ISSUE 2

TOUCHING THE FUTURE

PUTTING INVESTIGATIVE INTERVIEWERS IN THE SPOTLIGHT

STRONGER, LIGHTER, CHEAPER

FREE THINKERS SOLVE PROBLEMS

WILLIAM MEETS WATSON

GROWING A HEALTHY NATION

LOOKING FORWARD 40 YEARS
Learn, lead, solve and innovate
Vice-Chancellor Professor Jane den Hollander

Touching the future
Professor Saied Nahavandi

Stronger, lighter, cheaper
Steve Alkison

William meets Watson
William Confalonieri

Deakin Alumni Award Winners 2014
Nino Ficca, Madison Louise Robinson, James Anthony Farrell, John Stroudope

Putting investigative interviewers in the spotlight
Professor Martine Powell

Free thinkers solve problems
Dr Paul Collins

Growing a healthy nation
Professor David Crawford of Deakin University’s Centre for Physical Activity and Nutrition Research (C-PAN)

Get involved

Contents

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Deakin University CRICOS Provider Code: 00113B
In 1974 Deakin University was proclaimed on our Waurn Ponds Campus – a few buildings, a few cars, a dog and a very bemused Vice-Chancellor, the revered Professor Freddie Jevons, fresh out of Oxford.

Forty years on, Deakin is Australia’s 9th largest university, is in the top 50 in the world for universities under 50 years old (QS), and is one of only 15 (out of 40) universities in Australia to rank in the top three percent of the three major global rankings. Deakin received the Premier’s Award for International Education Provider of the Year in 2014 and was also named Victoria’s leading education and training provider in the Victorian Governor’s Export Awards.

At the discipline level, Education ranks 23rd in Excellence in Research rankings and Sports Management is 3rd in the Sport Business International Postgraduate Course Rankings. Health and Engineering research achieved the maximum 5 (well above world standard) in the Excellence in Research Assessment. We are the Vis Moot global champions.

This is extraordinary progress, but the cream on the cake for us is that for the 4th consecutive year, Deakin is number 1 in Victoria for Learning Satisfaction as rated by the Australian Government in the annual survey of graduates. This means the most to us – knowing our students leave Deakin believing it was the right choice for them.

Reflecting on the changes that have occurred at Deakin over its relatively short life gives us pause for thought. The world around us is changing quickly and the future will be different, one in which the knowledge economy enabled by machines, big data and connectedness poses new challenges and brings fresh opportunities.

In this issue of dKin magazine you will find stories that build on our past innovation, continue to anticipate change and thus hopefully ensure our students are best positioned to learn, lead, solve and innovate in this new world.

Steve Atkiss introduces us to Deakin’s new Carbon Nexus Centre. Carbon fibre will soon be the mainstay, not only of every vehicle, but also of every building, reducing the need for heavy steel and concrete and instead light-weighting the world. Students are already using the centre to test new ideas and make breakthroughs and, as Stephen says, ‘here, every other day, someone new walks into the centre with a fresh idea... I mean literally every other day.’

This issue of dKin has been designed to highlight just a sample of some of the groundbreaking work that is taking place at your university on our Geelong and Burwood campuses in 2014.

Saied Nahavandi introduces us to the patented haptic engine that provides accurate force feedback from an operator in another room or another country and reveals its potential to keep soldiers safe and to revolutionise industries in ways that are yet to be imagined.

And just recently for Deakin, yet another really exciting world first.

Deakin University is the first university in the world to utilise IBM Watson to enhance the quality of the student experience, we’ve developed with IBM and Watson’s cognitive learning skills, a breakthrough system that will transform the way students get advice and answers to questions.

We’re delighted to be the first university to recruit Watson to help students navigate their way through their university experience – it’s creative, cutting-edge, ultra cool and represents thinking right on the edge of the digital frontier.

It represents a new era of computer technology through its ability to read and understand natural language, process vast amounts of disparate data and learn from each interaction.

