SYDNEY ALUMNI MAGAZINE

ISSUE 03 — SEMESTER ONE 2016

SAM

THE UNIVERSITY OF SYDNEY

WHERE START-UPS GET THE BEST START

RADICAL WAYS TO BEAT EXTREMISM

SYDNEY STUDENTS WITH OLYMPIC DREAMS

DEMENTIA'S UNEXPECTED VILLAIN

The future starts here


FTA
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SANDWICHES
Mothers
Choice
TEA
ATL 733
ENY 371

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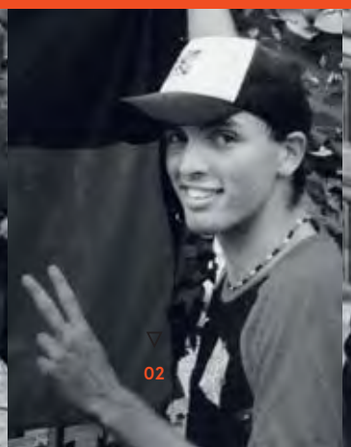


Leadership for good starts here.

For 165 years our students have forged a vision at the University of Sydney and gone on to change lives for the better.

sydney.edu.au/leadership

From left to right: John Bell, Victor Chang, Anne Summers, John Howard, Kerryn Phelps, Michael Kirby, Samah Hadid, Gough Whitlam, Benjamin Veness, Tara Moss, Mary Kostakidis, Nick Farr-Jones, Bruce Beresford, John Bradfield, Adam Spencer, Annabelle Chauncy, Jack Manning Bancroft, Ethan Butson, John O'Sullivan.

PLANNING FOR THE FUTURE

Last month, Senate approved the University's 2016-20 Strategic Plan, which regular readers of *SAM* will recall follows extensive consultation with our staff, students and the wider community throughout 2015.

During those conversations, we heard that the goal we established five years ago – to create a place where the best researchers and most promising students can achieve their full potential – still rings true. We also heard about the pride people feel for our University, and how much they want us to succeed.

Our vision for 2020 is therefore unashamedly aspirational, aiming to position the University of Sydney as the best university in Australia and a leading institution globally. It continues the trajectory that began almost 170 years ago with our twin founding commitments to excellence and public service. And it builds on our work since 2011, which has both strengthened the University on every academic and financial measure, and enabled us to refine our understanding of how to achieve our vision most effectively.

So by 2020, we will invest in outstanding research, ensuring that our best work – work of national, regional and international impact – is well supported with the right people, equipment, and physical infrastructure. We will deepen our commitment to undergraduate education with a reinvigorated curriculum, so that our graduates will develop the skills, knowledge and values they need to thrive and lead in a rapidly changing world. And we will build a University-wide culture in which our staff and students can realise their full potential.

Through enabling Sydney to embody the best that a university can be, this is a vision that we hope will inspire our fellow alumni. We encourage you, as a valued member of the University community, to find out more about our exciting new initiatives at: **sydney.edu.au/strategy**

Your feedback is always welcome.

Belinda Hutchinson AM (BEc '76), Chancellor.

Dr Michael Spence (BA '85 LLB '87) Vice-Chancellor and Principal

A GRADUATION AND A NEW BEGINNING

On 11 May 1966, Charles Perkins walked the steps of the Great Hall to receive his academic testamur, marking a milestone in Australia's history. Perkins was the first Aboriginal man to graduate from any university in Australia.

This year marks the 50th anniversary of that singular event, and its influence is still being felt.

While studying for a Bachelor of Arts, Perkins led the historic 1965 Freedom Ride through western NSW with a group of fellow students, drawing attention to racism against Aboriginal people.

It attracted national and international media attention.

His dedication, determination and activism continued well after his studies, as he played a pivotal role in the 1967 referendum that amended the Constitution to include Aboriginal people in the census and allow Parliament to create laws for them.

Perkins made history again in 1984 when he was appointed Secretary of the Department of Aboriginal Affairs, the first Aboriginal Australian to hold such a position.

Perkins was a tireless champion of progress and justice. He passed away in 2000.

Perkins's trailblazing ideas are embodied in the University's Charles Perkins Centre. It embraces his vision by looking for solutions beyond the traditional as it provides fresh hope for the health of all Australians.

Above: Charles Perkins has been one of the University's most influential graduates

ARTS AND CULTURE

IDEAS TAKE CENTRE STAGE

Nicole Kidman made her professional debut there. Geoffrey Rush, Jacki Weaver, Judy Davis, Russell Crowe, Cate Blanchett and Mel Gibson have all trodden its boards. And last year, the Seymour Centre, built after a significant bequest from Sydney businessman Everest York Seymour, celebrated its 40th Anniversary.

This year the Seymour Centre's program includes the Great Ideas Performance Series, with post-performance forums conducted by some of the University's leading academics.

Tim Jones, Artistic Director of the Seymour Centre, believes this reflects an audience evolution. "Audiences are increasingly seeking theatrical experiences that not only entertain, but also engage on a cerebral level," he says.

Upcoming academic-enhanced productions include:
The Hansard Monologues: Age of Enlightenment
5 – 13 August
Written using the Hansard-recorded words of our federal politicians.

Letters to Lindy
2 – 10 September
Based on the 20,000 letters Lindy Chamberlain received during her trial and wrongful imprisonment in the 1980s.

Take advantage of the special alumni ticket offer on these performances by using the promo code 'SYDALUMNI' when you book at: **www.seymourcentre.com**

Top: In 1975, the Seymour Centre forecourt was temporarily a carpark. Left: The Seymour Centre today is a vibrant performance facility. Photos: Supplied by the Seymour Centre.

RESEARCH

WHAT THE HUH?

We congratulate Nick Enfield, Professor of Linguistics at the University of Sydney, who has won an Ig Nobel Prize for breakthrough research. And no, that "Ig" is not a misprint.

The Ig Nobels are a parody of the Nobel Prize; they are awarded for work that makes people laugh and think. Enfield was honoured for his linguistic insights into the word "huh".

With co-authors Dr Mark Dingemanse and Dr Francisco Torreira from the Netherlands, Enfield established that "huh" and its variants appear in 31 languages where its use is to fix misunderstandings. More than this, it suggests universal principles that underpin all human communication.

"Our findings could help computers to communicate in more 'human' ways," Enfield says. "They also have applications in language teaching and cross-cultural communication."

The research is part of a five-year European Research Council project led by Enfield.

INFLUENCE

NEW ALUMNI AWARDS

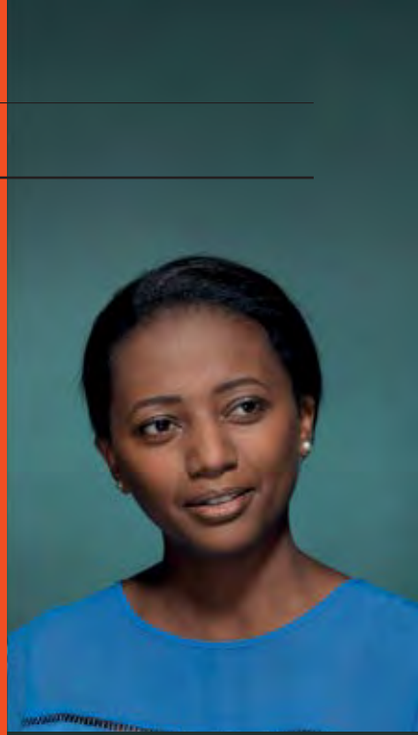
At the University of Sydney we've added two categories to our annual Alumni Achievement Awards to make them even more representative of the great work our alumni do.

The new categories are Cultural Contribution and Innovation and Entrepreneurship. They join International Achievement, Professional Achievement, Outstanding Achievements of Young Alumni and Service to Humanity.

This year's winners include artist and activist Ben Quilty (BVA '96) whose work changes hearts and minds; and Tom Beer (BSc '67), a scientist whose work with the International Panel on Climate Change contributed to a Nobel Prize.

Every year the awards recognise graduates who have made a significant contribution to society through innovation, dedication, leadership and community spirit.

sydney.edu.au/alumni/awards



INSPIRED_ has reached $600 million

The campaign to support the University of Sydney has reached its goal two years early. What inspires our donors, inspires our students, inspires our researchers and inspires our staff. Here are just some of the people who have contributed to or benefited from INSPIRED.

What are you inspired to do?

sydney.edu.au/inspired

ON MY DESK: CRAIG BARKER

DR CRAIG BARKER (BA ’96 PhD ’05)
Archaeologist and Manager, Education and Public Programs, Sydney University Museums

Photography by Victoria Baldwin (BA ’14)

Dr Craig Barker’s office is right outside the door of the Nicholson Museum so he doesn’t have to travel far when school groups, students, staff and tourists arrive for one of his classes or tours. When Barker’s not there, he could be in Cyprus at the Paphos archaeological dig that has fascinated him for more than 20 years. We asked him to dig around his desk, and a few of his other obsessions turned up.

AGATHA CHRISTIE POSTCARD

I’ve been reading Agatha Christie’s books since I was a teenager and these days I give talks about her. She worked as an archaeologist, with her second husband, in what is now Iraq and Syria. Part of the reason she was so prolific was that she was stuck in a desert dig house for four months of the year with nothing to do but bang out a book on a typewriter. What’s amazing for me is that we have material in the Nicholson collection that Christie actually cleaned. The card has a joke on it that was attributed to Christie but it was really written by her publicist. It says that every girl should marry an archaeologist because the older she gets, the more interested in her he’ll become.

CYPRIOT FIGURE

I’ve spent five weeks a year working in Cyprus for the past 20 years. During that time, we’ve worked closely with the Cyprus Department of Antiquities, which has given us various acknowledgements for the work we’ve done for the country. This one was given to us by the President of Cyprus. It’s just a little handmade replica of a 4500-year-old figurine, but it was great to receive it. You couldn’t imagine an Australian Prime Minister giving a gift to a French team excavating Australian sites. But in Cyprus, they really value what we do.

A PEBBLE FROM A BEACH IN CYPRUS

I just picked this up randomly on a beach in Cyprus and put it in my pocket. It doesn't look like much, and it isn't. But if I'm having one of those days, I can look at that pebble and know that there's still Cyprus. It reminds me of great times I have there with friends and colleagues. It's probably the most valueless thing here, but in some ways it's the most sentimental for me. Near where I picked this up is a beach where local myth says Aphrodite was born.

DIG BOOKS

These books represent 20 years of my excavations and research. At the moment I'm going back through them and asking lots of questions like: "What were we doing back in 1999 when we were digging trench 1ZZ?" What we thought then was a Roman wall in Cyprus we now know was a Medieval wall that was reusing Roman architecture. These books let me revisit my thinking when we first uncovered those structures. The popular perception is that archaeology is five weeks out in the field having fun then that's it. There's actually far more time spent in the library, laboratory and in museums than in the field.

MUMMY BANDAGES

These bandages are about our school holiday programs where we have kids wrap themselves up as mummies. It's interesting that alongside my academic research I'll often have kids' colouring-in sheets – it shows the duality of what I do. I also run a lot of Master of Teaching courses here about object-based learning. To be honest, all a museum really needs to run a great school program for kids is a mummy and a dinosaur. You're off and running.

REPLICA INDIANA JONES FEDORA

A lot of the Agatha Christie books popularised archaeology and, of course, so did Indiana Jones. I'm a real movie buff and I don't think educators should be afraid of using popular culture to engage people in what they're talking about. That hat is great for engaging kids. We just have to point out what's accurate in the movies and what's not. I'd give Indiana Jones a high score for fun and a low score for archaeology – he doesn't spend nearly enough time in the library.

