

SAM



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SYDNEY

Dream team

Australians
of the Year
breaking new
ground





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SYDNEY

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A new University of Sydney podcast hosted by
Vice-Chancellor, President and alumnus Mark Scott

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*We recognise and pay respect to
the Elders and communities -
past, present and emerging - of
the lands that the University of
Sydney's campuses stand on.*

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Produced by Marketing and
Communications, the University
of Sydney. Printing managed by
Publish Partners.

Design: Dawn Leyland and
Fábio Dias

Cover: Professors Georgina
Long AO and Richard
Scolyer AO, jointly named
2024 Australian of the
Year. Photo by Stefanie
Zingsheim

Distributed to more than 130,000
members of our community.

24/9499 ISSN 1834-3929
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SAM DIGITAL

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CHANGES ... AND NEW BEGINNINGS

✦ I have been so grateful for the many warm messages I have received since it was announced in March that I have decided to step aside as Chancellor later this year, after more than 11 years in the role.

It has been such an honour to serve as Chancellor. Little did I think when I first entered the Great Hall as an Economics undergraduate back in the 1970s that I would have the privilege of presenting testamurs to so many of our wonderful students as they graduate, or to learn about and advocate for the work of our talented academics. We have made significant strides over the past decade and, as an alumna, I am so proud that we stand shoulder-to-shoulder with the world's very best universities.

In this final *SAM* of my Chancellorship, we celebrate the University of Sydney community's achievements at the forefront of innovation and leadership. These are passionate and community-minded alumni and researchers - like our cover stars, Australians of the Year Professors Georgina Long AO and Richard Scolyer AO (page 4). We are immensely proud of their groundbreaking work with the University and the Melanoma Institute of Australia, which has saved thousands of lives and completely transformed outcomes for advanced melanoma patients. Their work is an inspiration to us all.

Our new Sydney Net Zero Institute (page 14) is also leading the way, through the development of market-ready, low-emissions innovations led by Professor Deanna D'Alessandro and her cross-disciplinary team. Their research partnerships with industry will help Australia to meet its goals for emissions reductions, paving the way for a more sustainable future.

By the time you read this, I will be preparing to chair my last meeting of Senate at the end of June. I am delighted that Senate has elected David Thodey AO, FTSE as my successor, and will be working closely with him and the Vice-Chancellor over the coming months to ensure a smooth transition. Keep an eye open for the next edition of *SAM* to learn more about David.

I'd like to conclude with thanks for all your support over the years. As an alumna, the University of Sydney has been part of my life for more than 50 years, my children have also studied here, and I am looking forward to continuing my involvement in our wonderful alumni community for many years to come.



Belinda Hutchinson AC (BEc '76), Chancellor

SCIENCE

Aches, pains and rain

Have you ever felt like you could feel the weather changing in your bones? New research has challenged this popular belief. The study was the first of its kind, and involved collating data from existing international studies involving 15,000 participants and more than 28,000 instances of muscle or joint pain. The findings showed no clear connection between changes in humidity or temperature and musculoskeletal pain or arthritis.

However, the study did find that a combination of high temperatures and low humidity could double the risk of a gout flare in patients, due to dehydration and increased uric acid concentration. Researchers say that the study highlights a wider issue – more than a quarter of Australians are affected by a chronic musculoskeletal condition. Lead author Professor Manuela Ferreira (PhD '05), from Sydney Musculoskeletal Health, said “both patients and clinicians should focus on how to best manage the condition,” rather than letting the weather influence treatment.



MEDICINE

Game plan

When most people hear the word ‘echolocation’, they probably don’t think about ping pong. But Associate Professor Craig Jin (PhD '01) is working to transform the accessibility of ping pong, or table tennis, for people with low vision and blindness, working with ARIA Research, a start-up co-led by the University of Sydney.

Echolocation uses sound waves bouncing off surrounding objects to build a picture of the environment. The team’s research takes advanced echolocation technology and applies it to sport. The technology takes pictures of the playing field using ‘event’ cameras, which track changes in an image over time. It then translates those images through an algorithm into sound, which it broadcasts over a series of loudspeakers to allow the



players to track the movements with sound.

The team is energised by the early results, but emphasises that there is still a way to go. Associate Professor Jin is now moving on to the next phase of the research, which will explore the limitations of human sound perception.

CAMILLE
GOLDSTONE-
HENRY

BAnVetBioSc (Hons) '14

Associate Member of the
Alumni Council, wildlife scientist,
co-founder of Xylo Systems,
proud Kamilaroi woman

What motivated you to
co-found a nature start-up?

After graduating, I worked on conservation projects for Tasmanian devils, bilbies, Sumatran tigers and red pandas. Field monitoring is resource-intensive but necessary for understanding why species are endangered. This prompted me to find innovative solutions to speed up data collection. I left my beloved job to skill up in business and tech. I realised that artificial intelligence could be a huge game changer in monitoring ecosystem degradation – and Xylo Systems was born. We’re on a mission to enable companies to manage their biodiversity footprint, and to create a worldwide solution for conserving biodiversity, including Australia’s iconic species.

Your biggest challenges?

Navigating the shift from scientist to tech entrepreneur posed a significant learning curve. I did online courses and sought out mentors. I also leveraged networking and our purpose-driven mission to attract incredible tech talent.

What advice would you share?

Running a start-up is a marathon, so you need that deep connection to solving a problem and wanting to make the world a better place. Build a strong network, starting at university. You never know who could connect you to your dream career, customers or even co-founder.

Melanoma treatment pioneers Professor Georgina Long AO and Professor Richard Scolyer AO have been named joint Australians of the Year 2024 for their revolutionary approach to treating melanoma using immunotherapy. Their enduring professional partnership has saved thousands of lives and continues to break new ground – including in treating Richard’s own illness.

GREAT MINDS

Written by Alex Johnson
Photography by Stefanie Zingsheim



👉 It hadn't really occurred to Professor Richard Scolyer (MD '06) or Professor Georgina Long (BSc '93, PhD '96, MBBS '01) that they might be recognised as Australians of the Year. Sure, their research into melanoma was groundbreaking, but it was a packed field.

"You get to meet everyone who's been a state recipient," Richard says. "They're great people – all deserving recipients."

Nonetheless, all nominees had to submit an acceptance speech before the ceremony, and they were told they should practise presenting theirs.

"We only had half an hour to practise," Georgina says. "And at the end of it – Richard will tell you – we said, 'Do we really need to do this again?'"

She laughs.

"We practised two or three times," Richard says. "Then we said, 'Oh, we're not going to win it – let's just go and get dressed for the event.'"

Then their names were called.

The buzz surrounding the pair goes back to May 2023. Richard was in Krakow, Poland, delivering a series of lectures. His research has the kind of global profile that means he travels frequently for work. On this occasion, his wife, Katie, had accompanied him so they could hike in the Tatra Mountains once the conference wrapped.

Their Friday hike was fabulous. Richard has always been an active person. In his forties, he re-started triathlons to keep fit.

“We were up very high, near the border of Slovakia. As you get higher, your brain swells,” Richard says. “The next day I felt very tired and sick, which is unusual for me. I had a seizure that ultimately ended up being the first presentation of my brain tumour.”

It was a Sunday morning in Sydney when Georgina’s phone rang. Katie delivered the news.

As a problem solver, Georgina immediately wanted images of Richard’s brain scans.

“It’s a joke in my family – I’m called Miss Fix-it,” she says. “If I’m presented with the problem, I want to fix it. Richard is like that too. But I want to do it yesterday.”

Within 24 hours, Georgina had shared the scans with Associate Professor Brindha Shivalingam – a close colleague and brain surgeon who confirmed she was looking at glioblastoma, an aggressive brain cancer with poor patient outcomes.

“I got off the phone with Brindha,” Georgina says. Her voice cracks a little and she takes an uncharacteristic pause.