For 40 years, students have been at the centre of our universe. We owe our reputation to you, our alumni. Our alumni program is designed to continually engage you with the areas of the University in which you are most interested, whether that be through continued professional development, networking or providing a vehicle for you to support the University to continue to deliver outstanding education and research to the communities we serve.

I hope you enjoy this edition of the magazine and as always, we look forward to hearing from you.

Jane den Hollander
Vice-Chancellor
Touching the future
Although the military ‘robot’ had been able to identify the presence of a roadside bomb, there was a lot it couldn’t do. A soldier was still required to identify how deep the explosive device was buried, as well as its size and capacity, and of course a soldier was required to detonate it. Right now, all this soldier in Iraq, his children at home in Australia, his parents, his wife, and the rest of his team could do, was pray.

Improvised Explosive Devices (IED) are the number one cause of death of NATO forces in Afghanistan and are responsible for over 60 per cent of deaths of NATO forces in Iraq. They are often crude explosives placed alongside roads, and are designed to inflict massive loss of life and infrastructure disruption.

And the problem of IEDs is growing. According to the US Department of Homeland Security, since 2007 the number of troops killed by IEDs in Afghanistan has increased by 400 per cent and the number wounded by 700 per cent.

So when the Australian Department of Defence approached Deakin University’s Centre for Intelligent Systems Research, asking if they could design a robot that could tackle the problem of IEDs, the Centre’s director, Professor Saeed Nahavandi said, ‘Yes, we can.’

‘A few of our students had developed these robots which could actually hunt mines,’ remembers Professor Nahavandi. ‘Now you would say they were primitive robots but back then they were great! The Department of Defence saw these robots, and contacted me.

‘They said, this robotic technology is great, but there is a problem. Finding the mine is one thing, but then you need to know how deep it is, what it is and so on. Currently, soldiers have to lie on the ground, poking around to find where it is, before clearing it and then detonating it. For this, you need the sense of touch.

‘They wanted to know if we could build something that could feel in the same way a human feels, sense pressure like a human – but without a human being there.’

I said, ‘Yes, we have haptic technology.’

The resulting haptically-enabled robotic system, designed for the Australian Defence Force, allows operators to achieve a realistic grasp and feel of remote objects, such as IEDs, using a hand-held tele-manipulator or stylus.

‘Through haptics we create a tele-presence,’ explains Professor Nahavandi. ‘Through the use of robots you can tele-operate a machine as if you were there. Obviously, this is a great application if you want to distance humans from particular objects, such as explosives.’

The haptic arm system allows operators to remotely grasp and feel the weight and texture of objects in real time and improves their awareness of the situation and ability to take appropriate action. Former Minister for Defence Science and Personnel, Warren Snowdon said at the time the partnership with Deakin was formed.
‘They wanted to know if we could build something that could feel in the same way a human feels; sense pressure like a human – but without a human being there.’

Professor Saied Nahavandi
Remote operated counter-IED robots fitted with the haptic arm system could also be employed in civilian environments to safely remove or neutralise hazardous materials, he added.

Professor Nahavandi agrees that the military use of haptic robots extends far beyond bomb detection and detonation, even to biological warfare. ‘It could be used in the case of an attack with anthrax or some other deadly disease,’ he explains. ‘The robot can take samples and biological swabs, contain them – it can screw the lids on containers and take them away!’

Being remotely-operated, haptic robots could also be used to detect and contain outbreaks of animal diseases and potential pandemics. ‘You wouldn’t need these laboratories full of people wearing those big space suits that have very limited dexterity,’ Professor Nahavandi says.

One of the key differences between haptic devices, such as the ones being developed for the Australian Defence Force, and virtual reality models, is that operators are actually feeling the object – not virtually feeling it. ‘It’s not a simulation; it’s a reflection of forces sensed remotely,’ explains Professor Nahavandi. ‘It doesn’t mimic an object; it mirrors it.’

This is an important distinction when you consider the range of applications in which haptic robotics can be used.

‘Doctors are now able to perform advanced remote surgery,’ says Professor Nahavandi. ‘Currently, robotics are used in surgery but the system will only provide the surgeon with visual cues. They have no sense of touch; there is no force feedback.