TARDIS USB

I'm happy to call myself a nerd. One of the things you learn teaching children is that you're never going to be cool so you may as well just go with it. So yes, I'm a *Doctor Who* fan.

At the newly opened, ultra high-tech Sydney Nanoscience Hub, we talk to six researchers who are looking for big breakthroughs – at the smallest of scales.

Small wonders

Written by Katynna Parry (BSc(Adv)(Hons) ’01)
Photography by Victoria Baldwin (BA ’14)

A revolution is unfolding in nanoscience and nanotechnology. This is where researchers work at the scale of the nanometre – one billionth of a metre or roughly the size of 10 atoms – to create previously unheard of technologies.

At the exceedingly small nanoscale, the very properties of light and matter that we all know are significantly different, offering researchers opportunities to turn science fiction into science fact.

Imagine a world where diamonds help cure cancer, aircraft are super light and water is used as fuel.

Launched in April 2016, the Australian Institute for Nanoscale Science and Technology at the University of Sydney has been designed to meet the supremely exacting needs of nanoscience research.

Floors are decoupled from the building to create a stable environment for high-precision measurements; air-conditioning gives exact temperature stability and humidity control; air flow is imperceptible so it doesn’t affect experiments; and laboratories are electromagnetically shielded so there’s no interference either from outside or from the building’s wiring.

We spoke to six University researchers who are already making big breakthroughs at the nanoscale.

FUTURE FUEL

Professor Thomas Maschmeyer (BSc ’91 PhD ’95) is the Director of the Australian Institute for Nanoscale Science and Technology (AINST). He is an experimental chemist investigating how to selectively speed up (catalyse) chemical reactions.

Soon everyone will want a battery powered house. The work of Maschmeyer and his team means houses can be built with fast-charging batteries as part of their structure, ready to take advantage of rapidly improving solar energy technology.

“The starting point is faster, cheaper, zinc-bromine batteries,” Maschmeyer says. “But we’ve filled the batteries with a nanostructured gel instead of the usual liquid.”

This world-leading innovation makes batteries that are more robust. The gel is even fire retardant, so no wonder the building industry is excited.

Maschmeyer and his team are also designing nanoparticles to convert waste biomass into biofuels, and nanostructures to split water into hydrogen and oxygen using solar energy so the hydrogen can be used as fuel – perhaps the ultimate green power.

When he’s not in the lab, Maschmeyer is busy as the Director of AINST. “We have people with expertise in physics, chemistry, engineering and the medical sciences all working together in this amazing new building,” he says. “It’s purpose-built, with the tightly controlled conditions we need to do our work.”

QUANTUM LEAP

Associate Professor Michael J Biercuk is the Director of the Quantum Control Laboratory. He’s an experimental physicist working to develop a new generation of technologies powered by quantum physics.

“We’re studying nature at the most fundamental levels, and exploring how to control systems obeying the strange laws of quantum physics,” Biercuk says. “We hope to build technologies that use quantum effects, much like we power today’s technology with the flow of electricity.”

The potential is largely unknown. Working at the edge of knowledge is exciting to physicists such as Biercuk and his team, and the applications already identified are powerful.

“We’re working to develop special-purpose quantum computers known as quantum simulators, with immense computational potential,” Biercuk says. “With just 300 interacting quantum particles we would need a supercomputer larger than the known universe to match it.”

But this is only one idea. “Quantum mechanics underpins smartphones and global positioning,” he says. “But so much more is possible if we learn to harness quantum physics fully.”

The Quantum Control Laboratory is the scene of experiments at the atomic level that are enabling new discoveries about how we can coax weird quantum systems into performing useful tasks.

“These are insights with scope to change the world,” Biercuk says.

DIAMOND DAYS

Professor David Reilly is the Director of the Quantum Nanoscience Laboratory. He’s an experimental physicist working at the interface of quantum science and nanoscale hardware systems.

Aligning the polarisation of individual atoms inside a synthetic diamond is the very definition of a painstaking process. But Reilly and his team are motivated by the possibility that it could revolutionise the early detection of cancer and the management of treatment.

“The process is called hyperpolarisation,” Reilly says. “And when you do that to nanodiamonds, they give off a signal that can be detected inside the human body by using a standard magnetic resonance imaging machine (MRI).

“Attaching these hyperpolarised nanodiamonds to molecules that are drawn to cancer cells means an MRI can see cancers at a very early stage, before they become life threatening. Because nanodiamonds are non-reactive and largely non-toxic, they are also of great interest for delivering chemotherapy drugs.

“We’re effectively tackling a pharmaceutical problem with physics.”

With such promising early breakthroughs, nanodiamonds might one day become part of the oncologist’s toolkit.

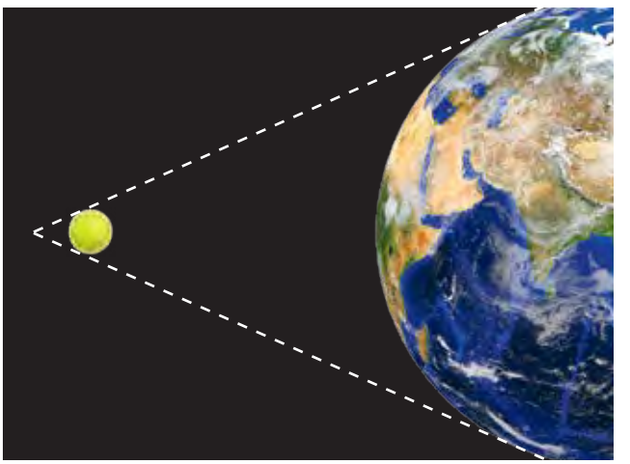
Previous page: The Nanoscience Hub has yellow light in the clean room for conducting nanolithography, as white light could damage the chemicals used.

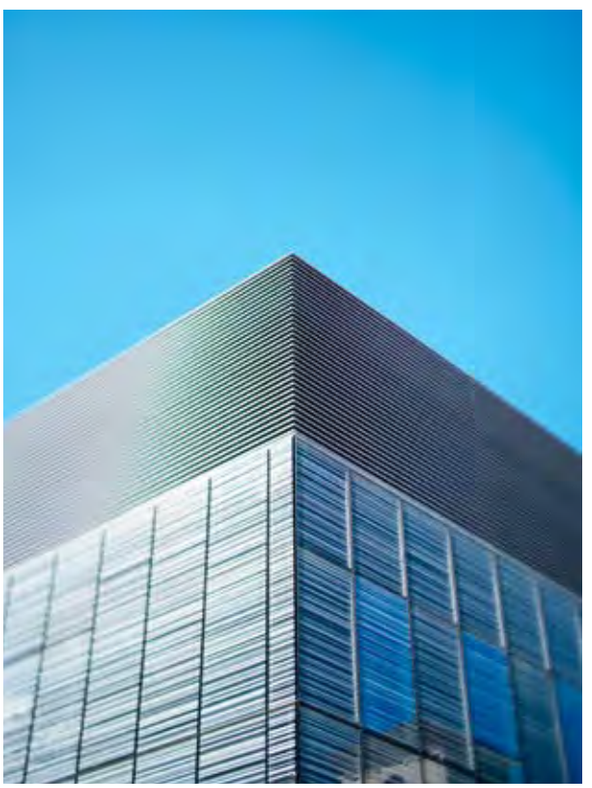





Clockwise from top left: Professor David Reilly, Director, Quantum Nanoscience Laboratory; Professor Zdenka Kuncic, Director, Community and Research, AINST; Professor Thomas Maschmeyer, Director, AINST; Associate Professor Michael J Biercuk, Director, Quantum Control Laboratory; Professor Simon Ringer, Director, Sydney Nanoscience Hub and Research and Prototype Foundry; Professor Ben Eggleton, Director, Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS)

A nanometre is a billionth of a metre. It's like a tennis ball compared to the Earth (not to scale). Photo: iStock





"We have people with expertise in physics, chemistry, engineering and the medical sciences all working together in this amazing new building."

Professor Thomas Maschmeyer
Director of the Australian Institute for Nanoscale Science and Technology

Above: The newly opened Nanoscience Hub is one of only five such facilities in the world.

Right: Behind the scenes at the Hub is highly sophisticated equipment precisely controlling the working environments.

CLEAR DIAGNOSIS

Professor Zdenka Kuncic (BSc ’92) is the Director of Community and Research, AINST. She is a physicist whose work lies at the interface between physics and the life sciences.

“Entangled particles” is such a tricky quantum idea it even challenged Albert Einstein. He called it “spooky action at a distance”. But Kuncic and her team are exploring how it can be used to create a new generation of medical scanning technology.

“Very basically, entangled particles are connected even when they’re far apart,” Kuncic says. ”It’s a bizarre concept but it could help us move well beyond the current medical technology of PET scans.”

Positron emission tomography (PET) already detects quantum particles to trace out a picture of organs and tissues at work in the body. Kuncic and her team are looking for a way to use the entanglement of these particles to achieve a level of detail in PET scans that could revolutionise the detection, diagnosis and treatment of disease.

As the Director of Community and Research at AINST, Kuncic is keenly aware of how valuable the new, purpose-built research space is to nanoscience research. “There is no margin for error when you’re working at the nanoscale,” she says.

SUPER-STRONG STEEL

Professor Simon Ringer is the Director of the Sydney Nanoscience Hub and the AINST Research and Prototype Foundry. He is a materials scientist working on the design of next-generation nanostructured materials.

It used to be a fact of steelmaking – it could be either strong or malleable. It couldn’t be both. Professor Ringer and his team are changing all that by creating what they call third-generation steels.

“It is crazy strong,” Ringer says. “But a lot more versatile. So now cars and trucks can be designed so they’re much lighter.”

Ringer is studying small groups of atoms in special architectures called atomic clusters that can create materials with remarkable properties. His findings can be applied to the production of semiconductors for nanoelectronics, catalyst nanoparticles, and the new ultra-strong lightweight steels.

The steel innovation is significant. Reduce the weight of a car by 100kg and you reduce CO_2 emissions by about six grams per kilometre and fuel usage by about half a litre of fuel per 100 km. Extrapolated globally, the potential impact would be gigatonnes of CO_2 emissions, gigalitres of fuel and vast amounts of particulates that are not released into the atmosphere.

“Think back to when smog shut down Beijing,” Ringer says. “Emissions targets are being set around the world. Designing new materials at the atomic scale will help us achieve targets that are good for our lungs and good for the atmosphere.”

LIGHT WORK

Professor Ben Eggleton (BSc ’93 PhD ’97) is the Director of the Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS) and is an Australian Research Council Laureate Fellow. He is an experimental physicist working on creating the next generation of light-based technologies.

Your mobile phone could soon do much more than you ever thought possible. Eggleton and his team are working on technologies that could leapfrog way beyond 5G into a future of massive download capabilities that will transform mobile communication. “But that’s only a small part of the story,” Eggleton says.

Right now, the integrated circuits in phones are passive information processors and sensors. Eggleton is working to combine the capabilities of light, sound and electronics in nanoscale circuits. These circuits will be able to respond to and influence their environment.

Think of a future in which an entire medical diagnostics lab could be held in the palm of a hand. What now takes a visit to hospital could one day be done at home.

Other applications are all around us. The massive amount of equipment needed to fly an aircraft could be reduced to a tiny chip. Easy monitoring of pollutants such as carbon dioxide, methane and coal particles could change the economics of transport, mining and manufacturing.

“The nanofabrication revolution of the last decade has transformed what’s possible,” Eggleton says. “We’re looking at nationally significant outcomes.”