“It was that ‘I’m in a nightmare’ pit of your stomach feeling. I was just overwhelmed with grief, to be honest.”

Georgina and Richard aren’t certain of the specifics of their introduction. Georgina thinks she must have dropped by to see Dr Kerry Crotty in the Pathology Department where Richard worked, while she was studying. Their paths continued to cross, but she can’t remember a moment when it all clicked into place.

From his perspective, Richard recalls telling Georgina that

melanoma research opportunities were on the brink of expanding.

He was right.

Australia has some of the highest melanoma rates in the world, with a diagnosis every 30 minutes and a death every six hours, earning it the nickname ‘Australia’s national cancer’.

A decade ago, the death rate was one every five hours. Most patients with advanced melanoma survived around nine months. Typical treatments involved chemotherapy, which was basically ineffective, and surgery or radiotherapy to symptomatic areas.

“I think at that stage every major melanoma unit in the world had a surgeon at the head of it, because it was a surgical disease. There weren’t drugs that worked,” says Richard.

In 2009, a large research grant brought Georgina and Richard together in the lab that they would eventually co-lead from the Charles Perkins Centre at the University of Sydney. They were conducting the first human trials of immunotherapy drugs designed to stimulate the body’s own immune system to fight melanoma.

And they worked.

It was what Georgina calls ‘a penicillin moment’. The five-year survival rate for patients with advanced melanoma jumped from five percent to 50 percent.

This success sparked another thought – what if the body could begin fighting the cancer prior to its removal? Called ‘neoadjuvant immunotherapy’, drug combinations are administered before surgery, to prompt an immune response. After the cancer has been removed, more drugs are often administered to ensure the immune system is trained to continue fighting the cancer. This is called adjuvant immunotherapy.

Progress in complex cancer research is slow. Though she had experienced this firsthand, Georgina was still confronted by the glioblastoma literature.

“Grief is funny. It’s sort of overwhelming and it takes up every brain cell, and then with time it just gets less and less,” she says. “I had a problem to solve, so I just started thinking. And then I started reading everything I could.”

Glioblastoma sends snake-like tendrils out through the brain. Damage to the delicate surrounding tissues during surgery can affect memory, mood and personality. Standard treatment involves removal of as much of the tumour as is safe, followed by radiation and chemotherapy. It has not changed since 2005, and Richard’s subtype is essentially incurable.

“That was incredibly disappointing for someone like me,” Georgina says.



Like Richard, Georgina's research has earned her a global profile and a large network of world-leading specialists. Her reading made her feel like she could see a way forward – the gaps in trials that, with persistence, could become a pathway to more effective treatment.

Melanoma in the brain responds to a combination of immunotherapy drugs administered as initial treatment when the patient is first diagnosed, but this logic has not been applied to glioblastoma.

"They've done all these trials of one immunotherapy drug in patients with recurrent glioblastoma, where it's tested as a follow-up treatment to radiotherapy and chemotherapy, and said it doesn't work," Georgina explains. "And I'm just thinking, 'No! We haven't tested all the things we could possibly test, nor in the right way!'"

She got to work immediately, pushing questions out to her peers about alternative options, and asking their opinion on treatments that she had devised.

Katie had called with the news on Sunday. By Tuesday, Georgina had a bold new plan.

"My life has turned upside-down," Richard says matter-of-factly.

As a pathologist, he had spent his early career examining cancers through a microscope, and had seen the sneaky coils of glioblastoma up close.

His initial conversations with Georgina about new approaches to his own cancer made complete sense to him – treat it like they would the most aggressive melanoma. Use combinations of immunotherapy drugs prior to surgery, and follow up with further personalised immunotherapy treatment once the tumour had been removed. It didn't feel like a difficult choice. The challenge lay in convincing other people.

"I was told I could die sooner or be left with permanent neurological side-effects that would ruin the rest of my life," Richard recalls. "But working in this field for a long time, I've been part of the teams that have worked on these clinical trials. It's me looking down the microscope at the results that have helped transform the management of the disease."

Finding an extended medical team who were on board with the treatment plan was difficult. Richard and his wife

wrote extensive letters stating that they understood the risks.

In June 2023, Richard had an open craniotomy – a riskier-than-usual procedure – to formally diagnose the glioblastoma. This was followed by treatment with a trio of immunotherapy drugs, then, 12 days later, surgery to remove as much of the tumour as safely possible.

Though recovery has been taxing physically and emotionally for Richard, the results have been positive. Samples from the removed tumour showed a significant increase in activated immune cells, meaning the immunotherapy drug had crossed the blood-brain barrier. It's an enormous breakthrough that could reshape the future of glioblastoma treatment – and indeed many other cancers.

"We've actually learned from Richard's tumour – including things that could influence vaccine development – and are now applying it to melanoma," Georgina says.

Watching their Australian of the Year acceptance speech, it's impossible to tell that Georgina and Richard took to the stage slightly under-rehearsed. They barely need notes to state their case – prevention is better than cure.

"Zero deaths from melanoma is possible – we need a targeted screening program, and more investment in research. This must be a national priority." says Georgina, eyes firmly on the audience. The audience bursts into applause.

Speaking to them later, it's obvious that they don't see their research as something that ends with their breakthroughs.

"We were so surprised, and very honoured, to be named Australians of the Year," Georgina says. "But it is decades of work. Even before us – it represents decades of work in immunotherapy."

Having dedicated and ultimately risked his life to push for better patient outcomes, Richard is unsurprisingly direct in his wishes for the future.

"You can't do something on your own. You need a great team," he says. "You need to have courage, but also *be* courageous. Don't just lean in – *leap* in, if you really want to make a difference." ●

Connect with your alumni community



RECONNECT WITH FRIENDS

We can help you to reunite and reconnect with your classmates from your time at the University. If you would like to hold a reunion for your class or graduating year, please submit an expression of interest and we'll be in touch. Explore upcoming reunions or plan your own.



CELEBRATE EVERY MILESTONE

Does 2024 mark a milestone year for you? We're seeking graduates of the years 2014, 2004, 1994, 1984, 1974 or 1964 to commemorate your graduation anniversary and achievements. Simply update your contact details so we can send you a special commemorative gift.



DEVELOP NEW SKILLS

From enhancing your emotional intelligence to mastering techniques for managing change, join one of our upcoming professional development webinars offered in partnership with the Centre for Continuing Education. This series has been specifically designed for the leaders of tomorrow. Discover what's coming up.

CYBERSECURITY

Dr Suranga Seneviratne is on the frontline of cybersecurity research, developing ways to counteract scammers' tactics.





It's a *scam*

Australians are losing more money to scams than ever before – more than \$3 billion a year – in what appears to be a ‘golden age’ for scammers. Cybersecurity expert Dr Suranga Seneviratne is researching ways to outsmart them and to avoid data breaches. He believes scams are about to get more sophisticated – but envisions an increasingly ‘cybersafe’ future.

Written by Cassandra Hill
Photography by Stefanie Zingsheim

What scams are currently most common in Australia?

There is a universal pattern of what we call ‘spray and pray’-type attacks. These are SMS messages or emails that are crafted in bulk and sent by attackers or organised crime syndicates to millions of people, hoping to catch at least some people.

These messages are along the lines of ‘You missed this delivery’ or ‘We noticed this unusual activity in your bank account’. Or around tax time, there might be messages related to problems with your tax return. Also common are Facebook Marketplace scams using PayID. That’s when the scammer, pretending to be a buyer, tries to convince the seller to accept payments via PayID. They then send a fake email which appears to be from the bank, asking for the payment of a fee to activate or increase the payment limit of PayID.

We’ve also noticed scams move into other channels. Scams used to be sent via SMS and email – now they’re increasingly being sent via social media and messenger apps. For example, on WhatsApp, there is this scam along the lines of, ‘Hey Mum, this is my new phone number, I lost my previous phone. Can you transfer some money?’

