath as we know it – the blue and gold branding that would come to define sports at Bath.

For students burning the midnight oil, life got a little easier too – with the library becoming the first in the UK to go 24/7.



FRESHERS IN 1990

DAME MAGGIE SMITH WHO COLLECTED AN HONORARY DLITT FROM BATH!



*"One of the real attractions of the University was the campus, which created a real student community on top of the hill. Regular visits to the SAD (student disco) on Wednesday evenings after hockey matches brought a lot of the different sports teams together. We were regular attendees of the Pulteney Arms and The Boater, which are still there today!"*

**Esther McMorris (BSc Physics 1996)**

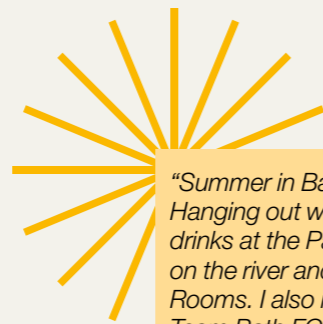
# 2006

## Top ten at forty

In 2005, Bath was rated by the *Sunday Times* as one of the UK's top ten universities. Quite the accolade for a medium-sized institution like ours.

In 2006, alumnus Dr Raymond Schinazi was awarded a well-deserved honorary DSc. His research is estimated to have saved over three million lives, with around 94% of HIV patients taking one of his drugs.

2006 was the year Team Bath Netball won the inaugural Super League title – they'd later go on to become the competition's most successful franchise. It was a cracking year for sport, too."



"Summer in Bath was amazing. Hanging out with friends by the lake, drinks at the Parade Bar, parties on the river and nights out at Blue Rooms. I also remember when Team Bath FC reached the first round of the FA Cup – the first university to do so since 1880!"

**Tim Ackroyd  
(BSc Psychology 2006)**



2009 FRESHERS!



60th anniversary



Not another one!



# 2016

## Fifty and thriving

Bath turned 50 and celebrated in style. The extensive celebrations included a service at Bath Abbey attended by Chancellor HRH Prince Edward and a huge community festival on campus, complete with a skydive display by the Red Devils.

Not bad for a university that almost never happened.

Who says you can't try new things at 50? The One Young World partnership was launched in 2016, sending student leaders out into the world to tackle pressing challenges.

"The 2014 Summer Ball with the American Football team is a memory I'll never shake. This specific ball was after a successful season, and the whole team arrived and celebrated together. When I look back at the pictures, they bring back amazing memories."

**James Benson-King  
(BSc Mathematics 2016)**

# 2026

## The best is yet to come

What does a university in Bath have to do with unlocking the secrets of the universe? Quite a lot, as it turns out. In 2026, Bath joined CERN's Compact Muon Solenoid experiment in the hunt for exotic particles and dark matter.

Named Sports University of the Year 2026, Bath's reputation for excellence has never been stronger. ✨



Sixty years in, we're just getting started.

What do you think the next 60 years at Bath will look like?

Email us at [advancement@bath.ac.uk](mailto:advancement@bath.ac.uk) with your musings.



# Alumni spotlight

Emma Heal reflects on campus life, placements and her path to becoming Managing Director of alcohol-free beer brand, Lucky Saint.

Interview by Amy Jones



**Emma Heal (BSc Business Administration 2001) is a consumer goods superstar. She's scaled brands from anonymous start-ups to household names, with Innocent Smoothies and Graze to name a few. She's now Managing Director at Lucky Saint, one of the UK's leading alcohol-free beer brands.**

## Why did you choose to study at Bath?

I loved the idea of living on campus and in such a gorgeous city. I also had two six-month industrial placements and the opportunity to study abroad.

My placements were fantastic, firstly working as an account manager for the advertising firm Ogilvy & Mather in Canary Wharf and then in operational finance for British Airways across Europe, Africa and North America.

In my final year, I spent six months studying at the Copenhagen Business School in Denmark. All of these opportunities were massively appealing.

## Did you have a particular career in mind when you chose your course?

Simply 'business', with zero clue of what area! When I was young, I would marvel at my dad leaving the house in a suit, shiny shoes and a briefcase, knowing he loved learning, doing great work with

a great team and having fun. That kind of energy was infectious, so I sought out experiences that would provide the same stimulation.

## You've had an incredibly varied career since leaving Bath. Describe your journey since graduating.

I've worked in consumer goods for 25 years across Europe and Africa, in the global blue-chips of Tesco and Diageo and grown fledgling brands into household names, like Innocent Smoothies and Graze.

It's the gritty, challenging world of scaling start-ups that I really love and the reason I joined Lucky Saint in February 2020 as Managing Director.