‘When surgeons are tele-operating using haptic devices, the sense of force and touch is able to be transferred.’

Professor Nahavandi predicts haptic technology will herald a revolution in the field of health.

‘You could have a top surgeon, say in New York, and every half hour they dial in to an operating theatre somewhere in the world. You might have a surgeon or an assistant at the remote location who can do the very basic things.’

The possibilities are particularly exciting for the delivery of healthcare in third world countries where resources and number of experts may be limited.

Professor Nahavandi also sees potential in developing systems that could take over some of the daily care of disabled people or those for whom mobility is an issue.

Training of health professionals is another key area in which Professor Nahavandi sees potential for haptic technology. ‘Using a haptic device linked to a virtual world, doctors can perform procedures many times before they actually touch humans.’

Currently, the Centre for Intelligent Systems Research is working on a haptic-based machine for the optometry industry, to assist with training of optometry novices.

‘What we are developing here is cutting edge technology,’ says Professor Nahavandi. ‘It is technology that nobody else in the world has and we developed it here at the Centre for Intelligent Systems Research at Deakin University with Aussie ingenuity and brain power.

‘The Centre currently works in partnership with industry and government departments in developing specific applications for haptics, and this industry-led research, could take the technology to some very interesting places,’ says Professor Nahavandi. ‘There are always ethical issues with technology and these robots are no different, especially when it comes to the issues of healthcare and who it can and to whom it should be made available.

‘And in my world, anything is possible if you spend enough time, energy, and resources and there is enough accidental providence to feed your “Eureka!” moments…’

Never stop discovering, never stop learning.

deakin.edu.au/research/cisr
STRONGER
LIGHTER
CHEAPER
It gets very hot in the hangar where the Dreamliner mega-aircrafts are built. In fact, at some stage in the production, temperatures can reach over 1000 degrees Celsius. That’s because, where its predecessors were made from steel and held together by nuts and bolts, the body of the state-of-the-art Dreamliner is made by weaving a revolutionary fibre around a skeleton, which is then literally baked in a giant autoclave.

When it decided to part ways with the traditional aircraft construction material in favour of carbon fibre, Boeing began producing an aircraft that was stronger, lighter and cheaper to run than anything it had built before.

Not since the invention of steel, has the development of a material been met with such excitement across so many industries. And at the forefront of the carbon fibre technology in Australia, is Deakin University’s Carbon Nexus, a $34 million facility situated in the grounds of Deakin University’s Waurn Ponds campus, just outside Geelong.

‘Carbon Nexus is the joining together of Deakin and industry, under one roof,’ explains Carbon Nexus’ General Manager, Steve Atkiss. ‘It’s a unique hub that takes real-life industrial application and current academic research, and bonds the two. Then, together, we reach out to all of the associated carbon fibre composite end users to develop meaningful research projects.’

The Carbon Nexus facility comprises laboratories, a pilot scale carbon fibre line and a smaller single-tow research line.

‘This is a relatively new industry,’ explains Atkiss. ‘And importantly, it’s the birth of a new industry in Australia.’

What makes carbon fibre so attractive to so many industries, is its unmatched strength to weight ratio, which makes it stronger than steel at only a fraction of the weight. Depending on the matrix combination of resin, and the layers of carbon fibre material, it can also outperform steel or aluminium in durability.
Carbon fibre was first used in applications that typically involved military and space, explains Atkiss. ‘From there it has moved on to aircraft, wind turbines, performance sports equipment and vehicles, et cetera.

In fact, alongside Carbon Nexus is the headquarters of Carbon Revolution, which produced the world’s first high performance wheels for high performance cars, made from a single piece of structured carbon fibre composite. The Carbon Revolution plant has already created 150 new jobs in collaboration with local and international businesses.

The automotive industry is rapidly embracing carbon fibre, with the major global manufacturers all turning their eyes to this new material.

‘BMW, for example, had the vision to use carbon fibre in their mainstream vehicles,’ says Atkiss. ‘They had been exploring the use of this material within its motor sport ventures for some time, but they also had the future engine emission regulations in mind. They became focused on this issue and realised that reducing the weight of the vehicle alongside development work on engine and battery technology would enable compliance with these regulations.