From bright idea to budding business, INCUBATE has a strong track record of seeding successful start-ups.

Innovation nation

Written by Katie Szittner (BA (Media & Comm) ’11)
Photography by Victoria Baldwin (BA ’14)

More than a persistent buzzword, “innovation” is hailed as the key to Australia’s future: the knowledge-fuelled cash cow to which the Turnbull government has pledged its identity and resources.

A growing and enthusiastic group of alumni, students and staff at INCUBATE began taking advantage of the mood for innovation in 2012. INCUBATE is a 14-week start-up program for gifted students, staff and recent alumni of the University that transforms innovative ideas into viable start-ups. The program was founded by two entrepreneurial students and developed by the University of Sydney Union.

Just a few years later, INCUBATE-assisted start-ups are collectively worth more than $25 million. “We look for the most talented entrepreneurial students who have innovative, technology-based ideas and want to build a business,” says INCUBATE Co-founder and Program Manager James Alexander (BCST (Hons) ’13).

Hundreds of applications are whittled down to eight for each INCUBATE session. Each receives $5000 of seed funding, working space on campus, advice from industry experts and mentoring from some of Australia’s most experienced business minds and University of Sydney alumni.

“We see students who have very innovative ideas but lack the support to take them to market,” Alexander explains. “A big problem in Australia is that we don’t have extensive support networks for entrepreneurs. Often the advice budding entrepreneurs get is dubious because it comes from the perspective of people who have no experience in building businesses.”

INCUBATE, one of only a handful of university-based start-up accelerator programs in the world, now counts more than 100 mentors as part of its team; they provide professional expertise, networking opportunities and guidance.

“We want our start-ups to make new mistakes, not the same mistakes,” Alexander says. “We want our mentors to tell them what to avoid.”

INCUBATE has already spurred the success of a broad diversity of

INCUBATE mentors Rob McInnes (top) and Michelle Deaker.

Previous page: James Alexander co-founded INCUBATE to help people turn great ideas into great businesses.

start-ups, from Tzukuri's unlosable sunglasses to Abyss Solutions' underwater robots, Fluid Education's school-scheduling software, Breathewell's interactive medical device for lung cancer patients and Persollo's single-click payment tool.

For mentor Dr Michelle Deaker (BSc '88 MSc '91), a tech entrepreneur who is Chief Executive and Managing Director of leading venture capital firm OneVentures, INCUBATE represents a major change in the culture of entrepreneurship in Australia.

"The world has really changed since I started as a young entrepreneur," Deaker says. "At that time there was absolutely no infrastructure for entrepreneurs. People didn't even really discuss what it was."

INCUBATE mentor Rob McInnes (BSc '86 LLB '88), a leading intellectual property specialist and partner at law firm DibbsBarker, has also witnessed the cultural shift in entrepreneurship.

"It used to be that people would join a big organisation at 23 and be expected to retire at 65 with a gold watch," McInnes says. "There wasn't really a management or business track for science graduates, let alone a start-up track where you would start your own business straight out of university. Now I think it's fantastic that becoming a business owner is seen as within the realm of possibility in the short term for a university graduate."

According to Alexander, the University and its community are uniquely placed to take advantage of the Turnbull government's "ideas boom".

"We're at a turning point in Australia's history – our current government's push on innovation and its emphasis for universities to be involved is a big opportunity," he says.

"INCUBATE is part of a transformation at the University from a traditional education and research institution to one that takes these skills and creates a meaningful impact on society."

By helping exceptional young people fast-track their ideas into thriving businesses, mentors at INCUBATE are giving a leg-up to both the next generation and the economy.

"We've got to move beyond a resources-based economy," says McInnes, who has also chaired an international working group on transferring technology between universities and industry.

"In economics, innovation is the free kick. Innovative start-ups tend to create high-value jobs. We're in an environment where jobs that don't actually add value can be sent offshore or automated. So it's more and more important that the jobs we create are high value."

Deaker agrees: "Generally speaking it's the new, up-and-coming businesses that are the net employers in this country," she says. "Technology is disrupting so many jobs in our economy. We need disruptive businesses to come through and create new jobs, which is why entrepreneurship is so critical in Australia."

McInnes and Deaker are also both quick to extol the personal benefits of mentoring at INCUBATE.

"Every time I go to INCUBATE, I come back energised," Deaker says. "There is an enormous amount of satisfaction in contributing to a legacy of developing the next generation of entrepreneurs and businesses. It gives you an additional sense of purpose, and you're continuing to develop and sustain your own professional career."

McInnes agrees: "What INCUBATE has proved is that you don't need a lot of resources and industry experience to come up with a great idea. You just need some modest but efficient support and help from people like me and the INCUBATE team."

INCUBATE is looking for mentors to provide expertise to the next generation of start-ups. Find out more at **incubate.org.au**

Here are just three of the many businesses, guided by alumni mentors, that have successfully taken the INCUBATE path.

ABYSS SOLUTIONS

Abyss Solutions uses state-of-the-art aquatic drones and data analytics to conduct underwater inspections of critical assets such as dams, bridges, boats and reservoirs.

"We were all academics – we'd been trained to look at a problem and solve it, but we didn't really know how to do business," says Co-founder and Chief Executive Nasir Ahsan (PhD 15). "INCUBATE helped us take our idea out of the research world and into the commercial world."

The company now counts Sydney Water as a client and is in talks with other large companies in Australia and overseas.

abysssolutions.com.au

PERSOLLO

Persollo is a simple payment facility for anyone looking to sell something. It provides a link that can be shared anywhere, including on Facebook, Twitter, blogs or via text message. In a single click, customers can view products and process payment, with no need for elaborate frameworks or third party sites.

"We crafted Persollo to empower merchants, bloggers, freelancers, writers, developers and artists who want to sell their work directly to their audience anywhere, any time," says Co-founder Olga Oleinikova (PhD '16)

Persollo now has more than 100 active users in Australia, Japan, the US and the UK.

persollo.com

FLUID EDUCATION

Fluid Education founder and current Bachelor of Arts student Giorgio Douehi conceived the company's flagship product, Backpack, while still in high school. In his first year of university, Douehi took the idea to INCUBATE.

"Backpack is a scheduling platform for schools, built by students. It allows teachers to notify students and parents of upcoming events or activities, and can be seen from a simple feed anywhere.

"I found that parents were missing out on vital information at school, like upcoming exams or if sports were cancelled due to wet weather," Douehi says.

"Backpack is unique because it was built by people who experienced first-hand the troubles of using the current education technologies."

fluideducation.com

James Alexander looks for entrepreneurial students with technology-based ideas.

Other University resources helping new entrepreneurs:

SYDNEY GENESIS

Many INCUBATE participants started here. Genesis is a cross-faculty start-up program supported by the University of Sydney Business School. It has helped more than 700 first-time entrepreneurs, students and alumni focus their ideas so they're ready for pitching to the marketplace.

It also runs in Indonesia, Myanmar and Vietnam in partnership with local education organisations.

Like INCUBATE, the program uses mentors who share their real-world experience. The program itself is free, but has high expectations of those taking part.

Applications open each semester. To find out more about the program or to become a mentor:
sydney.genesis@sydney.edu.au
sydney.edu.au/business/genesis

ATP INNOVATIONS

INCUBATE participants who have a deep tech idea with international potential might be invited to join ATP Innovations (ATPi).

ATPi is a technology business incubator that is 25 percent owned by the University of Sydney. In return for a small equity share of up to 5 percent, ATPi partners with technology-based start-ups to help them grow, achieve success and find investment through in-house personalised assistance and mentoring.

Currently it is guiding 70 businesses that will step away from ATPi when they have developed their own momentum.

ATPi was recently awarded Best Incubator in the World in a field of 2800 other incubators.

As the world turns its gaze to the 2016 Olympics in Brazil, five University of Sydney students are going for gold – while studying hard.

We go to Rio

Written by Emily Jones (BA (Media&Comm) '12)

Behind every Olympic statistic is a story. Scratch the veneer of headline-grabbing medal counts and you'll find countless tales of grit, dedication and courage. Meet the University of Sydney students you may see on the podium in Rio later this year.

Michelle Jenneke, hurdler
Bachelor of Mechatronic Engineering, fourth year
Michelle Jenneke is a bona fide YouTube sensation. A quick warm-up pre-race 'jiggle' at the World Junior Championships in Barcelona in 2012 turned the young hurdler into an overnight star with 27 million views – at one point gaining 2 million hits per day.

"It's not something I thought would happen – people recognising me on the street or little athletes coming to me on the track wanting to get my photo," the 22-year-old says. "All of that has been pretty surreal."

Jenneke has since moved from jiggling to juggling, managing a full training schedule alongside her mechatronic engineering studies. The hands-on course has seen her design robots and code systems.

With an Olympic qualifying time already secured and a personal best in the 100 metres of 12.82 seconds – the second fastest time by an Australian women's hurdler ever recorded, behind Sally Pearson – Jenneke now needs to impress at Olympic trials in April to book her ticket to Rio.

"In the next couple of years I'm obviously looking to finish my degree and also to keep running," Jenneke says. "I'd love to keep going until the next Olympics in Tokyo. So that's where I'm at: I'll keep getting faster and smarter."

Michelle Jenneke, hurdler. Photo: Sydney Uni Sport & Fitness

Joshua Clarke, sprinter

Bachelor of Commerce, second year

Joshua Clarke was five years old watching the 2000 Olympic Games in Sydney when his dream was born. Sixteen years later, the sprinter is well on his way to joining his running icons.

In March 2015, Clarke won the Open Nationals with a time of 10.19 seconds, earning him the title of "Australia's Usain Bolt".

He has since gone from strength to strength: after achieving an Olympic-qualifying time at the ACT Championships in February 2016 with a personal best of 10.15 seconds, Clarke will become the first Australian male to compete in the 100-metre sprint since the Athens Games in 2004.

Clarke joins his personal heroes Matt Shirvington and Patrick Johnson on the list of Australia's fastest men. Yet he laughs at the parallels. "My friends and family still treat me just the same," the 20-year-old student from Bella Vista, in Sydney's north-west, says. "It's nice, but I try to go about my business as if I were a normal athlete."

Preparing for Rio with daily six-hour training sessions, Clarke is busy timekeeping both on and off the track. He plans to turn his number-crunching skills into a career through a commerce degree.

"It's good getting exposed to all the different aspects of commerce," he says. "Accounting is probably my favourite."

Clarke is determined to make his hard work count. "My mum and dad [have] sacrificed so much for me since I could put on a jersey," he says. "It would be nice for them to see their efforts haven't gone unrewarded."

From left: Basketballer Katie-Rae Ebzery (with ball); rugby player Chloe Dalton; sprinter Josh Clarke (centre); and swimmer Te Haumi Maxwell. Photos: Geoff Tripp; Getty Images, Sydney Uni Sport & Fitness

Chloe Dalton, rugby sevens

Bachelor of Applied Science (Physiotherapy), fifth year

"Laying your body on the line" may read as sporting hyperbole, but it could be the title of Chloe Dalton's autobiography.

The gifted sportswoman's rapid, 180-degree switch from basketball to rugby sevens two years ago came at an immense physical cost. Last year the 22-year-old made headlines after playing 12 games – or two entire tournaments – in London and Amsterdam with a fractured forearm. It was the second break to her left arm since an initial fracture the previous year.

"I think because Olympic qualification was on the line, I was so focused on trying to get the team through those couple of tournaments," Dalton says. "The adrenaline of it all seemed to help, but it pushed my rehab back a fair bit."