What are the key emerging cybersecurity threats?

The thing that wakes me up at night is how generative artificial intelligence (AI) is going to affect scams and give them a significant boost. It’s the automation and scaling up of scams that I’m most concerned about. Phishing and marketplace scams have previously involved human effort. Soon they might be fully automated, executed in good English and personalised to their targets. They’re likely to be using email samples and contextual information from social media posts to mimic the writing style of real people or organisations. Some will use convincing images and even AI-generated voices. All of this will create more persuasive, plausible messages that people tend to believe more.

A hacker used to target one or two businesses, but now they can use an AI-based tool to attack hundreds of businesses overnight. This will create scams at a scale that we haven’t anticipated, and we don’t yet know what impact this will have.

Who is most vulnerable to scams?

I’m most concerned about people who are already experiencing disadvantage – the elderly, immigrants, and people with language problems. They tend to fall victim to these messages because they’re not aware of the patterns and they’re also new to what’s happening in Australia. I can’t conclusively outline the numbers, but in my experience, I have seen more cases in these communities than any other.

Why do people fall for scams?

It’s more psychology than financial desperation. Scammers are highly skilled manipulators who use social engineering and emotional triggers. They take advantage of a lack of awareness or vigilance by people who are leading busy lives. There is often some sort of urgency in the matter, and we tend to want to act because we’re worried and want to respect authority. However, if you have heard about these typical patterns, then you’re more likely to figure out that it’s a scam. In the past, we have mostly tried to push this problem towards the users – the idea being that they fall victim to scams because they don’t know any better. But one thing we firmly believe is that the technological solutions must be also ready to assist them, so that these attempts don’t reach users in the first place – so that is something we are working on.

What research and practical measures are you working on to combat scams?

Cybersecurity has always been an arms race between the attackers and the researchers. As security researchers, we need to identify vulnerabilities and

potential threats before they are exploited – and come up with countermeasures when attackers change their strategies.

Right now, at the University of Sydney, we’re developing AI algorithms to detect freshly launched phishing URLs (website links), in a project funded by the Defence Innovation Network, in collaboration with Thales Australia. Phishing is when attackers attempt to trick users into doing the wrong thing, like clicking a malicious link that will download malware, direct them to a dodgy website, or to a login screen impersonating a popular website.



Ben King
(BEHons (Electrical),
BCom '01)
Vice-President,
Customer Trust
Okta Cybersecurity

HOW TO PROTECT YOURSELF FROM SCAMS AND HACKS

- Always keep software and antivirus software up to date.
- Be on the lookout for emails and SMS messages that don't look or sound quite right. Poor grammar or spelling can be a giveaway.
- Don't click on links in emails or SMS messages. Verify messages by logging in to your bank portal or app.
- If someone contacts you by phone, verify the caller's identity or phone them back through their call centre, or use apps with pop-up notifications to confirm requests.
- Use strong passwords or passphrases, with two-factor authentication if possible.
- If you think you have been scammed, contact your bank or relevant agencies immediately. Also seek help from Scamwatch (run by the National Anti-Scam Centre) or report cybercrimes to ReportCyber.

While many existing solutions can detect phishing emails and SMS messages, attackers can evade them. So we're working on a solution that analyses the URL information and draws on the capabilities of Large Language Models (AI learning models that are pre-trained on vast amounts of text data to generate new text content) to build better-performing phishing detectors.

We're also building technologies that will enable companies to collaborate on training their AI models, without revealing their sensitive data. This will

enable them to develop what's called 'cyberthreat intelligence', by finding solutions together.

In addition, we're working to raise awareness about scams in the media, and will be offering more education in the cybersecurity area in future. We need to be instrumental in brushing up people's skills, for example through micro-credential courses, reaching audiences beyond university students. To deliver this education, we're building a cyber training lab at the School of Computer Science that will open in early 2024.

How do you envisage the cybersecurity future – will the proliferation of scams ever subside?

I'm not going to say that we will completely outsmart the attackers, but in terms of our skillset as a nation, if we have enough awareness, technology and knowledge – and the workforce to address it – then we should be able to identify scams early. We should be able to get on top of things quickly when attacks happen and respond before they affect many people. Until then, we need to be more vigilant than ever. ●

CHANCELLOR'S FAREWELL AFTER MORE THAN A DECADE

Belinda Hutchinson AC will step down at the end of June as the University's 18th Chancellor. *SAM* reflects on more than a decade of service by one of our most distinguished alumni and shares her advice to the next generation of graduates.

Written by Ben Wilson
Photography by Michael Amendolia



👉 Belinda Hutchinson AC (BEC '76) is disarmingly frank about the moment she was asked to consider standing for election as the University's 18th Chancellor more than a decade ago.

"I thought the caller had the wrong number at first!" she recalls of the approach, which came almost exactly 40 years after she started the Economics degree that paved the way for her successful career across some of Australia's best-known companies and organisations.

"I then, however, realised that the University was a large and complex organisation, like many of the companies and not-for-profit institutions I had served on the boards of. And that it doesn't matter whether you're running a company, a government or a university – strong leadership commitment, vision and strategy is essential.

"So, ultimately, it was an irresistible opportunity to draw on everything I had learned during my career to help benefit my alma mater.

"The work of this place really does make a difference. Excellent education and world-class research are

both critical to modern society being able to meet the challenges of our time."

As she approaches the end of her tenure, Vice-Chancellor and President Professor Mark Scott AO (BA '84, DipEd '84, MA '93, HonDLitt '15) describes Belinda as one of the most significant chancellors in the University's long history.

"Her vision, hard work and clear focus have been key to our success, making us financially strong and setting us up to become one of the best-governed and most successful universities in Australia," he says.

Under Belinda's leadership, the campus has been transformed over the past decade, with major new buildings enabling innovative approaches to multidisciplinary research and cutting-edge teaching.

"But her contribution as Chancellor goes well beyond our campuses," the Vice-Chancellor and President adds. "Innovation and collaboration often occur at the crossroads where universities, industry and communities connect, and we have benefited significantly from Belinda's knowledge,

insights and networks in helping us to strengthen those connections time and time again.

“We have been immensely lucky to have had her as our Chancellor for more than a decade. She has generously donated her time to the University for more than 11 years without remuneration, and Belinda and her family have also been generous donors.”

The Chancellor herself describes the role as a highlight of her distinguished career.

“It is the most challenging but rewarding role I have had,” she says. “There are not too many jobs where you get to work with people who are changing the world.

“It has been an honour to showcase the work of our academic community on the national and international stage – for example, by raising awareness of how Sydney academics played leading roles in responding to the COVID pandemic, or how their work is leading to global improvements in treatment of cancers, such as melanoma, youth mental health and chronic diseases, or how they are developing quantum computers and new technologies for a lower-carbon future.”

Some of Belinda’s most enduring memories are of meeting students who are about to begin their University career, or as they cross the stage in the Great Hall to receive their testamur.

“At each graduation ceremony, when I hand a new graduate their degree, it reminds me why I love the job: each graduate is equipped with the knowledge, skills and potential to change the world.

“I often say that my degree from Sydney was the passport to the rest of my life, and enabled me to build a truly fulfilling career and lifelong friendships.

“So I often encourage our students and alumni to keep cultivating the connections they formed at the University. The mentors, peers and friends you meet here can open doors and inspire collaborations long into the future, and help you to achieve great things for you and the communities we serve.”

As the daughter of a first-in-family graduate of Sydney who set up his own small business, the Chancellor is particularly proud of work underway to broaden access to the University under the current *Sydney in 2032 Strategy*.

“Scholarship programs like MySydney are a daily reminder of the profound difference education can make,” she says. “And our community of philanthropic donors have made many of these scholarships possible – literally changing these students’ lives and enabling new research that improves our world.”