‘BMW is a leader in the migration from metal to composites in the automotive sector. They secured their carbon fibre source and tailor-made a carbon fibre product for the automotive industry. Previously, the automotive industry had used aerospace grade fibre and lines of supply were limited because traditionally the Tier One aerospace manufacturers had first call on the fibre.

‘The resulting BMW i3 is a phenomenal car,’ says Atkiss. ‘It’s electrically powered, has zero emissions and it is mostly constructed using carbon fibre composite.

‘Carbon fibre is making a huge impact in the world of sports,’ says Atkiss. ‘Available today are carbon fibre fishing rods, golf shafts, cycles and protective gear to name but a few. The performance enhancements are quite staggering.

‘Make no mistake,’ says Atkiss, ‘carbon fibre is revolutionising manufacturing – and Carbon Nexus is at the forefront.

‘Here, every other day, someone new walks into the centre with a fresh idea,’ enthuses Atkiss. ‘I mean literally every other day. There is always something – it could be medical, it could be automotive, it could be construction, it could be anything!

‘We are all about research and development,’ he continues. ‘When people want to build or improve a product, the first thing they need to do is explore the possibilities, become educated in this material then develop a prototype. They specify how the product should perform; we help make it a reality. Eventually that product will be manufactured commercially.

‘The ability to take an idea, develop it and create an output that changes businesses, industry and ultimately everyday lives is an amazing thing to be part of. Deakin’s vision and commitment on innovation is hard to match.

Atkiss explains that Carbon Nexus pulls in a diverse range of professionals, all with their visions of developing this future industry. ‘Our researches have their own individual expertise and areas of interest. We have people exploring how to create carbon fibre quicker, of better quality and cheaper; other people looking into resins; other people looking at performance products.’

CSIRO are key collaborators in the Carbon Nexus facility and occupy neighbouring labs. ‘CSIRO identified the need to introduce carbon fibre into their organisation,’ explains Atkiss. ‘They believe it is a key material of the future and they have a depth of fibre and textile knowledge and experience that we are so
‘We take our newly created fibres from the production line and transfer them across to the building next door, where CSIRO weave it into a high performance fabric or cloth for us to transform into a composite structure.’
‘... at Deakin’s Carbon Nexus we are helping to shape a material of the future. It is incredibly exciting.’

fortunate to work alongside. We take our newly created fibres from the production line and transfer them across to the building next door, where CSIRO weave it into a high performance fabric or cloth for us to transform into a composite structure.’

According to Atkiss, from the start, a Geelong-based carbon fibre plant made perfect sense.

‘Discovering the textile-rich history of the Geelong area, I thought immediately that this is a perfect fit,’ he says. ‘Textile cities have textile cultures, this is ingrained into the fabric or DNA of Geelong.

‘Deakin University has brought in a new material to Australia, but immediately people have associated and recognised it and understood the potential. Carbon fibre is a fibre – it is collected on a bobbin, it is woven into fabric.’

According to Atkiss, the development of a carbon fibre industry in Australia will not only create new jobs, it will sweep up many of the businesses that traditionally serviced the textiles and metal industries and have been left floundering since the collapse of manufacturing in the region.

‘We have had a lot of people who have traditionally manufactured products with metal who have come to us and said, we’ve listened, we’ve heard, we’re interested. We are actively connecting businesses in a less isolated manner, collaborations are now common and linking research and development activities with industry is the way forward.’

Every new industry needs trained, qualified people, and through Carbon Nexus, Deakin University is currently producing the world’s next generation of true carbon fibre professionals.

‘Currently, carbon fibre expertise is extremely limited,’ says Atkiss. ‘I was at the Go Carbon Fibre conference in London recently and we literally had most of the world’s experts in carbon fibre in the one room. There was a common understanding amongst the attendees that this is not a great position to be in, we need to grow this industry, the industry needs new blood.’