Dalton fractured her arm again in December 2015. But just weeks after her latest operation, the tenacious athlete is already back in the gym preparing for Olympic squad selections in July, all while putting her physiotherapy studies to good use throughout her own rehabilitation.

"I feel like it would be such an incredible honour to wear the green and gold at the biggest sporting event in the world," she says. "It would be the pinnacle."

Katie-Rae Ebzery, basketball

Bachelor of Education (Human Movement), third year

As Katie-Rae Ebzery's voice crackles down the line of a Skype call from Brazil, there's just a hint of fatigue. The 26-year-old has just endured a 30-hour flight to Rio to prepare with the Opals, the Australian national women's basketball team, for a whirlwind Olympic test against Brazil, Argentina and Venezuela.

Ebzery and her teammates are already proving hugely popular off-court among the home crowd.

"We can't go out walking too much – we stick out like a bit of a sore thumb at the moment," says the 178 centimetre-tall guard, one of the shortest on her team.

Having "grown up at the basketball court" – both her mother and cousin are former elite players – Ebzery aims to share her love for sport as a high school physical education teacher.

"I love sport and the influence it can have on kids growing up," she says. "Sport is a really good advocate for being sociable and teamwork and all of those values we want to instil in young kids."

When Ebzery made her Opals debut in August 2015, she helped the team beat New Zealand in the Oceania Series and gain Olympic selection. She now has a one-in-12 chance of joining the final line-up. "I just have to keep working hard and take my opportunities and really go for it," she says.

Te Haumi Maxwell, swimmer

Bachelor of Science, third year

By the age of just 13, Te Haumi Maxwell was already being hailed as the next Ian Thorpe.

Nicknamed 'Tsunami', the New Zealand-born student began making waves in the swimming world when he shaved almost three seconds off Thorpe's time in the 50-metre freestyle at the same age level.

"When I was younger I guess I didn't understand the magnitude of that kind of title," the 20-year-old says. "It didn't hit me too much, but I guess as I got older I understood it."

Mounting a fresh campaign to become a Rio contender, Maxwell has been preparing with celebrated trainer Grant Stoelwinder, the former coach of swimming legends Geoff Huegill, Libby Trickett and Eamon Sullivan.

From pushing himself to the limits in the water, it follows that Maxwell is fascinated by how the human body performs.

"I'm quite interested in neuroanatomy and how the brain works, even though it's quite annoyingly complicated at times," he laughs. "My plan would be to try to get into medicine after graduating. I'll try to keep my doors open to future studies."

There are high hopes for Maxwell, and he is unwavering in his mission to excel both athletically and academically. "It will be a tough haul, but no one said it would be easy, so I may as well grab the bull by the horns and try my best."

OUR OLYMPIC HONOUR ROLL

The University's first Olympian was Nigel Barker, an Engineering student, who won bronze in the 100m and 400m running events at the 1906 Athens 'Interim' Olympic.

Our most successful Olympics was the 2000 games in Sydney at which our students won four gold, four silver and two bronze medals.

146 Number of University of Sydney Olympians
58 Number of medals
12 Number of gold medals

ELITE ATHLETE PROGRAM

The five Olympic hopefuls in this story and many other gifted University athletes have been part of our Elite Athlete Program. Participants are offered support such as financial assistance, tutoring, travel grants and counselling.

So far, the program has helped about 400 students from more than 35 sports. Started in 1990 by Sydney Uni Sport & Fitness (SUSF), the program helps participants achieve their very best, both athletically and academically.

If you were an Elite Athlete, please share your story with us: **alumni.office@sydney.edu.au**

ON MY MIND: EMILY SCANLAN

Registered psychologist Emily Scanlan (BEc(SocSc) (Hons) ’01) MInternatLaw ’03) says about 10 percent of her clients fall outside standard treatment models. She’s calling on her profession to explore connections with philosophy.

When I hear some of my clients talk about depression, I find myself standing in a desert. It looks red and hot with burning sand and sharp winds. There is nothing in this place but despair. Nothing will grow here.

I sat with one of these clients just this week.

“Is it so bad to wish that my life had meaning?” the client asked. “All I wanted was to contribute something but everywhere I turn people are motivated by greed and ego. The world isn’t interested in my ideas. I spend all my energy coping with the pain of rejection.”

This client is male, highly intelligent and sensitive. He’s been trying to build a charity. He sees this work as his “calling”, but it’s been a long time since it bore fruit. He has a resounding thought: “I don’t belong here.” This client in the desert could be understood as the “existential client”. He wants to find meaning in his life or give up on it altogether.

Here’s the problem: many psychologists make it through to registration without substantial training in philosophy-based questions around meaning and purpose. This can mean that clinical psychologists are maybe too careful of going beyond the bounds of what is measurable and statistically valid. Yet this is exactly where the existential client needs to go.

I am grateful for my studies in government at the University of Sydney which included ancient Greek philosophers such as Aristotle, Plato and Socrates. Sociology brought in the existentialists: Jean-Paul Sartre, Simone de Beauvoir and Friedrich Nietzsche.

This crew boldly asserted that nothing is for certain and meaning is what you make of it. Defining the existential approach is difficult as theorists disagree on much. Bridging it to therapy is even harder. However, the existentialists would agree with my client that yes, the world is meaningless, random and chaotic. Death is inevitable and its timing uncertain and anxiety provoking. In addition to these hardships, we are ultimately alone.

For a small number of clients this world view makes sense. Some

“It takes courage to endure this constant evolving but it may lead to finding a purpose or calling.”

philosophical enquiry about not finding a point to their lives can be deeply therapeutic.

The therapist can approach the existential angst with respect: "So you wanted there to be a point to your life. What did that look like?"

In the clinical setting, most clients are helped very much by cognitive behavioural therapy techniques that seek to name mental processes so they can be considered and treated. Here, my client might be said to have a tendency towards catastrophising and negativity bias.

But for the client in the desert, labelling his thinking in this way would be a further degradation in a world where he already feels misunderstood. His desire to understand the point of his life is real, not a glitch in his brain.

Fortunately, existentialism isn't just brutal realism. It throws us a lifeline with the concepts of "authenticity" and "freedom".

The authentic self is not predetermined by genes or roles (such as mother, engineer). Rather, Sartre says we are "condemned to be free", which means we are perpetually having to rechoose or recommit ourselves to who we are and what we do. We create our own meaning through relationships, spirituality, work, even connection with the Earth (such as gardening or harvesting).

It takes courage to endure this constant evolving but it may lead to finding a purpose or calling. It also provides hope and resilience that can be life sustaining. As Nietzsche puts it: "He who has a why to live can bear almost any how."

A connection between resilience and existential meaning has also been found by researchers Mascaro and Rosen (2005) from the Department of Psychology at Texas A&M University, in the United States. Their study of a non-clinical young adult population reported that individuals with high levels of meaning tend to have fewer symptoms of depression, are more stable and more motivated.

Earlier this year, the University of Sydney Alumni Council asked me to talk to the veterinary science students about mental health.

The faculty was interested in ways to build resilience in this highly intelligent group, many of whom felt they had a calling to work with animals but were unprepared for the pressures of the profession. Many struggled with depression in the early stages of their career.

Emily Scanlan also mentors University of Sydney students. Photo: Nuran Zorlu

Professor James T Webb, who founded Supporting Emotional Needs of the Gifted , observed existential depression to be more common in very bright children and adults. He says they can be "intense, sensitive, idealistic, and this can help them create good things". However, he adds: "This can also lead to frustration, disillusionment and unhappiness."

Webb found that this cohort benefits from an exploration and strengthening of meaning "so that they do not feel alone and helpless in a world that seems so paradoxical, arbitrary, and even absurd".

Universities offer subjects to students from all disciplines that encourage philosophical inquiry into meaning and purpose. The University of Sydney incorporates discussion of these ideas into its broader study units. Internationally, Harvard, Stanford and Pennsylvania University offer these subjects as part of a movement towards positive education (emphasising individual strengths and personal motivation to promote learning).

It's my hope that as existential theory gains traction in tertiary institutions, in particular the health and science faculties, clinical psychologists will embrace these ideas and include them more easily in their practice. Certainly, I believe that the existential can, in some cases, both complement and deepen other treatment models.

When I recognise the existential client in front of me, I feel a heavy sense of responsibility. This person wants desperately to make a contribution. Their experience of depression is crippling them and the world is all about rejection.

"The way you describe your life right now, it feels like it has become a desert," I say. "I hear you telling me you are tired and you want out. I will stay with you on this journey but you must keep walking. Slowly but surely there will be shoots and soft green leaves and sprays of colour and you will find yourself waking up in a place that you want to be in."

cbdpsychologyandwellbeing.com.au

YOUR SAY

We welcome responses to On My Mind. Send your thoughts to: **sam@sydney.edu.au**
Read responses to the last On My Mind at: **sydney.edu.au/sam/on-my-mind-responses**

KARN GHOSH

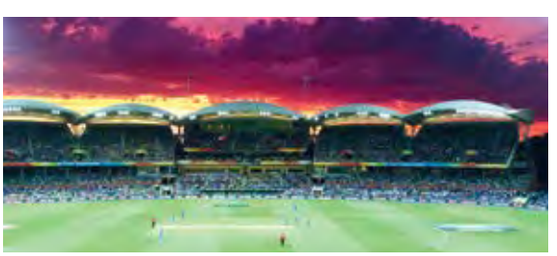
Karn Ghosh (BAppSc (Physiotherapy) (Hons) ’10) was an award-winning student with an entrepreneurial spirit. He’s now Founder and Chief Executive of Hit 100, an Australian health-tech start-up committed to tackling the diabetes epidemic via a home-delivered meal solution and 100-point food system. Here Karn shares some of his favourite things.

Photos supplied by Karn Ghosh

MY FAVOURITE

01. GOLF

I love the never-ending pursuit of perfection in the sport of golf. It’s my form of meditation in the great outdoors. This photo was taken a couple of years ago on a father-and-son golf trip to Queenstown, New Zealand.



02. SPORT

I’m a sports tragic. I love my rugby and cricket, but really I follow all sport. I took this image of a stunning sunset over the Adelaide Oval while watching India beat Pakistan in cricket’s World Cup last year.

03. CONQUERING FEAR

I’m pretty terrified of heights, but I’m even more terrified of living a safe and mediocre existence. In the past few years I’ve sky dived, jumped into the ocean from an 18-metre cliff, and bungee jumped (I would not do them again!)

04. COOKING

I made this spaghetti alle vongole with fresh clams from the Sydney Seafood Market. Spaghetti, clams, garlic, chili, cherry tomatoes, parsley and white wine – so simple. Food and cooking is central to my life and gives me great joy.

06. TRAVEL

We had a great family Christmas in Tuscany in 2014. The Leaning Tower of Pisa makes my handstand look really upright! I'm looking forward to exploring more interesting corners of the globe.

05. WORK

Work is where I find purpose. I'm incredibly fortunate to do work that is as worthy as it is needed. Hit 100 encourages meaningful, healthy behaviour change at an individual, family and community level. We're also proud to commit 10 percent of profits and 1 percent of company equity to charity.

07. CITY

No matter where I travel, Sydney will always be home. It's such an amazing global city that has something for everyone. I took this photo from my old office as the storm clouds rolled in at sundown.

08. FAMILY

My family and my beautiful girlfriend, Jess, have been there to support me every step of the journey. As for our dogs Neisha and Frodo – my goal is to be as good a human as they think I am.

Professor Jonathan Stone has uncovered important new insights into the cause of dementia. His findings are both powerful and controversial.