Over the past decade, Belinda, also a former president of Chief Executive Women, has placed significant emphasis on improving gender equity as part of a broader program of cultural change.



1. Selfie with Vice-Chancellor and President Mark Scott and alumni community in Shanghai, China (2023)
2. The Chancellor Belinda Hutchinson with Isaac Wakil AO and David Khedoori at the groundbreaking ceremony for the Susan Wakil Health Building.
3. At Westmead, chairing the University Senate (2016).
4. Celebrating women's leadership at a special honorary degrees ceremony in 2014.

“The University of Sydney is a very different place to where I had my first taste of campus life as a student – and different again to when I started as Chancellor.

“While we have more to achieve, we have made significant strides. Today women make up over half of our student community. And by focusing on a series of targeted mentoring, sponsorship and networking programs, women now represent more than half of our senior executive leaders.”

As she prepares to don the Chancellor’s robes for the last time, Belinda reminds her fellow alumni that the ability to influence positive change doesn’t just come with high office.

“Always remember that leadership is not just about rank, or status or authority. It’s about empathy and understanding. It’s about responsibility and integrity. It’s about drawing on all your skills and experience to make a positive difference to our future.” ●

Belinda Hutchinson’s term will conclude at the end of June. David Thodey AO, FTSE has been elected as the University of Sydney’s 19th Chancellor and will begin a four-year term on 1 July. He will bring a unique background to the role that demonstrates a commitment to community, science, innovation and public service, as well as extensive leadership and board experience across research and innovation, technology, and telecommunications.

ENVIRONMENT

Fossil fuels made the Industrial Revolution possible. Now another revolution has us walking away from them. By bringing a new strategy to the climate change fight, the University of Sydney's Net Zero Institute plans to speed things up.

Talking about a revolution

Written by George Dodd
Photography by Stefanie Zingsheim
Illustrations by James Gulliver Hancock





👉 Virtual power plants, electric vehicles, ‘green steel’ and aviation fuels with low emissions all form part of the ideal future envisaged by Professor Deanna D’Alessandro and the team of researchers at the Sydney Net Zero Institute.

Each one of these innovations would help Australia to reach its climate change goals of a 43 percent reduction in emissions on 2005 levels by 2030 and net zero by 2050.

“What we’re talking about is a whole-of-society transformation,” says Deanna, the institute’s director. “We need to see enormous changes in technology, in policy and legislation, in our financial systems.”

To encourage more ideas and help advance them, in 2022 the University instigated the Net Zero Initiative (NZI), naming Deanna, a Professor of Chemistry in the Faculty of Engineering, as its director. This seems appropriate considering she made her first public statement on climate change at the age of eight, as part of a school public speaking assignment.

This year, the NZI has been elevated to a multidisciplinary initiative – or MDI – known as the Sydney Net Zero Institute. This will enable researchers to collaborate and work in partnership across faculties and University centres, to better harness their multidisciplinary capabilities – as well as collaborating with industry, government and the community – in their quest for net zero solutions.

Technologies at various stages of development now include producing ‘green steel’ made with renewables or alternative fuels; tapping into the fuel potential of ammonia by designing suitable engines and low-carbon ammonia production techniques; developing ‘green concrete’, since concrete production currently generates huge amounts of carbon dioxide; and rethinking aviation fuels to minimise emissions. Hydrogen fuel cells also offer great promise.

Then there is Deanna’s own area of expertise – carbon removals or, more specifically, direct air capture, which allows extraction modules to be built anywhere to process ambient air, unlike the better-known carbon capture which happens where the unwanted carbon is generated, for example, at fossil fuel power stations or indeed concrete factories. The idea is that direct air capture is likely to be more cost-effective and efficient in removing emissions at scale.

“I’ve always been interested in the environment,” Deanna says. She was raised in Far North Queensland and has rich memories of trips to the Great Barrier Reef, but now has concerns for its future. “I think the reason I gravitated towards science and engineering was I saw it as a solution. I’m very solutions focused.”

The Sydney Net Zero Institute is all about solutions, as it aims to produce technologies and ideas that are ‘ready to wear’, so to speak, for industries and government agencies. To this end, several boards have been created comprising industry representatives and scientific advisors from organisations including Arnott’s, HSBC, Hyundai, Origin Energy, Rio Tinto and Worley, and the NSW Government’s Department of Planning and Environment.

The knowledge and experience of the people on these boards are used to help researchers produce technologies and solutions where cost-effectiveness and ease of deployment are already factored in.

“Any new technologies will present scaling challenges, cost challenges and, importantly, challenges around community acceptance – that’s happening now with pushback on wind farms,” says Deanna. “It’s not enough to have a great idea. You also must figure out how to get it used and embraced.”

The institute is shaped around four thematic areas: achieving zero-emissions energy and industry; reducing public and industry demand for energy; removing greenhouse gases from the atmosphere; and managing the risks that come with climate change.

One area getting serious attention is making the important switch to electrification.

Because Australians have been enthusiastic in their uptake of solar panels and storage batteries, University teams are working on ways to harness and coordinate the energy now being generated by individuals and communities. One example is microgrids, where a number of homes or a town will pool the energy that they produce and remove themselves from the main power grid, becoming an ‘energy island’. This also reduces exposure to supply mishaps caused by problems at the big regional power station often some distance away.



Then there are virtual power plants (VPPs). They also harness excess energy from households but, unlike microgrids, VPPs are part of the main grid and supply energy into it by using centralised cloud-based computing that draws unneeded energy from domestic renewable energy batteries. VPPs can also operate over entire regions and scale up or down depending on demand.

Both microgrids and VPPs help to reduce consumer energy costs – and VPPs actually generate income. Ultimately, these ideas will mean less reliance on big, fossil-fuel-consuming power stations and make renewable energy a bigger part of the energy mix.

As energy supply has evolved in recent years, Deanna has helped to evolve carbon removal. Once a technology that might have been classified as a ‘nice to have’, the continuing rise of greenhouse gas emissions has made it a ‘must have’, along with every other carbon reduction and removal technology out there. In fact, the United Nations’ Intergovernmental Panel on Climate Change has announced that greenhouse gas removal is now “an essential element of scenarios that limit warming” and is factored into their calculations.



NET ZERO IN A NUTSHELL

WHAT IS NET ZERO?

—
The idea is to cut climate pollution to zero, or as close to zero, as possible.

—
‘Net-zero emissions’ refers to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.

—
It doesn’t mean that we stop greenhouse gas pollution entirely, because there are some harder-to-abate sectors (e.g. heavy industry and heavy-duty transport) that will take time to transition.

—
It does mean we invest in clean, renewable energy and phase out fossil fuels, such as coal, oil and gas.

—
Australia currently has a target to reduce its domestic emissions by 43 percent on 2005 levels by 2030, and to reach net zero by 2050.

(Source: Sydney Net Zero Institute)



Deanna and her own research team, along with their industry partner, Southern Green Gas, have made significant advances – enough to receive several awards from the research community.

Apart from the pure technology side of the NZI equation, there is what Deanna calls the ‘ecosystem ideas’, which are more about shifting and informing the culture. This includes increasing the number of people studying in areas that relate to technology and engineering (Australia currently suffers a serious and worsening shortage of such people) and educating decision-makers in all industries so they can make informed, climate-friendly choices.

“We’re looking at short-course microcredentials in collaboration with the University of Sydney Business School, where people at the executive level who sit in boardrooms can become more informed about the issues around climate change and understand the huge positive impacts their decisions can have,” says Deanna. “And keep in mind, our current undergraduates are stepping into roles where they’re being asked to lead all sorts of industries.”

Talking with Deanna, you get the sense of an assured intelligence and someone who can communicate big ideas with a light touch. There are also times you can sense the emotion as she contemplates the enormity and urgency of the task. “But amazingly positive things are happening,” she says, “and it’s important we talk about that as well.”