‘That’s why’, he says, ‘Deakin students are essential to the growth of the industry, especially in Australia.’

‘The students and research staff you see here in Nexus are working the production line’, he says. ‘They are being trained in research activity but also in how to actually produce industrial scale carbon fibre. There is a new breed of people entering the industry, who not only understand the theory, but also have practical skills and in-depth carbon fibre knowledge.

‘This makes them incredibly employable in the carbon fibre industry. There are plenty of people coming out of university who have the qualification, but not many who have actually physically created something to demonstrate that they are fully capable of making a difference.

‘Many of today’s students will become key players in the evolution of the construction industry’, says Atkiss. ‘Utilising carbon fibre in the structure of buildings is the way forward,’ he explains. ‘Currently in the building industry heavy materials are transported, constructed, time consuming to set up, and are subjected to a wide spectrum of harmful environmental elements. This is where carbon fibre comes in. Carbon fibre combined with concrete, for example, will revolutionise building construction methods, design and longevity.

‘Deakin is extremely active in this area right now.’

As one of the world’s pioneers in carbon fibre, Atkiss says that being involved with Carbon Nexus is a dream come true.

‘In terms of engineering, carbon fibre manufacturing has everything,’ he says. ‘Extreme temperatures, pressures, tensions, advanced control platforms, energy – it provides exposure to almost every element in engineering, plus you are making a stunning product that has changed so many aspects of life today.

‘From the way we travel to work to the way we travel internationally, from receiving medical attention to the way we enjoy recreational activities... at Deakin’s Carbon Nexus we are helping to shape a material of the future. It is incredibly exciting.’

Never stop discovering, never stop learning.

@carbonnexus.com.au
William meets Watson
The two most successful Jeopardy contestants of all time stood at their podiums, locked in battle with a rookie, first-time contender – and they looked worried. By the end of the second round, the newcomer was already $25,000 up on the nearest opponent, and they were about to head into the fast-paced, big money Double Jeopardy segment.

All three contestants answered the final question correctly, although Jennings added to his answer a statement that said it all: ‘1. For one, welcome our new computer overlords.’

Because Watson wasn’t an academic, a genius or even a very bright lay person: Watson was a robot.

Possibly the most shocking thing about this story, is that in the next decade, it will barely cause an eyebrow to be raised. It certainly won’t send any shockwaves through the campuses of one Australian university, which will be quite an feat with Watson and artificial intelligence. Because in 2015, in a world-first, Watson is going to Deakin University.

‘We will see in the next decade what the market is calling the rise of the smart machines,’ says William Confalonieri, Chief Digital Officer at Deakin University.

Confalonieri says that so rapid is the development in technology, machines that replicate human thinking will soon be common place.

‘Firstly, we are seeing great progress in the area of the artificial intelligence algorithms,’ he explains. ‘Computers are really moving away from being number crunchers and moving closer to mimicking the way that we think.

‘Also, we are seeing progress from the hardware perspective. We now have chips replicating the brain structure instead of following the typical model that has been around for many, many years.

‘The rise of artificial intelligence will transform the way we all live,’ says Confalonieri, especially in terms of the workforce.

‘Most of the careers and professions that our kids are going to have don’t even exist now,’ he reveals. ‘In the previous industrial revolution, machines were taking over the physical work of the masses. In this one, they will take over some of the work of our brains.’ he says with a chuckle that suggests some amusement at the expressions on the faces of those who hear this.

‘Of course not everything that is related to creativity and emotion can be replaced, but other things can be delegated to computers.

‘Google already has a driverless car,’ he says. ‘Now imagine it. Suddenly, all the taxi drivers are gone; all the truck drivers are gone; the car industry will be disrupted. I am not going to have three cars. My car will drive me here, then drive home, and then drive my kids to their things.’

If the image of smart machines swallowing up entire industries is frightening, consider this: it’s already happening.

‘There is a smart machine that is writing articles for Forbes.’ Confalonieri says. ‘This is happening now. Articles about financial advice are being written by Quill, an Artificial Intelligence Entity, developed by NarrativeScience. They are written without human supervision. This software takes the information, analyses it, decides what matters and it formulates an article.’