At the heart of dementia

Written by George Dodd
Photography by Victoria Baldwin (BA ’14)

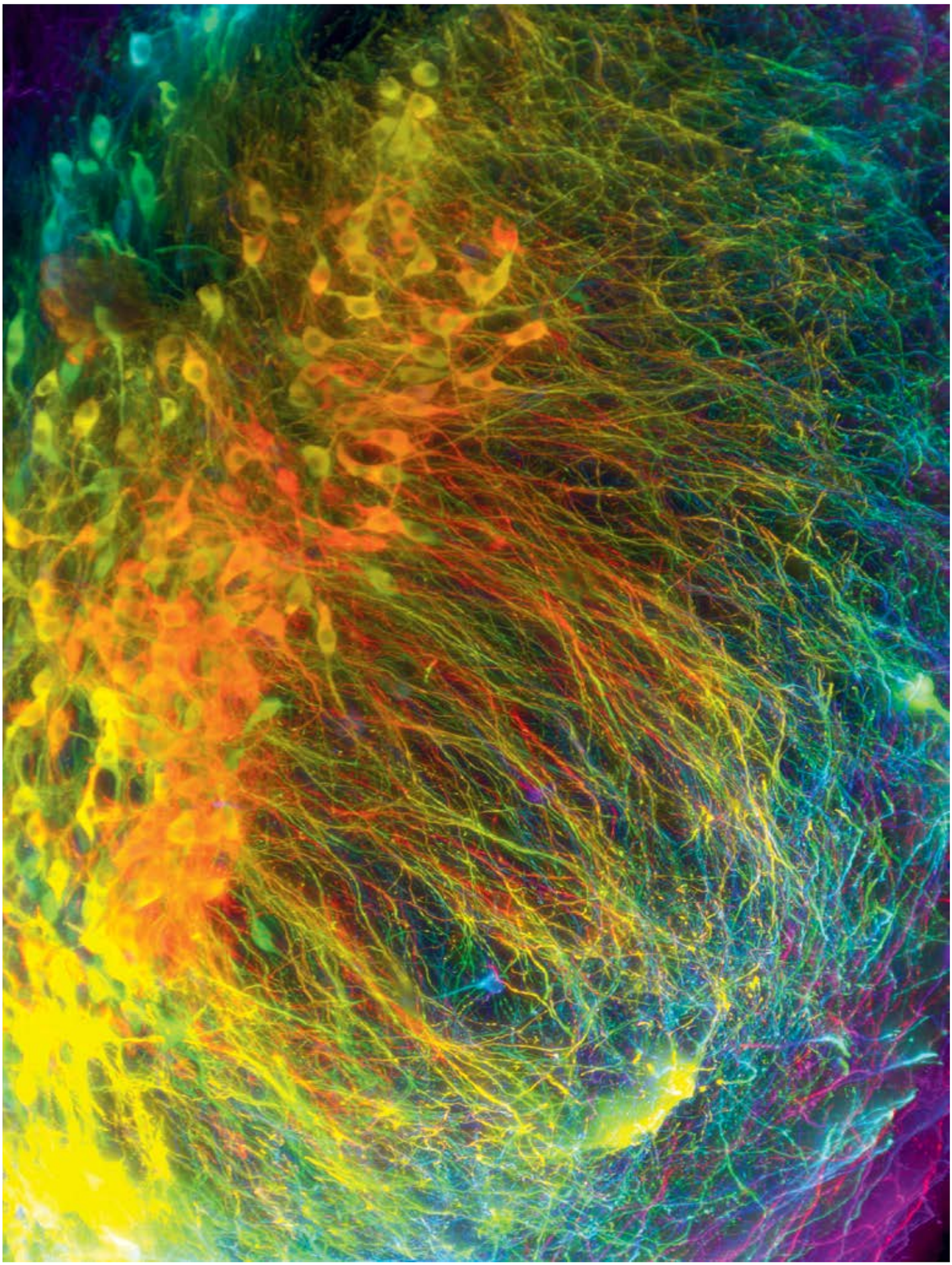
Professor Jonathan Stone (BSc Med ’63 PhD Med ’66 DSc ’77) talks in a quiet and thoughtful way, but his ideas are attention grabbing.

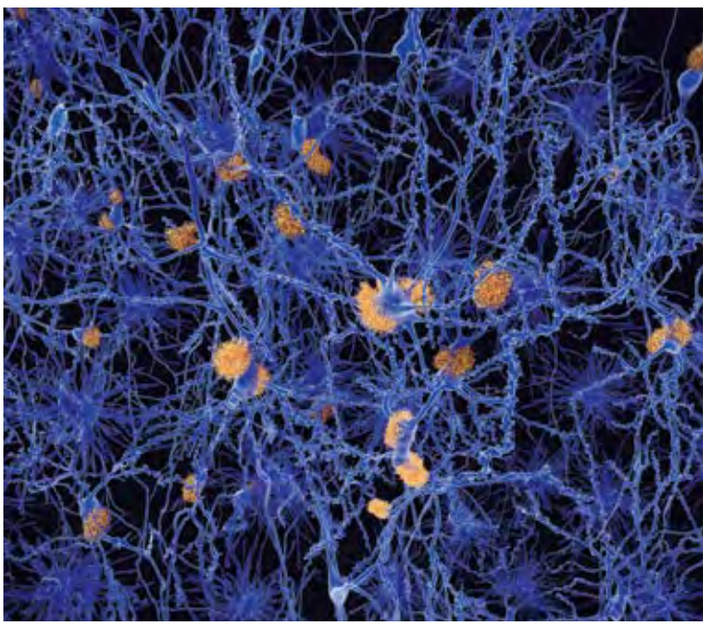
The implications of his research into the causes of dementia aren’t just medical, they’re existential as they draw an unlikely culprit into the light.

For Stone and his colleagues, the evidence points to dementia being caused by the beating of the human heart.

“Many workers in the field still at least hope that dementia is caused by something you can design a drug against, something you can face square on and overcome,” Stone says. “The idea that it’s caused by the beating of the heart – that takes us somewhere else completely.”

The heart is heavy with symbolism, representing love, nurture, courage and, indeed, life. But Stone’s research suggests even a healthy heart can be the enemy of life as it pummels the delicate architecture of the brain





Above: Professors Stone's research also looks at mechanisms of resilience. Photo: Victoria Baldwin (BA '14). Left: Professor Stone believes amyloid plaques (in orange) form where capillaries are already damaged. Photo: Shutter Stock.

"What protects the brain in younger people is a brilliant piece of evolved engineering in the aorta."

with a relentless pulse. The brain is particularly susceptible to this pulse-induced damage because every part of it must be richly supplied with blood so it can do its work. This means blood must penetrate into the brain's furthest recesses with the least resistance possible.

"For most people, across most of their lives, this works beautifully with only minimal damage," says Stone. "What protects the brain in younger people is a brilliant piece of evolved engineering in the aorta."

The aorta is the largest artery, taking blood to every part of the body, but it has another talent. The aortic tissue contains elastin that, as the name suggests, allows it to expand by about 15 percent with every pulse, thereby absorbing some of the pulse's energy. It's a buffer that protects the fine capillaries of the brain.

But with age, some dangerous changes get under way. "As a person gets older, the aorta begins to lose its vital elasticity," says Stone. "It follows that the blood pressure goes up, the pulse becomes more intense and it starts to destroy the capillaries."

When capillaries are damaged, plaques begin to form. As the damage accumulates, symptoms appear and the terrible consequences of dementia assert themselves. This is all based on a completely natural part of the ageing process, so the implication of Stone's work is that a long life makes dementia not a disease but an inevitability.

Right now, dementia is the second largest killer of people in Australia, behind heart disease. About 330,000 people currently have dementia, with 1.2 million more people involved in caring for them.

By 2050, it is estimated 900,000 people will have dementia. The burden this will place on the community is hard to contemplate.

Not everyone agrees with Stone's view of the evidence. Most research and indeed funding for dementia currently goes to projects that focus on protein plaques that form in the ageing brain, each damaging a patch of tissue.

"The work on the protein theory is elegant and powerful," Stone says. "But it's only part of the story. Our evidence indicates that plaques form around the sites of the damage that the pulse is causing to the capillaries."

For Stone, the protein theory struggles to answer two questions. Why do the plaques appear scattered throughout the brain? And why do the plaques appear in old age? Professor Stone believes his theory answers both questions.

He views it as significant that improving cardiovascular health, and lowering blood pressure through exercise, weight loss and medication, also delays dementia.

The thinking that brought Stone to this line of research began for him at the University of Sydney in the early 1990s. Along the way, his work was advanced by the insights of colleagues, including Dr Karen Cullen (Anatomy) who showed that plaque formed around small blood vessels, and Professor Michael O'Rourke (previously a physiology student, now a program leader at the Victor Chang Cardiac Research Institute), who discovered how and why the pulse increases its intensity with age.

Most recently, Stone's research has benefited from a team of gifted University of Sydney researchers from anatomy, physiology and medicine.

Dementia researchers are always wary of discussing the idea of a cure. Unlike other parts of the body where damaged cells are routinely replaced, the brain does very little in the way of self-healing. But a recent breakthrough offers hope.

Researchers at the University of Sydney's Brain and Mind Centre used a dog's own stem cells to cure it of Canine Cognitive Dysfunction, a condition very similar to human dementia.

This is a game-changer for dementia researchers and the project leader, Associate Professor Michael Valenzuela, of the University's Brain and Mind Centre, sees the implications.

"We used to think that we didn't have the capacity to grow new brain cells," Valenzuela says. "But we now know that's not true. We hope we can turbocharge the natural process of neuro-regeneration by transplanting customised cells."

These results have Stone exploring new questions. "We need to know whether the stem cells are repairing the brain circuitry itself, or perhaps its blood vessels. This is a striking observation that deserves thorough exploration."

Stone is also thinking of ways forward with dementia by pursuing another line of research that he calls "acquired resilience". His team is investigating a hidden mechanism of resilience in the human body that is somehow triggered by a diverse array of interventions including plant toxins, red light, exercise – and saffron.

"Understanding this mechanism could radically change current treatment regimens for dementia and a number of other conditions," he says.

As he makes his way to his office on the upper floors of the University of Sydney's historic Anderson Stuart building, Stone passes through its grand Victorian hallways.

These hallways were once crammed with makeshift offices that obscured the building's magnificent stained-glass windows. Stone has been a key player in opening up these spaces and letting in the light. Many believe his work on dementia is doing much the same thing.

Page 27: The substantia nigra, a structure in the midbrain, where motor problems can originate. Photo: Dr Daniel Johnstone, ECR Fellow in Physiology, and Dr Louise Cole, manager, Bosch Institute Advanced Microscopy Facility. Right: Professor Stone in one of the Anderson Stuart building's grand Victorian hallways.

Professional gambling didn't work, so he took to economics at the University of Sydney. Now Justin Wolfers is one of Australia's brightest exports.

Everyone's favourite economist

Written by George Dodd and Luke O'Neill
Photography by Nuran Zorlu

If you picture an economist, chances are they wouldn't look anything like Justin Wolfers (BEc '95). Wolfers is lean and more youthful looking than his 44 years: his shoulder-length blonde hair could lead you to think he's a surfer.

But looks can be deceiving: first up, Wolfers can't surf. He is also every inch the modern, successful economist as he works from his home in Michigan, in the mid-western United States. He has been described as one of Australia's most unorthodox and influential academic exports.

"I'm often mistaken for a self-help guy," Wolfers says, referring to his widely discussed studies on divorce and whether money can bring happiness. "I'm not going to give you advice about anything. I'm not going to tell you how to live your life. But I may tell governments how to design better institutions to allow you to make better choices."