For example, there are also non-climate side benefits of stepping away from fossil fuels. Uptake of renewables will likely remove some of the occasionally explosive geopolitics of oil and enable energy to be produced closer to where it is needed – and even by the people who need it. This will underpin cheaper energy costs that could stimulate economies, create new industries and take pressure off natural environments.

It could also save millions of lives worldwide, as people will no longer be exposed to dangerous fossil fuel air pollutants like nitrogen dioxide, carbon monoxide and sulfur dioxide.

Meanwhile, with Australian Government predictions that climate change will take a massive \$423 billion bite out of the Australian economy over the next four decades, there are still blind spots around gas, coal mining and land clearing. But there is also progress, with the federal government radically expanding a scheme to support new clean power generation and storage capacity, with the aim of Australia running on 82 percent renewable energy by 2030.

For all the growing green-energy momentum and new technologies coming to the fore, Deanna points out that the thing that has always been at the very top of the to-do list is still there: “We have to stop emitting and we have to stop using unsustainable and polluting fossil fuels.” ●



Join a Sustainability Tour of campus to find out how we’re changing to meet our 2030 net zero goals.

Alumni insider

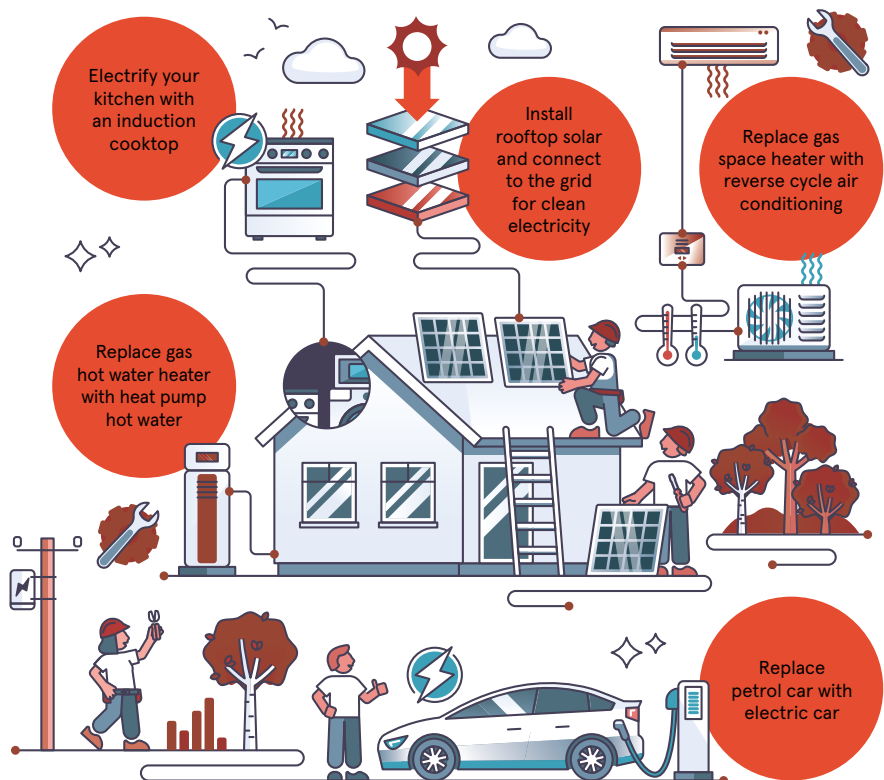
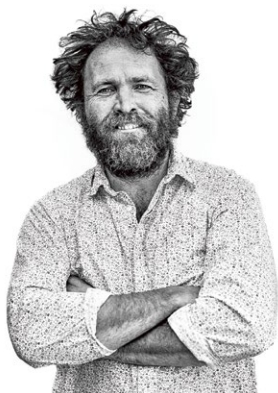
NET ZERO AT HOME

HOW TO GET TO NET ZERO

When your household appliances age or stop working, swap fossil fuel–run machines for cleaner, efficient electric versions that are likely to also save you money.

Saul Griffith is on a mission to ‘electrify everything’ – starting with household appliances and cars rather than coalmines and large-scale industry. He estimates that if we start replacing appliances and cars in 10 million houses at a rate of around one million houses a year, by 2030 we’ll see 100 percent of households saving around \$5,000 a year.

SAUL GRIFFITH (ME '00)
Alumnus, co-founder and Chief Scientist of Rewiring Australia, inventor, entrepreneur, renewable electricity advocate



REACH FOR THE STARS

THREE LESSONS IN PASSION AND PERSEVERANCE FROM SPACE EXPLORER DR CHRIS BOSHUIZEN

Written by Caitlin Player

Dr Chris Boshuizen (BSc (Hons) '00, PhD '07) is a physicist, space explorer, entrepreneur, venture capitalist and musician. His life's mission, 'to make getting to space as easy as catching a bus,' has fuelled a remarkable career. From landing his dream job at NASA to co-founding Planet Labs and becoming the third Australian ever to venture into space, Chris shares three lessons in reaching for the stars.

1. Seize opportunities, especially the unexpected ones.

As a student, Chris Boshuizen jumped at any opportunity to find a way into the space industry. So when his physics teacher, Professor Tim Bedding (BSc '88, PhD '93, GradCertEdStudies '03), asked if he would help to design a satellite as a PhD project, he didn't hesitate.

"I learned everything I needed to know about how satellites were designed, built, funded, manufactured and tested through that project," Chris says. "It was a never-to-be-repeated opportunity."

Professor Bedding also encouraged Chris to attend space conferences as a way of networking, and he eventually got his big break at the Space Generation Congress.

"The first year, I attended as a delegate. By the end of it, they had nominated me to run it the following year," Chris says. "They forgot I was a delegate because I just showed up and started pitching in."

He volunteered at every Space Generation Congress for the next five years. It got him noticed. When NASA went on a hiring spree in 2007, Chris was top of mind.

2. Never think your ideas are stupid, no matter how stupid they actually are.

As a Space Mission Architect at NASA, Chris pursued new ideas with the agenda of 'getting humanity to space'. Throwing out conventional thinking on satellite technology, he and his team had the idea to replace their costly computers with off-the-shelf smartphones. Surprisingly, it worked.

Chris went to NASA headquarters excited about the potential. "We got laughed out of the room," he says. But the idea was the genesis of Chris's next pivotal career move, leaving NASA to co-found Planet Labs and launching enough satellites into space to photograph every corner of Earth, every day. Today Planet Labs is the leading provider of Earth observation data.

3. Don't doubt yourself. Be patient, and never give up.

At 17, Chris's initial attempt at becoming an astronaut via the Air Force ended abruptly with the discovery that he was partially colourblind. Undeterred, he found an alternative pathway into the space industry by starting his own company – which ultimately enabled him to finally realise his dream of space travel at the age of 44.

He says he nagged US aerospace company Blue Origin about joining a flight for years, only to be brushed off repeatedly. But in 2021 he finally got the call. "They said, 'Hey, you've been persistent.'"

"One of my big realisations after the trip was, what if I had quit after 10 years? What if I had quit after 20 years? What if I had quit after 25 years? If you just keep going slowly, you'll get there."

After returning from space, Chris is even more determined to make space travel accessible. He has recently invested in a company that's making inflatable space station habitats. The concept is like Planet Labs' version of the International Space Station, aiming to reduce the cost of space travel by two or three zeros.



Dr Chris Boshuizen's journey to the University of Sydney was supported by an equity scholarship. Find out how you can support bright minds to realise their potential.

Jack Manning Bancroft founded award-winning global network Australian Indigenous Mentoring Experience (AIME) which has since given more than 25,000 students the opportunity to finish school and go to university. He's also a children's author and artist and has just worked with his mum on his latest book.

Creative





His mother, Dr Bronwyn Bancroft, is a proud Bundjalung artist and storyteller who has made a significant contribution to children's literature, publishing 46 books. A passionate advocate for artists' rights, she's also a board member of AIME.