## What is a typical day like as Managing Director at Lucky Saint?

There's never a typical day, but in any given week, I'll be out in trade with the team, either walking supermarket aisles or meeting pub and restaurant owners, attending board meetings or speaking on panels.

It's a pleasure to welcome customers to our pub, The Lucky Saint in Marylebone, London, to taste our four alcohol-free beers. Our office is right above, so I take great joy in going to a pub to work. Our pub is a very inclusive space, and we serve the best drinks there are, both alcoholic and alcohol-free.

## Your career has spanned multiple companies and countries. When you look back so far, which achievements feel most meaningful?

In my early career, I took the Innocent bobble hat campaign called 'The Big Knit' nationally for the first time with Sainsbury's. Of all the hats knitted that year, 25% were by Sainsbury's colleagues. We had in-store and head-office knitathons all over the country and raised £100k for Age Concern. That campaign won a Prince's Trust Award.

Most recently, I'm proud of what we have achieved as a team at Lucky Saint. Six years ago, we were a team of five. COVID hit weeks after I joined, and we lost 75% of our revenue overnight as pubs and bars closed. We quickly realised we only had three weeks of cash left.

Standing here today, Lucky Saint is a B Corp and the fourth most popular alcohol-free brand in the UK, behind the global giants Guinness, Heineken and Peroni. We're now a team of 65 and a Times Top 100 place to work. I'm proud to have been a part of this growth, done in the right way.

## What do you enjoy most about your career?

I love the people element of my career, both building relationships with customers and the wider industry and creating the conditions to develop high-performing teams. Enabling others to achieve their ambitions is a huge privilege and motivator for me.

In a world that is increasing in speed and intensity, the need to remain adaptable is more critical than ever. Despite this, I never underestimate how important it is to stop, smell the roses and have fun!

## How did studying at Bath help you get to where you are today?

The level of academics, sport, community and network gave me a fantastic edge and the most sensational start in my career. I couldn't recommend Bath more highly. 🌟

Share your story with us by emailing [advancement@bath.ac.uk](mailto:advancement@bath.ac.uk)



# BATH'S BEST RUN CLUB

Tom Gravell  
(BSc Business 2026)

**On Sunday mornings in Bath, while the city is waking up, Bubble Bath Run Club is already on the move. Established by three students, it's become a ritual for University of Bath runners of all abilities.**

The idea came to me, like most good ideas, mid-run. I remember saying to my friend CJ that it would be great if Bath had a student run club that felt relaxed and open to all. At the time, a lot of run clubs I'd seen – particularly in London – had strong identities and creative names. That's where Bubble Bath came from. It was a fun play on words, but it stuck.

From there, things moved quickly. Joe Mitchell (BEng Civil Engineering 2026) set up the Instagram and brought loads of energy to getting the word out. What started as a casual conversation suddenly felt real.

On the morning of our first run, eight people turned up.



The runners enjoying a well-earned coffee break

It was small, but that almost made it better. There was no pressure and no expectations. We were just a group of students meeting on a Sunday morning for a 5k, followed by a coffee and a good chat.

Week by week, the community grew. Eight became 20, then 30, then 40. At our biggest, we've welcomed around 50 runners, and more than 100 different people have joined us overall.

But what's mattered most hasn't been the numbers – it's the atmosphere. From the start, we wanted Bubble Bath Run Club to be something inclusive that people could look forward to. A big part of that was creating a space where socialising didn't revolve around drinking. Meeting new people is often tied to nights out, so we wanted to offer something different. Whether someone is training seriously or wants to socialise in the fresh air, they're welcome. It's as much about connection as it is about running.

The community has grown beyond Sunday runs, too. Our Instagram has had over 80,000 views, we've built a following of more than 500, and our WhatsApp group now has over 200 members.

Hamish Cumming (BSc Architecture 2026) has been instrumental in growing our social media presence through his graphic design work. He also helped design our merchandise.

In my fourth year, Anna Skuse (BSc Biomedical Sciences 2026) and Scarlett Marsden (BSc International Development with Economics 2026) have taken things further, leading sessions and securing collaborations with brands like Jubel Beer, Vitamin Well, Jimmy's Iced Coffee and local coffee shop Brac. Seeing others take ownership and push the club forward has probably been the most rewarding part of all.

Looking back, it's hard to believe it all started with a throwaway comment on a run. Now, it's something people look forward to every week, a welcoming space where they can run, chat and start Sunday properly.

If you want to keep up with our progress, follow us on Instagram @bubblebathrunclub. And if you're in Bath, come along on a Sunday! 🌟

Do you agree? Let us know!  
✉ [advancement@bath.ac.uk](mailto:advancement@bath.ac.uk)  
📷 [uniofbathalumni](https://www.instagram.com/uniofbathalumni)  
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