Adding to Wolfers' profile and depth of economic thinking is his partner, Betsey Stevenson, with whom he has two children. Stevenson is a highly regarded and highly

Professional gambling "was intellectually formative and incredibly useful training for becoming an economist", Justin Wolfers says. Photo: iStock

productive economist as well as Associate Professor of Public Policy and Economics at the University of Michigan. She is also close to the White House, having been appointed to the Obama Administration's Council of Economic Advisors.

Like Wolfers, Stevenson has a strong interest in improving social outcomes, and while at Harvard the pair worked together on an influential study on no-fault divorce (in which wrongdoing by either party does not have to be shown).

While critics have always said no-fault divorce increases divorce rates, Wolfers and Stevenson found this wasn't the case. They also revealed that where no-fault divorce was introduced, domestic violence rates fell, as did rates of female suicide.

"For family life, it strikes me that careful analysis of data and a subtle, very nuanced understanding of incentives can yield real insights over and above what is a highly politicised, ideological shouting match," Wolfers says.

Wolfers readily admits that the social focus of much of his work reflects his own life experience. His parents divorced when he was 15, and his mother became a single parent to six children in the process. Despite serious financial struggles, she made sure her children had every opportunity to excel academically. Wolfers' academic achievements have now given him a platform to try to effect change.

"I was a scared 15-year-old," he says. "If we can figure out how to create a few less of those, it would be a huge achievement for social science and public policy. What we're studying is real. I don't think we should ever forget that."

Wolfers' direct nature and keen intellect mean there are high expectations of him from his economics peers in the US.

In 2007, the *New York Times* named him one of 13 young economists who were the future of economics. In 2014, the International Monetary Fund included him among the 25 brightest young economists expected to shape thinking about the global economy.

Wolfers' easygoing nature and determination to simplify complicated economic ideas has made him a media favourite. His tweets about economic policy are read by more than 54,000 followers and he has contributed extensively to influential newspapers the *Wall Street Journal* and the *New York Times*.

All this seems a long way away as Wolfers sits in his modest office in the University of Sydney's Merewether Building, where he has come to work on a one-month sabbatical.

"I could have gone to another university for this visit – one that's closer to the beach," he laughs. "But I have great affection for this place and the people here who put extra hours in for me. I feel a responsibility to them."

Merewether is also where Wolfers began studying for his degree 25 years ago after failing to find a career on the betting side of horse racing.

"I have told more economist friends than I can count that [racing] was intellectually formative and incredibly useful training for becoming an economist," he says.

"And I'm yet to get a single one of them to believe me. Racing gives a visceral understanding of supply and demand, though it's obviously not socially productive."

Since returning to Sydney, Wolfers has noted unhappily that Australia is having the same economic debates now about industrial relations, the GST and debt, that it was having when he left for the US in 1997. He believes discussions about microeconomic reform in health, education, welfare and social policy are more necessary and urgent.

He is also concerned about how Australian experts get locked into silos.

"We're a small country and we currently do the dumbest possible thing," he says. "We keep the four silos – think-tanks, media, policy and academia – separate, and almost no one works between those groups. This means we also don't have as much economic talent inside the cabinet as one might hope."

"I'm not going to give you advice. But I may tell governments how to design better institutions to allow you to make better choices."

He contrasts this with the US where his partner, Stevenson, has moved between roles in government, academia and the media, gaining knowledge and increasing expertise in each of those areas.

Wolfers refers to Australia as home, but life and work will keep him in the US for a while yet. It's where "the big table" is: where the greatest economic thinkers – he is on first-name terms with many of them – exchange ideas.

Wolfers does a lot of thinking about a lot of subjects, and he sees this as a key responsibility of every economist – actively engaging with issues and problems to find solutions that improve institutions and lives.

"I have been blessed at this point in my career, where I have a platform and people will listen to me," he says. "You have 24 hours in a day and you have got to figure out what's going to be the highest impact for you.

"Is that pressure?" he asks. "It's just an economist's problem: how to do the most you can with what you've got."

Two University of Sydney students are bringing a scholarly perspective to the search for solutions to a major global issue.

Keep calm and get connected

Written by Luke O'Neill
Photography by Victoria Baldwin (BA '14)

Terrorism has changed national security priorities, divided communities and shifted our sense of personal security. With every violent atrocity comes new and sometimes uninformed calls for greater action.

Within the University of Sydney's Department of Government and International Relations, Hussain Nadim and Daniel Tasso (BIGS 2014) are working in different ways to develop real and lasting measures to prevent vulnerable Muslims from becoming radicalised by extremists.

Hussain Nadim's worldview has been shaped by some profound and devastating personal experiences.

In May 2010, terror attacks on two mosques in Lahore killed almost 100 people.

"We lost a lot of family members in that attack," says the 28-year-old doctoral candidate. "Even beyond that, on a daily basis we would see attacks on schools and in our

Daniel Tasso (left) and Hussain Nadim, are both working to build communities and promote peace.

cities. We would see people we knew – sometimes very close, sometimes distant – who were being killed in waves. That was very disturbing for us."

Nadim shaped his personal grief into determination to act. "Coming from Pakistan gives you a serious reality check," he says. "This life, this world, is a little bit beyond yourself. There comes an inner commitment to serve the people, to serve the country, and really, it's in that desperation that you want to change the situation."

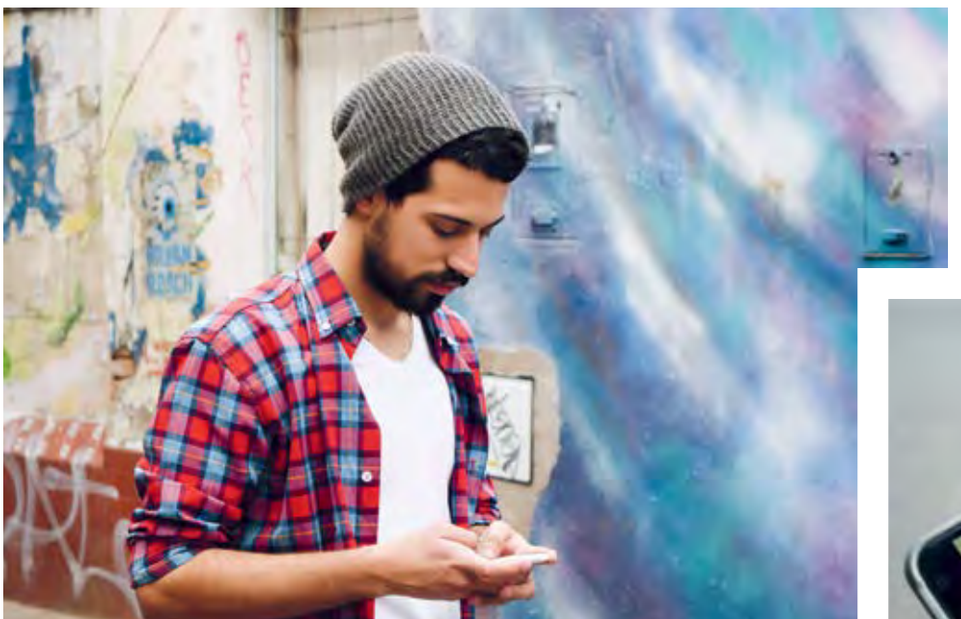
Nadim came to the University of Sydney to undertake doctoral research on security and development. Before this, he was a special adviser to the Pakistani government and, at 25, was founding director of the Peace and Development unit of Pakistan's Ministry of Planning, Development and Reforms.

He is also a graduate of George Washington University in Washington, DC, and Cambridge University in the UK. He has been a research fellow at Oxford University and the Woodrow Wilson International Center for Scholars, also in Washington.

More recently, Nadim has been a cool-headed contributor to Australia's national debate on violent extremism and terrorism. "The worst thing the government can do is respond with a knee-jerk reaction," he says.

He urges the government to respond in proportion and to avoid the mistakes made overseas. "Don't inflate the threat," he says. "If you keep on creating this threat which isn't there, you might actually see more people turning towards radicalisation."

Nadim believes integration is the key to any long-term strategy to safeguard against harmful radicalisation. He says Australia has done well in terms of integration policies but it must do more to avoid having to confront the same issues that some European countries are experiencing now.



Left and below: The iUmmah app gives isolated Muslims a way to connect with their community. Photo at left: Shutterstock

"Positively using energy to deliver solutions to problems; to fight against extremism; to fight hate and bigotry. I think I am radical in that sense."

Hussain Nadim

Co-creators of the iUmmah app, left to right: Tyra Kruger, Daniel Tasso and Fahad Akhand. Photo: Sketch & Run Photography, sketchandrun.com

Nadim is cautious when asked if he considers himself radical. It's controversial for a young Muslim to say so, given the overtones of the label. But Nadim stresses that radicalisation is distinct from violent extremism and can be a force for good.

"I think I am a radical person, but in terms of what? Positively using energy to deliver solutions to the problems; to fight against extremism; to fight hate and bigotry and have more understanding between cultures. I think I am radical in that sense," he says.

Nadim's ongoing advocacy earned him a place on the *Forbes* 30 Under 30 list. The influential American business publication describes it as "600 of the brightest young entrepreneurs, breakout talents and change agents".

While Hussain Nadim has been shaped by his Muslim faith and culture, Daniel Tasso (BIGS '15) has no cultural or family connection to Islam. But his strong interest in international affairs led him to complete honours research into Islamist radicalisation in the West.

The International and Global Studies graduate is now one of three young Australians developing a prototype smartphone app called iUmmah, which will provide faith-based information and social networking for Sydney's Muslim communities.

"We live in an age where we can get in contact with thousands of people at the click of a button and I think that's a really important way to build cohesion and a strong sense of community," says Tasso.

Tasso hopes that building trust and social resilience through apps such as iUmmah can provide an alternative narrative to that of violent extremists.

The project was born when Tasso went to an event hosted by People Against Violent Extremism (PaVE) in Melbourne. It was called MyHack and the people attending were asked to think about innovative solutions to violent extremism. Tasso was partnered with Fahad Akhand and Tyra Kruger, and together they developed the iUmmah idea.

The trio, who are all in their 20s, used the opportunities provided by MyHack to meet and speak to deradicalised Australians about their drift toward extremist ideas. While Tasso points out such pathways are complex and varied, one common thread that emerged was the distinct lack of, and longing for, a firm identity.

"Identity issues play a massive role" he says. "Humans are very social beings and we need to belong and have a strong identity." His research revealed that second and third generation immigrants who are drawn to radical views often cite a sense of non-belonging as a reason.

iUmmah's name is a nod to the Arabic word for community. As the winning concept at MyHack, the app received $10,000 from PaVE and the Australian Government.

Once consultation with Muslim communities in Sydney is complete later in 2016, the developers hope the app will be available for download on Apple's iOS and Google's Android operating systems.

Tasso describes the app as "a roadmap to one's Australian Muslim identity". It will have a GPS function that shows local mosques, a calendar to flag or notify users about upcoming Islamic festivals, exhibitions and workshops, a chat feature, and information about the history of the faith in Sydney.

For Tasso, iUmmah is inspired by his belief that a strong Muslim community is one of the best strategies to combat fringes of violent extremism.