They inspire each other to create – and to create change.

connections

Photography by Fiona Wolf

Jack Manning Bancroft

(BA (Media and Communications) '07)

Founder and CEO of Australian Indigenous Mentoring Experience (AIME)

Mentoring motivation

I was at university when I founded AIME. I could see that university students had all this time, whether we were sitting at Manning Bar or out at night. So I thought maybe we could tap into that time gap and help kids in school. And we did that by linking 25 University of Sydney student mentors with 25 Aboriginal children and ran workshops at a nearby high school.

Because I was given a leadership scholarship to the University, I wanted to make sure that I could give back. Guilt was really what motivated me to think about all the Aboriginal people and others who didn't have an opportunity like mine. I wanted to make sure that I did something big with it. I think university provides a space – a 'playground' – for dissent, and that's critical. It's a safe space to push, to challenge, to not be shut down, for ideas to grow. For me, it was a big enough playground that I could see the edge of the rules and see how far I could push. That's the essence of what AIME came out of.

Tackling global inequity

To solve a bunch of challenges, we needed to have a red-hot crack at inequity and shifting our ideas, values, behaviour and economies for the next century and beyond. So we started working with organisations, governments, schools, universities and citizens around the world to change systems and ways of thinking. And we use mentoring and imagination to unlock the potential of Indigenous students. I think that imagination is everything. If you don't engage your

imagination, you're just following patterns, you're not coming up with ideas.

AIME is now 20 years into building a global network – working in over 52 countries. AIME students are achieving higher school completion and university progression rates than non-participants. Over 25,000 students have achieved educational parity, transitioning to post-secondary pathways – and we now have 10,000 University mentors who support them. We have fused it all into a plan for the next decade by creating a digital space, called IMAGI-NATION, which is a research and development lab for humanity. I want to unlock the AIME Imagination Curriculum for every school in the world and train teachers to be mentors so we can achieve educational equity for all kids across the world.

Inspiring influence

To have a mother who never imposes limits on your imagination is the greatest gift that we kids had – and it didn't stop when we were five years old. I've had courage – and that's from what I've seen mum do. She has always had all these stories pouring out of her when she wakes up in the middle of the night. That energy, that precious energy, is everything. The coolest thing with Mum is there's no limit to what is possible. She encouraged us to nurture ideas, and to be aware of the danger of shutting down the mind.

I also just reckon Mum and I like showing off to each other and outdoing each other. I think that's part of it – it's like, 'Look what I can do!'



Jack Manning Bancroft and Dr Bronwyn Bancroft, with Professor Blue, whose research at AIME includes 'Flipping the Script' on society's dominant narrative.



Dr Bronwyn Bancroft

(MA (Studio Art) '03, MVA '07, PhD '19)

Advocating for art

I love painting, but I also love book illustrating, and my artistic practice has developed a lot since I started out. I have also volunteered for 14 years to save Boomalli Aboriginal Artists Co-operative to give other artists opportunities. I think it's an exciting time for Aboriginal art, but there are also many voices that aren't being heard because they don't speak loudly.

I'm really interested in supporting a multitude of different voices. There's a real gap between elite artists and the rest of the artists trying to get a slice of the pie – to be able to sell their art and even work towards an income. You can't have a structure where you have one percent of people doing really well and the rest not doing so great. They're the people I work for. I'll continue to dedicate my time to this.

Changing times

I went to art school in Canberra in 1976, and it was very different to uni these days. You had people walking around in the middle of winter in bare feet, and living in cars. Then when I went to the University of Sydney in the 2000s to do a double master's degree and a PhD after years as an artist, it was a different experience, as I was still raising kids and trying to make an income.

The PhD took eight years, but I'm pretty pleased, as I wanted that PhD a lot. I wanted it so that I could recognise what an opportunity it was, and to remind myself that my father was denied an

education for being black in this country and designated a non-citizen. He served in World War II and provided for seven children. I did it for him.

Imagining the future

When you have children, I think it empowers you to be the warrior that you really are. I've faced up to important moments in my life – not only for myself but for my children too. I think having this connection with other people and coming together under a more collective understanding is one of the most essential things for our society. That's why I just love what AIME's trying to do across the globe, because it's obvious that our government infrastructure and frameworks don't really deliver what we need on the ground.

I have immense pride in what Jack's managed to activate for so many people. It was a job that had to be done, because there was inequity – and there's a lot more to be done. I've always encouraged him to use his imagination. Some people are scared of being smart, but the most important thing is the activation of intelligence. It'll make your life better if you maximise your capacity in life – and enjoy the ride! You may as well be out there on a rollercoaster with your intelligence, tenacity and bravery, rather than taking a paid wage every week and just being a sedentary human being. I think that people need to revolutionise the world and be proactive about changing everything, in their local community and globally. ●



1. Anne Howell after her second operation. Photo: Andrew Worssam
2. Recovering with a child she couldn't remember. Photo supplied.
3. Author Anne Howell today. Photo supplied.



PERSPECTIVE SHIFT

At 31, writer Anne Howell (BA '85) woke up in hospital, believing that she was a nine-year-old girl. She had no memory of her family, her baby daughter, or much else. With a case of retrograde amnesia, Anne had to rediscover who she was, including how to read, write and study again.

✦ In my 20s I studied English Literature, Philosophy and Arts at the University of Sydney, then worked as a staff newspaper journalist and magazine features editor for many years.

In 1991, while pregnant, I suffered a stroke two days before giving birth. CAT scans revealed I had a life-threatening malformed artery located on the outer brain, much like an aneurism. Eleven months later I underwent neurosurgery, then caught meningitis, which left me in a coma. I woke up with amnesia, thinking I was a young girl.

I had no idea where I was, or why I was in excruciating pain. Nothing made sense. It was all very sci-fi. I had lost my memory of near everything in my life, as well as knowledge of the broader world. When I first saw my mother, she seemed extraordinarily old. She indicated that my 'husband' was coming to see me. I thought, 'So adult of me. How is it possible?' She didn't mention that I also had a daughter. I found that out when my partner walked in holding this odd creature, beautiful but unearthly strange. Not knowing what a baby was, I was staggered to learn she was mine.

Slowly, memories surfaced through triggers – smells, sound and sights – but for a long time I couldn't read or write. I tried reading my daughter's books, but the letters turned into insects and walked off the page. I ended up learning to read an adult book, persisting for hours until I had a breakthrough. That changed everything.

On an ambitious whim, I decided to study philosophy again, imagining that the world's top thinkers would reboot my poor brain. It was so rewarding; I'm still surprised at how I kept up. Despite medical professionals telling me to aim low, I had a sense of brain plasticity, that I needed to be very proactive about working my brain if I wanted to have a decent life, and pushed myself hard. Eventually I returned to newspaper journalism, then began studying creative writing. I obtained my PhD with a novel and thesis in 2013 at the University of Wollongong, then started writing my memoir, *All That I Forgot*.

I wrote it to make sense of the amnesia experience for myself and readers. Not all my relatives were forthcoming with information on my earlier life, so it took investigative work to piece together my history. I analysed my now-rich store of memories and did much research. I wanted to explore the reconstructive nature of memory and also give a sense of what it's like to rely on others for one's stories of the past. I'm probably not the person I was before – although I am told my sense of humour is intact.

As someone who has experienced childhood twice, I was given a fresh perspective. It reinforced my belief in lifelong learning. ●

Anne Howell's memoir,
All That I Forgot,
Bad Apple Press, 2022



Written by Lauren Sams

Photography by Fiona Wolf

Rare gifts

Books have always been the key to opening doors for Professor Louise Baur – throughout her career and her lifelong learning at the University of Sydney. So it's no surprise that the internationally recognised paediatrician is also a dedicated donor of rare books. It's her way of giving back to the University.