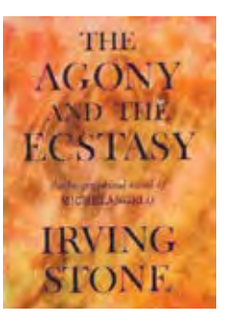
"The Islamic tradition in Australia has really come into focus in the post-9/11 years because of what has happened overseas – but that tradition didn't start in 2001," he says. "We really want to emphasise that and to say 'let's not get too caught up in those black-and-white narratives that extremist organisations are putting out there'.

"We're bigger than that, we can deal with that, and let's do it together."

BOOKS THAT CHANGED MY MIND

Two members of the University community reveal the books that changed how they saw the world.

Above: Chris Legge-Wilkinson is inspired by Michelangelo. Left: Chris in Florence, 1982, as he travelled Europe on $20 a day seeing the works of the great masters.



CHRIS LEGGE-WILKINSON

As the Heritage Architect for the University of Sydney, Chris Legge-Wilkinson looks after more than 30 heritage buildings across the Camperdown, Darlington and regional NSW campuses, plus the Conservatorium of Music and Kirkbride Block that houses Sydney College of the Arts in Rozelle.

THE AGONY AND THE ECSTASY

Irving Stone, 1961

I was in my 'year out' of studying architecture, when I read this book and became inspired by Michelangelo's story. The book is about Michelangelo Buonarroti, the great sculptor, painter, architect, poet, and engineer. It covers the history of his life and works, starting from when he was an apprentice sculptor in Florence, Italy, in the Renaissance.

Two aspects of Michelangelo's life story stood out for me as I read this book.

One was when he was a teenager. He would sneak into Santo Spirito Church Hospital, where he undertook anatomical studies of the corpses in order to further understand the anatomy of the human body for his art.

The second aspect that emerged from the book for me was his ambition to establish a body of work.

His many successes include renowned sculptural works *David* and *Pieta*, the architecture of St Peter's Basilica and the intricate paintings on the ceiling of the Sistine Chapel.

The last of the Pieta sculptures, *Pieta Firenze*, was carved in 1561. I found it particularly expressive. Michelangelo abandoned it as he made a mistake and smashed the piece in anger. The expression and power in this sculpture was evident to me when I saw it during a formative trip to Europe.

Like Michelangelo, I also wanted to create my own body of work and was lucky enough to design many buildings, but sadly no churches or squares for famous emperors. That didn't stop me though. In one school, for the central playground I designed an approximate facsimile of the oval pavement of the Capitoline Hill, with a 'folly' in the middle as a poor substitute for Marcus Aurelius on a horse.

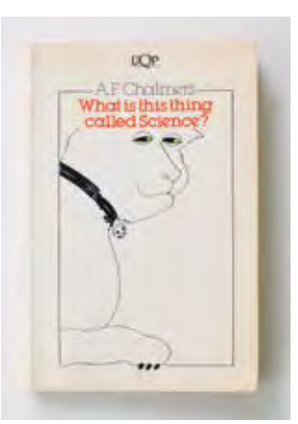
My work at the University involves care and maintenance projects for the older buildings. The knowledge gained from the trip to Europe helped me to understand the traditional method of construction, and Michelangelo is still an inspiration.

ASSOCIATE PROFESSOR TARA MURPHY

A radio astronomer, Associate Professor Tara Murphy (BSc ’00 CertEdStud ’12) leads a project to detect astronomical objects such as exoplanets, dwarf stars, supernovae and gamma-ray bursts. When she isn’t searching the heavens, she loves to read a good book.

WHAT IS THIS THING CALLED SCIENCE?

Alan Chalmers,* 1976



Radio astronomer Associate Professor Tara Murphy found a new understanding of science.

As a second-year undergraduate student at the University of Sydney, I was looking for an extra subject to complement physics and mathematics. On a whim I chose History and Philosophy of Science. The textbook was *What is this thing called Science?*

The class was a mix of arts and science students, and the lecturer opened, as the book does, by asking us what makes science special. As a science student, this seemed obvious – science is based on facts, obtained by observing the world.

A heated debate followed, concluding with the radical proposal that science was a social construct. We science students found this very confronting – heretical even! If science were just one of many thought systems, was it special at all? The textbook provided answers to that question.

Chalmers presents a commonsense view of science, explaining the role of observations and experiments in obtaining knowledge. But the big revelation was the introduction of a concept that I hadn’t heard of before – falsifiability.

Falsifiability is the idea that for a hypothesis to be useful, it must make claims that can be tested by observations and shown to be false – something non-scientific statements often lack. For example, horoscopes make general or vague predictions, which can be hard to disprove.

The concept of falsifiability was a revelation to me and my peers. We discussed it with excitement – now we had a way of explaining why science was different, and why we thought it was the best way of discovering how the universe works.

What is this thing called Science? gave me a vocabulary for talking about science and a framework for thinking about science. I can’t count how many times I’ve introduced these ideas to other people – often scientists who have never considered how science actually works.

When I picked up this book I had no idea the impact it would have on the rest of my career, and writing about it has made me want to find time to read it again.

*Alan Chalmers wrote this influential book, now published in 19 languages, when he was a member of the University of Sydney Department of General Philosophy. He is currently an Honorary Associate Professor.

Photography by Victoria Baldwin (BA ’14).

There aren't many people who can say they've had a profound effect on Australia's building industry. Romilly Madew can.

Streets of green

Written by Jennifer Peterson-Ward
Photography by Victoria Baldwin (BA '14)

Romilly Madew (BAgrEcon '91) began a revolution more than 10 years ago when she was asked by industry body, the Green Building Council of Australia (GBCA), to help answer its most frequently asked question – why should we build green?

"At the time there had been no analysis of buildings in Australia and so there was no business case to go to CEOs and boards in the industry to explain the benefits of designing and constructing a green building," she says.

Produced after 12 months reviewing international and local case studies and consulting with key industry players, Madew's resulting report, *The Dollars and Sense of Green Building*, was Australia's first business case for sustainable construction.

It's hard to overstate the report's influence on Australia's property and construction industry. Not only did it prove that investments in sustainability could pay off in real dollar terms, but it also identified actions that

Inset: Romilly Madew is the energetic and influential Chief Executive of the Green Building Council of Australia. Above: The Green Building Council works to create sustainable buildings, communities and cities. Photo: Shutterstock

provided a basis for sustainable building in Australia.

"It was about saying to industry 'this is why it is so important for the economy and for you, the property owner' because the benefits go beyond energy efficiency," Madew says. "It's about improving the value of the asset, attracting tenants and increasing competitiveness."

Given the success of the report, it was no surprise when Madew took over the reins as Chief Executive of GBCA in 2006.

Under her leadership, the GBCA has worked with property and construction companies to transform Australia's built environment into one that is healthier and more productive.

More than 1000 buildings across the country have been certified for their environmental performance using the GBCA's Green Star rating system, with nearly 150 projects achieving a coveted six Green Star rating, indicating 'world leadership'.

"The property and construction industry in Australia is now leading the world in how it drives change with sustainability in the built environment – that is a fact. All the indices globally prove that," Madew says.

"Even though we're a small industry when compared with other markets such as the United States or China, we all want to push the boundaries of innovation, even when it could be considered risky.

"How exciting is that? Who gets to do that every day of their life?"

While the sustainable agenda guides the work of property and construction businesses today, Madew says it wasn't always this way. Despite taking on the leadership role with enthusiasm and big aspirations, she says the change she wanted to see was slow in coming.

"In the early days I would constantly hear 'why would we do it?', 'it's too hard', 'we don't believe in sustainability' and, especially following the global financial crisis [in 2008], 'we're not going to spend money if we don't have to'. I had never encountered so much negativity in my life."

Left: The Sydney Opera House went literally green in 2015, when it was awarded its 4 Star Green Star – Performance rating by the Green Building Council of Australia. Photo: supplied by Sydney Opera House. Below: Romilly Madew took her whole family to the top of Mt Kilimanjaro in Tanzania

Others might have found the frustration of the situation overwhelming, but Madew's early-career experiences and education had armed her with the perseverance to push on and succeed.

Madew confesses she wasn't always sure where her career was headed, but she always felt a connection to the land. It's the reason she eagerly anticipated holidays spent on her school friends' family farms, and it's the reason she decided to study for a Bachelor of Agricultural Economics at the University of Sydney.

"There was no rhyme or reason as to why I wanted to do the course, apart from the fact that I knew that I loved the bush and I loved being outside – I wanted to be on the land," she says.

Madew says studying Agricultural Economics sparked her initial interest in sustainability and environmental change – primarily through practical fieldwork in central NSW and a final-year project examining the grassroots movement, Landcare Australia.

"Even though I had family and friends in the country, I was still very much a 'city girl', so those experiences were fantastic," she says. "I can now get up in front of a room of 200 male engineers and say 'I have driven a tractor out the back of Nyngan with tyres three times the size of me. Have you?'"

Participation in the University's rowing club complemented her studies and armed Madew with a confidence and competitive drive that helped her succeed in the corporate world.

"Throughout my career people have asked me how I have achieved what I have in a male-dominated world, and I keep coming back to the experiences of those early days – going into a male-dominated degree and taking up rowing – which helped me later in life," she says.

This confidence and tenacity would prove vital to Madew's rapid career

> "It absolutely fascinated me how the corporate world of property and construction could shift and be interested in transformational change."

success after graduating. But a senior job at the Property Council of Australia reignited her interest in sustainability.

"It absolutely fascinated me how the corporate world of property and construction could shift and be interested in transformational change," she says.

"I could see the parallels – farmers were traditionally very conservative but needed to change the way they thought of their processes, and I realised the property and construction industry was facing the same issues."

This passion has been the key to Madew's success in leading the GBCA. It has also earned her a global reputation as a leader in the sustainability sector, as reflected in her numerous honours, including a Telstra Business Women's Award, an International Leadership Award from the US Green Building Council and an invitation to join pre-eminent advocacy group, Chief Executive Women. Most recently she was named Pittwater Citizen of the Year.

The way Madew spends her spare time reveals just how unstoppable and downright organised she is: she is the President of the Bilgola Beach Surf Life Saving Club, a keen surfboat rower and ocean swimmer, and recently climbed to the peak of Mount Kilimanjaro with her husband, three children and 18 extended family members.

"We don't know of any other family who has done what we did," she says. "And we all made it to the top."

TWO BUILDINGS THAT HAVE EARNED THEIR STARS

Romilly Madew nominates two very different buildings to show the many ways that a building can earn its stars from the Green Building Council of Australia.

Sydney Opera House: 4 Star Green Star

"This incredible building shows that even the most iconic, historic and challenging buildings can be energy efficient and sustainable," Madew says. "If you can green the Opera House, you can green anything." Some of its green features:

- innovative seawater cooling system powers the main heating and air-conditioning
- made with durable materials to meet a 250-year lifespan
- 1900 back-of-house fluorescents replaced with LED lights
- award-winning, energy efficient light replacement in the Concert Hall
- lights automatically turn off when not in use
- eco-friendly cleaning products
- recycling of eight different waste streams from cans to light bulbs and computers
- environmental monitoring strategy is in place.

Commonwealth Bank Place: 6 Star Green Star

"The largest commercial office development in Sydney's central business district, Commonwealth Bank Place is arguably Australia's most sustainable office," Madew says. "Its efficiencies are equivalent to taking 680 cars off the road and saving 13 Olympic swimming pools of water every year." Some of its green features:

- purpose-designed and constructed to green principles
- high-performance façade, fewer temperature fluctuations
- energy-efficient light, heat and air-conditioning
- rainwater harvesting and reuse
- onsite energy generation from waste
- onsite wastewater treatment
- generates 50 percent less greenhouse gas than average
- consumes 80 percent less drinking water than average.