Professor Louise Baur has a deep love for books, especially the rare kind. She has generously donated to Fisher Library's Rare Books and Special Collections.



➤ Growing up in Sydney's Beecroft in the 1960s and 1970s, the home of Professor Louise Baur AM FAHMS (BSc (Med) '79, MBBS '81, PhD (Medicine) '93) was filled with books. Reading was always a given. Her love of reading has turned out to be one of the greatest gifts of her life – and one she has now passed on in kind to the University of Sydney.

“Everyone in my family read and read,” Louise says. Time spent with family often meant reading together. In hindsight, she says, “It was wonderful to grow up in an environment where you were encouraged to think. I now look back and realise that, while some other people's horizons were artificially limited, mine were not.” Books were one door, her “tremendously encouraging” parents were another – and the University of Sydney was the third crucial influence.

Louise is so indebted to university life that the paediatrician and Professor of Child and Adolescent Health has become one of the Rare Books and Special Collections' most significant donors, giving a gift of a rare book – or funds to help with book maintenance – to Fisher Library annually for the past 26 years.

“The German side of my family had a wonderful Bible from 1572 that I'd grown up with,” Louise says. “Dad would bring it out every now and then, and we would marvel at this ancient text.” Her parents gave her the Bible when they downsized their home but, unable to provide the right temperature-controlled environment for such a valuable artefact, Louise encouraged her father instead to donate the book to the library, and provided a monetary gift to accompany it. “Initially, our gift was to maintain the donated books, and then it became broader – for the library to use as it wanted.”

Since then, Louise's gifts have grown and flourished. “My husband has bought me books with the intention of donating them to the University,” she says, laughing “I've opened them and thought, ‘Oh, how wonderful!’ And he says, ‘I thought you might like to give it to the Library.’ He is very generous.”

Young Louise was inspired by her botanist father and paediatric nurse

mother to pursue her dreams. She was also influenced by a close family member's illness when she was a teenager. Both experiences shaped her beyond measure: the first was the reason she studied at the University of Sydney, and the second the reason she studied medicine.

“My father was a botanist. He got First Class Honours at the University of Sydney, and he won the medal in Forestry,” Louise says, still with a sense of awe. “He worked in forest ecology; he was a rainforest and eucalypt expert. That was the environment we grew up in – we were taught that science was amazing, that of course we would go to university, because that's what people did.”

Louise completed three degrees at the University of Sydney between 1979 and 1993, and for more than 40 years she has contributed remarkably to our knowledge of paediatric medicine, and particularly to childhood obesity in Australia and overseas.

“From the very beginning, I've loved paediatrics – working with children, and families” Louise says. “I felt I could make a real difference.”

That is something of an understatement – Professor Louise Baur is an internationally recognised leader in the field of childhood obesity. She was recently elected president of the Australian Academy of Health and Medical Sciences and, as president of the World Obesity Federation and director of the Boden Initiative at the Charles Perkins Centre, she has been instrumental in raising the profile of child and adolescent obesity as an issue of clinical and public health importance. Her research has also improved our understanding of the factors that help to predict, prevent and manage obesity.

In 2010 Louise was made a Member of the Order of Australia for her service to medicine, particularly for her contribution as a researcher and academic, and to the community through her support for children's charities.

Most of her research work has been funded by competitive grants, although in recent years there have been some very welcome philanthropic funds that



have allowed her to support postdoctoral fellows and PhD students.

One of the reasons giving is close to Louise's heart is that she has found it difficult in her own career to raise much-needed funds for research.

“It's hard to fundraise around obesity because it's controversial and the condition is stigmatised,” Louise says. “Most funding [for children's medicine] goes to oncology, heart disease and neonatal research. I'm very grateful for the money the research has received, but it would be lovely to have more.”

“Obesity is an ever-evolving and hugely significant area where research can make a long-lasting impact. We ask a lot of questions every day, because obesity has many contributing factors and affects so many people. How do we offer treatment for obesity that is psychologically safe? How do we personalise treatment? How do we prevent the problem in the first place – in early childhood and at other times of life?”

“We also tend to ignore the root causes of childhood obesity, that include social disadvantage. And, while healthy eating and exercise are important, my colleagues in the Charles Perkins Centre and I are bringing together people in public health,



Professor Louise Baur taking a look at Fisher Library's Rare Books and Special Collections

ecology and agriculture to think about how we [can] change our food systems to promote health and wellbeing. If we think of obesity like heart disease, with all these factors contributing to it, we are more likely to understand it."

It probably helps that Louise is a self-described "enthusiasm and an optimist", and that her research continues to compel her. "There is so much excitement here at Westmead Precinct, every single day." Ultimately, she adds, "It's the people who make the biggest difference to a university. And we have some incredible people."

Louise's life is so entwined with the University that when she and her husband (also an alumnus) were married, they held their wedding breakfast at the Refectory, as it held such fond memories for them. And when her father turned 90 during COVID-19 lockdowns, Louise and her sister (another alumna of the University) decided against a traditional gift, instead donating funds to the Library to purchase a rare book on botany in their father's name. "It ended up being a book about the cultivation of tobacco, which we all thought was quite funny," she says.

When lockdown restrictions were lifted, the whole family visited the library to witness the gift. A photo was taken of the

family that day, and Louise's husband had it transformed into a watercolour by artist Simon Fieldhouse. It has become one of her most prized possessions.

"It turned out to be the last outing we were able to have with my father before he became ill and passed away," she says. "So it's now a very special gift."

Louise continues to share her own gifts with the world in various ways. Both she and her husband have also committed to posthumous giving, including leaving a financial gift in her will to the Rare Books and Special Collections for Fisher Library to use as it wishes.

"The University is an incredible ecosystem, with amazing treasures, wonderful people and a tremendous mission," Louise says. "Supporting the library is one way in which graduates such as my husband and I can give back to the University which gave so much to us. And I've also seen how philanthropy more broadly can truly make a difference in supporting research and innovation." ●



Join our free alumni book club and reconnect with fellow graduates over some great reads.

BOOKS THAT CHANGED ME



SAM asked Jessie Stephens (BA '13), podcaster, author, broadcaster and screenwriter about a book that's had an impact on her.

The most transformative book I've ever read is *Man's Search For Meaning*, by Viktor Frankl. Everyone must read this book in their lifetime. It's essentially about the meaning of life, and changed how I perceived suffering and challenged me to identify and explore my purpose.



Frankl, a Holocaust survivor, lost almost his entire family. After being liberated from Auschwitz, he wrote a book about what kept him alive. One of his most famous quotes is: 'Those who have a "why" to live can bear with any "how".' His point is that meaning is not innate, but it is found. And once we find meaning in suffering, it ceases to hurt so much.

I read it in my early 20s, and I don't think I realised at the time how much I was craving these types of conversations. I come back to Frankl's wisdom whenever I confront hardship, and have gifted it to so many people.

I think it impacted me too because of my history with depression, and ongoing struggle to identify meaning. I had no sense of what I wanted my future to look like. I felt my life had no meaning, and I also had terrible writer's block, which was making it impossible to complete my university degree. Frankl wrote this book in nine days, and I found that incredibly inspiring.

If you find yourself asking existential questions about why we're here, if you feel lost and directionless, this book is for you. It stares into the abyss.

*Jessie's latest book, **Something Bad is Going to Happen**, is a number-one fiction bestseller that explores the subject of depression as experienced by young adults.*

ALUMNI SPOTLIGHT

More stories of alumni at work around the world. We love hearing what our alumni are doing.



ANGELA SHI
MCom '09

With a background in artificial intelligence and financial technology and a passion for creating human-centric intelligent technologies, Angela co-founded Empathetic AI in 2023, with the vision to integrate humanity into digital technologies. A finalist for the Business NSW Excellence in Innovation Award, Empathetic AI is revolutionising enterprise communication and knowledge sharing. Previously, Angela accumulated 14 years of experience in the fintech sector, serving as the Asia-Pacific Chief Financial Officer at Capital.com and as the Australian CFO at Plus500. She has extensive experience in leading teams across seven countries and managing users from more than 40 countries. Angela is also involved in various international organisations, and is a frequent speaker at conferences and contributor to influential media outlets.



**MUNKHJARGAL
BYAMBAJAV**
MHPol '17

Munkhjargal is a compassionate paediatric gastroenterologist and healthcare program manager at the Christina Noble Children's Foundation in Mongolia. Dedicated to enhancing children's health, especially among the most vulnerable, Munkhjargal started her career in clinical roles at Mongolia's National Center for Maternal and Child Health. She then combined her medical expertise with a master's degree in health policy to improve the quality of healthcare services and patient satisfaction at Mongolia's Intermed Hospital. She's passionate about creating impactful, scalable change and has published numerous academic papers. She has also secured grants from local and international organisations to implement innovative health projects that aim to improve health education and patient outcomes among vulnerable children and youth.



ANASTASIA VOLKOVA
PhD '18

Anastasia is the co-founder and CEO of Regrow Ag, a global leader in sustainable agriculture. With a career spanning Ukraine, Poland, Australia and the United States, Anastasia leverages her expertise in data analysis, remote sensing and machine learning to pioneer innovative solutions for improving global food security using space technology. Since launching Regrow Ag in 2020, Anastasia has helped some of the world's largest brands, including Kellogg's, Cargill and General Mills, to reduce greenhouse gas emissions across their supply chains. She is also a member of the Forbes Technology Council, a TEDx speaker, and a recipient of multiple awards and honours, including the University of Sydney Outstanding 2021 Young Alumni Award, TIME 100 Next, and BBC's Top 100 Women. She is passionate about driving climate action through food production.



EILEEN SLARKE
BA '77, MA '89

Eileen is an internationally recognised sculptor, most celebrated for her notable *Dante in Australia* medal, which can be seen at The British Museum in London. Locally, she is equally noted for her contributions to Coogee's Wylie's Baths, which include a life-sized bronze statue of Australian Olympic swimmer Mina Wylie, and three books about their history. Eileen made history herself as the first female sculptor in 150 years to be commissioned by Randwick Council to create a monumental sculpture. And her career has spanned the globe, through her work as an artist, curator, university lecturer and Australia's representative judge on Italy's Dante Biennale's international judging panel. Eileen says the inspiration for her medallions, on display in major collections all over the world, was drawn from her research as an honours student, under Professor Frederick May's guidance.



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ALI BESISO

BHlthSci '09, MHI '11, MBA '23

Specialising in digital health and clinical software solutions, Ali is a passionate health informatician who is committed to developing digital technologies that drive fundamental change in health care. He has co-led the commercialisation of two digital health start-up companies, Innovative Clinical Information Management Systems (iCIMS) and Health Language Analytics (HLA). The success of these companies has led Ali to deliver on several major projects in Australian public and private hospitals, designing and implementing clinical information systems and natural language processing capabilities. In 2018, HLA won the prestigious NSW Premier's iAward for Public Sector Innovation, and in 2019, iCIMS won the inaugural Medical Software Industry Association Innovation Award. Ali is also a NSW committee member of the Australasian Institute of Digital Health.



PABLO KORNBUM

MIntS '06

Pablo is an economic analyst at the Ministry of Defense of Argentina, a university professor and Director of International Economics at the Argentine Center of International Studies. Specialising in world and Argentine economic history, macroeconomics and international economic policy, Pablo frequently shares his expertise through the media. Beyond academia, Pablo enjoys writing dystopian novels focused on issues of economics and international relations. His most recent is *The Equilibrist That Came From Space*. He believes writing about apocalyptic futures helps people to reflect on the dilemmas we face as individuals and as a society. It also challenges thinking about what kind of world we want to live in, what our priorities are, and what kind of injustices we are willing to tolerate.



VAN TAN PHAM

PhD '08

As Deputy Director at the Southern Office of the Vietnam Institute of Agricultural Engineering and Post-harvest Technology (VIAEP), Van is dedicated to advancing agricultural engineering in Vietnam. He has led a range of scientific research and technological transfer projects in the fields of agricultural mechanisation, food science, and post-harvest technology. He also designs agricultural machines for the farming of rice, sugarcane and peanuts. As a senior scientist and university lecturer, Van's extensive achievements include publishing in a range of scientific journals and authoring book chapters, chairing committees, serving on councils, and consulting on numerous projects across Southeast Asia and Africa to protect food safety and reduce harvest losses.



ANÉ COETZEE

MCom '19

Ané began her career with the United Nations before founding Young Women in Sustainable Development (YWISD) in 2022. A youth-led organisation dedicated to connecting and empowering young women to advocate for an inclusive and sustainable future, YWISD has since reached more than 100 countries. Ané has spearheaded strategic initiatives across Australia, Fiji and the US, including leading the creation of the first official Australian Youth Statement submitted to the UN Framework Convention on Climate Change Youth Constituency for COP26. She has also served as Australia's Country Coordinator for the 16th UN Youth Climate Change Conference, as a member of the UNFCCC Youth Constituency and as Chair of the Australian Red Cross National Youth Advisory Committee.

ASK SAM

Have a question that's been keeping you up at night? We have experts at the University who can answer it for you. Email your questions to sam@sydney.edu.au. Nothing is too obscure.

Q. How are memories stored?

A. Memories can be viewed as our brain's response to an event. When an event takes place, it induces a response in our brain's neurons. This response involves changes in the electrochemical activity of a neuron, which then releases neurotransmitters that act as signals across a synapse – a site where two neurons communicate. The receiving neuron picks up the signals and fires them off to the next neuron, and so on. This process happens across networks of millions of neurons at any one time. So memories are stored through the repeated firing of groups of neurons in a network over time, and the strengthening of the connections in that network. Importantly, these networks span several brain regions, including the hippocampus, amygdala, basal ganglia and cerebellum. Each region is responsible for different aspects of memory. For example, the hippocampus takes care of initial memory formation and transfers from short to long-term memory, while the amygdala helps to attach an emotion to a memory. There's still so much we don't know, but neuroscientists the world over are working to solve the mysteries of the brain.



Dr Christina Maher (PhD '23) is a biomedical engineer and neuroscientist exploring ways to understand the brain signals we can't see. She is creating models and technology to interface with the human brain and advance our biological capacity. She is a Superstar of STEM and an avid science communicator through her social media @drchristinamaher.

Q. I heard that varroa arrived in Australia last year. What is varroa and why is it dangerous to bees?

A. Varroa is a small mite associated with honey bees. It can spread a range of viruses between colonies and cause the death of weaker hives. New Zealand lost 90 percent of its feral honey bee colonies to varroa. Until a few years ago, Australia was the only varroa-free continent, so when varroa was first discovered in NSW, huge efforts were put into an eradication program. That has since changed to attempts to control the spread of varroa.

Honey bees are worth more than \$14 billion annually to Australia, and their loss could have a significant impact on pollination services in agriculture, which is important for between one- and two-thirds of the crops we eat. However, European honey bees are not native to Australia. We have about 2000 species of bees, as well as other pollinators like flies. It's important that we research their potential as pollinators too, so we don't just rely on a single commercial pollinator.



Dr Caitlyn Forster (MPhil '18, PhD '23) is an Associate Lecturer of Entomology. Her PhD examined the behavioural ecology of bees. Her current research uses behavioural economics to understand how insects pick flowers. She is passionate about science communication and is a strong advocate for citizen science initiatives to get people outside enjoying nature and understanding their local ecosystems.



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Community Radio Skid Row DJ (1980s)
REF-00013176, University of Sydney Archives



LAW = LIES
RELIGION = REVOLTING
POLITICIANS = PARASITE

RADIO SKID ROW

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Nick Molnar (BCom '12)