Photo: Sydney Opera House

Photo: Commonwealth Bank of Australia

Dr Brett Summerell's office is located in the Herbarium at the Royal Botanic Garden Sydney. To get to his office you must walk past centuries of plant history.

A man for all seasons

Written by Sally Sitou
Photography by Victoria Baldwin (BA '14)

In aisle after aisle of small crates stacked from floor to ceiling are specimens of Australia's flora – the Herbarium has one of Australia's largest collections of pressed plant specimens. Nearly 700 specimens in particular hold historical significance: they were collected by Sir Joseph Banks in 1770 when he visited Australia with Captain Cook aboard the *Endeavour*.

As the Deputy Executive Director for Science and Conservation at the Royal Botanic Gardens, Summerell cares for more than 19,000 species of plants.

"We have the broadest diversity of plants that any plant pathologist would ever hope to work with, many of them are out of their normal range and perhaps growing in quite stressful conditions," Summerell says.

In many ways, he sees the Royal Botanic Garden as a guardian of plants, and more so than ever this year, as the garden celebrates its 200th anniversary.

"We have a role in promoting why plants are important for people, what plants do for the ecosystem, why diversity of plants is important. We need to ensure people understand

why they need to protect plants so they are there in the future," he adds.

"Most people think the gardens are pretty – a nice place to walk through, a beautiful green space so close to the city. But I think people would be surprised by our science programs and the incredible range of scientific research we do here."

This year will be Summerell's 28th working at the Royal Botanic Garden. In that time he has seen an important shift in the plants grown there.

"When I started working here we tried to maintain a rose garden where we had to spray it with fungicides and insecticides every two weeks," Summerell says. "Now we grow types of roses that are much more adaptable to the Sydney environment, so we don't have to spray them at all."

It is a lesson he believes the home gardener can draw upon.

"People should look at the changes we have made and say 'I can do that in my own backyard'," he says. "You can grow beautiful things in your garden and have a beautiful landscape without pesticides that have a whole range of detrimental effects."

For someone who has been collecting plants his whole life, Summerell has found his dream job.

"As I was growing up, I was a keen collector of plants – I just really love their diversity," he says. "Getting out into the Australian bush was something I really enjoyed."

It was this enthusiasm that led him to study agriculture at the University of Sydney and complete a PhD under world-renowned plant pathologist Professor Lester Burgess.

"It was excellent training and set me up to look at all aspects of natural science, whether in agriculture, food security or understanding the natural ecosystem," he says.

"People should look at the changes we have made and say 'I can do that in my backyard'."

His partnership with Burgess has endured for more than three decades. They have been collaborating and working together as plant pathologists and are now considered Australia's foremost experts on an emerging fungal threat.

The Fusarium pathogen could potentially wreak havoc on the Cavendish banana variety, which accounts for 95 percent of local banana production and 45 percent of all bananas grown in the world. Summerell travels internationally teaching people how to recognise Fusarium and other plant pathogens as they emerge in crops.

Perhaps the most devastating and well-known impact of a plant pathogen is the Irish potato famine in the 1840s. The potato blight ravaged potato crops in Ireland and caused

Europe's worst famine in the 19th century. Summerell says avoiding catastrophes like this is really up to consumers.

"We need to demand a greater variety of the food that we eat – different types of apples, tomatoes, bananas. When there is demand for different types of fruit and vegetables there will also be greater diversity. So that if you do get a pest or a pathogen come through, there is less likelihood it will have a devastating impact," he says.

"The other important component is making sure organisations have a bank of different types of genotypes stored away, so that if a disaster happens there is something to go back and refer to – that's why seed banks are really important."

They are so important that Summerell is overseeing the largest seed bank in the southern hemisphere. Housed at the Australian Botanic Garden, at Mount Annan in Sydney's southwest, the facility includes state-of-the-art refrigerated vaults; one that can store seeds at 4 degrees Celsius; and another that can store them at minus-20 degrees.

Australia has already needed to tap into this insurance policy to bring a plant species back from extinction. During the 2009 Black Saturday bushfires in Victoria, the world's only population of the shining Nematolepis shrub was destroyed.

Thankfully, some cuttings and seeds of the plant had been collected before the fires and were successfully replanted at their original site.

The seed bank is part of a global initiative known as the Millennium Seed Bank Partnership. The initiative's aim is to have 20 percent of the world's flora stored in seed banks by 2020.

"If we can put the seeds in the seed bank and have it preserved properly, then we would at least have an insurance policy for protecting that particular species," Summerell says.

"Humanity needs to stop the amount of species we are destroying and wiping off the planet."

As he talks about the importance of the seed bank project, Summerell's love for plants and the natural ecosystem is obvious, and he shares it through teaching.

After graduating from the University of Sydney almost 30 years ago, he is back at the University as an adjunct professor inspiring the next crop of plant pathologists – just as his PhD supervisor, Burgess, inspired him.

CLASSNOTES PHOTO ESSAY

This issue we go global, with stories of alumni at work around the world. Share your stories with us – alumni.office@sydney.edu.au

Edwina Pickles on assignment in Kenya.

Edwina Pickles (BVArts '98)
Photographer and alumna Edwina Pickles shares her stunning and unsettling images of Eastern Kenya's Dadaab refugee camp – the largest in the world.

Pickles (BVArts '98) spent three weeks in Africa photographing the lives of people in places of struggle and humanitarian crisis. She was sent by her employer, the *Sydney Morning Herald* and hosted by Save The Children.

Pickles says her time at the University of Sydney shaped her photographic vision. "We were taught to find the meaning of things," she says. "I remember tirelessly analysing art from successful artists and student classmates, and learning to make and take criticism. These were valuable lessons in art and in life as well."

As a result of her studies and professional expertise, Pickles's work is now widely recognised by her peers. The pictures she took at Dadaab won her a 2015 United Nations Association of Australia Media Peace Award for Best Photojournalism.

Dadaab was established in 1991 by the United Nations High Commissioner for Refugees (UNHCR) as a sanctuary for people fleeing the horrific civil war unfolding in Somalia. Later, many thousands more Somalis arrived as Somalia was struck by a devastating drought.

On current estimates, about 350,000 refugees are living in Dadaab, although there could be up to half a million, with many people now from neighbouring countries including South Sudan. If it were a city, Dadaab would be one of Kenya's largest.

Follow Pickles on Twitter: @EdwinaPickles

In this desolate landscape two girls are having fun on a see-saw next to their school and playing with a blonde-haired doll. I wondered where they got the doll. As well as schools, there are markets inside the camp and a bartering system. Someone might pay someone else some of their flour ration to take their food back to their tent for them, which can be a long way from the food depot.

This woman didn't know where her husband was. He'd gone back to Somalia to fight and she hadn't seen him in a few years. Now she's alone with all these children to raise. All she can really do is wait. It's a pretty common story in Dadaab. But look at her and her children. The people in Dadaab have hardly any possessions, nothing at all, yet they dress well and stand proud. They haven't lost their pride and I knew this was important to show in my photos.

There are 200,000 people younger than 18 in the camp and many of these young people are vulnerable to assaults. There are many child brides. This young girl was married at 12 – her family couldn't support her, so they gave her away to an older man. It was a marriage for survival, but her husband abandoned her when he realised she couldn't cook or clean. Now she is learning to be a mother even though she is still a child herself. This is not uncommon.

I was surprised to find there are about 50 schools in the Dadaab camp. When I walked into this one, the girls started dancing as young boys played drums. It was so beautiful because of how colourful they are, and it was obviously a traditional dance. I met someone who was born inside the camp, grew up, then had their own children there. There are people who have never been outside – who have spent their entire lives living in this temporary way.

People can queue all day to get fortnightly food rations, and sometimes there isn't enough to go around. On this day, desperately hungry refugees pushed open the gate to the camp's food distribution centre. There are people in Dadaab who are educated and had successful businesses back home in Somalia, but now they have nothing and have to line up for food to feed their families.

DON'T BE A STRANGER

Keep in touch with the University community via our social channels.
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Twitter: @sydney_uni
Instagram: @sydney_uni
LinkedIn: linkedin.com/edu/university-of-sydney-10250

TELL US WHAT YOU THINK

SAM keeps evolving and your ideas help make it happen. If you have feedback, we'd love to hear from you.

Tell us what you think via **sam@sydney.edu.au**

CLASSNOTES

More stories of alumni at work around the world.
Share your stories with us: alumni.office@sydney.edu.au

Tom Beer (BSc '67) was the first Australian elected President of the International Union of Geodesy and Geophysics (IUGG), the body representing research geophysicists and geodesists in 68 countries. The IUGG works to understand the Earth, including natural hazards, to help predict and plan for natural disasters, reducing their impact. Tom was recently awarded the University's Alumni Award for International Achievement. Find out more at **sydney.edu.au/alumni/awards**

Professor Richard Mackay AM (BA '84 MBA '90) was an expert adviser on global conservation issues, including conflict in the Middle East and earthquakes in Nepal, at the World Heritage Committee held in Germany last year. At Mackay Strategic, Richard assists government and corporate clients by devising innovative solutions to complex cultural heritage challenges. Over the past 25 years his diverse work with GML Heritage – which he co-founded in the early 1990s – has ranged from Angkor in Cambodia to Sydney's Luna Park. Richard is the immediate past chair of the Australian World Heritage Advisory Committee and is responsible for the heritage theme of the 'State of the Environment' report that will be tabled in federal Parliament later this year.

Kate Goodwin (BSc(Arch) '99 BArch '03) was recently awarded the Royal Institute of British Architects 2016 Honorary Fellowship. Currently Head of Architecture and Drue Heinz Curator at the Royal Academy in London, Kate has been instrumental in expanding the public profile of this prestigious arts institution. She recently curated *Sensing Space: Architecture Reimagined*, which was praised by *Spectator* magazine as "the best architectural exhibition ever experienced".

Ben Brown (BVSc ’03) (above) has been volunteering over the past few years for World Vets, a non-government organisation that provides international veterinary and disaster relief programs to help animals in need. Travelling back and forth from Sydney, Ben has provided training to local veterinarians and veterinary students through community outreach projects in Nicaragua, and last year travelled to Nepal to give much-needed veterinary care to animals affected by the earthquake in April 2015.

David Scott Shelton (BA ’06 BCom ’06) (below) is a former international student who went on to complete a postgraduate law degree at the University of Houston after finishing his studies at Sydney. David is working for Shell Exploration and Production in Houston, Texas, as a petroleum landman in their upstream unconventional resources division.

Sky Fosbrooke (BHlthSc ’08 MPhysio ’11) (left) volunteered at one of the most remote places on Earth shortly after graduating, spending nine months in the village of Narango, on the island of Espiritu Santo in Vanuatu. He worked to develop a program to increase understanding and awareness of disabilities in the wider community. The program also provides therapy to improve quality of life for locals living with disabilities by building the capacity of local healthcare workers. Following this assignment Sky went on to volunteer for a year in Tonga as a paediatric rehabilitation trainer, before returning to Vanuatu for another three months. He has since returned to Espiritu Santo five times and is in the process of establishing a disability support centre. Sky is currently a senior physiotherapist in brain injury rehabilitation at Sydney Children’s Hospital.

“I want my legacy to help more of the world’s children have access to clean water.”

Knowing that so many children around the world suffer from illnesses caused by having to use contaminated water, Margaret Evans wanted to do something. Her bequest pledge to the University of Sydney will support research and teaching in the Faculty of Agriculture to bring clean water to more places, because clean water means healthier, happier children.

To find out more phone us on 02 8627 8492

THE UNIVERSITY OF SYDNEY

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