However, Confalonieri says, future readiness is not about being alarmed, it’s about being prepared, and this, he says, is the primary objective of the world-first project to bring Watson to Deakin.

‘What we are seeing is a shift in the configuration of the market,’ he says. ‘Where new jobs will be created and the simplest ones replaced by the smart machines.’

Deakin University is the first learning institution in the world to take the step into this future by giving the Jeopardy-winning computer, Watson, a place in their University to provide advice and support to students.

‘Watson is being developed by IBM and we have joined forces with them to revolutionise the student experience,’ Confalonieri says.

But don’t expect to bump into Watson at the University café or stand next to it at the next student union meeting. Watson, and all its intelligence, will be accessed via Deakin’s digital platforms and will be available to all students.

‘Watson is a computer that basically does three things, explains Confalonieri. ‘It manages natural language, so you can interact with the computer using English (they are working on other languages); it can create many hypotheses about a problem it is presented with, and decide what is the most sensible solution; and it is adaptive, it can receive feedback and adjust for next time.

With these three things this machine is really powerful.

According to Confalonieri, Watson’s role at the University will grow, as it is further customised, and as artificial intelligence technology develops.

Watson is being rolled out at Deakin in stages, the first being implemented at the beginning of 2015.

‘Stage one is simple support in the role of an Information Assistant,’ says Confalonieri. ‘So it will answer general and how-to questions. For example, how do I apply for a student visa? Can I get credit for work experience? The next stage is about Watson becoming a Personal Adviser, having a more personalised conversation by utilising student
In 2015, in a world-first, Watson is going to Deakin University.

profile information. For example, what internships am I eligible to apply to?

'The following stage is about Watson becoming a Career Adviser, engaging students on a much deeper level. For example, I would like to become an IT architect. What are the gaps in my CV and how can I fill them?

'The final stage is the most complex advisory one. In this stage we are entering a realm where we will need to push the current limits of Artificial Intelligence.'

Deakin University students will also become some of the first students in the world to gain the experience of working on the development of Watson.

'We are going to teach Cognitive Computing and give access to Watson to the students in our IT courses,' says Confalonieri.

It's all part of the emphasis that Deakin puts on future readiness, an aspiration that is complex and mysterious, given that the jobs of the future are at this stage purely speculative.

'So we must have flexibility in what we teach,' Confalonieri says. 'Our kids must have broad skills and capabilities, as well as discipline-specific knowledge and capabilities. Things like problem solving, critical thinking, team work, self-management, digital literacy and communications skills are essential in the formation of future professionals.'

To this end, Deakin University is already rolling out a system of digital badging, a program in which students earn 'badges' for having demonstrated additional non-discipline specific skills.

Even before bringing Watson to Deakin, Confalonieri was named iTnews Education CEO of the Year, in recognition of his work in developing online student services.

'It is a time of big changes and Darwinian principles will continue ruling our existence,' Confalonieri says. 'The future belongs not to the strongest, not to the most intelligent, but to the ones most responsive to change.'

DEAKIN ALUMNI AWARD WINNERS

2014

Recipients of the annual Deakin University Alumni Awards are the most outstanding of a highly qualified, successful and dedicated alumni group. They have been selected by the Deakin University Alumni Advisory Committee for success in the area of service to their profession, service to their community or service to Deakin University.

In 2014 we recognise and celebrate the outstanding achievements of four remarkable members of our Deakin alumni community. They are Mr John Stanhope, Chairman of Australia Post and Deakin University Council Member; Mr Nino Ficca, Managing Director, AusNet Services, Mr James Farrell OAM, Director, Queensland Association of Independent Legal Services; and Mrs Madison Robinson, professional netballer – Melbourne Vixens and Australian Team.

Previous years’ winners include arguably Australia’s most influential businessman Lindsay Maxsted, Chairman of the Westpac Banking Corporation; Chairman, Transurban Group; Director of BHP Billiton Limited and BHP Billiton Plc and Managing Director of Align Capital Pty Ltd; Janet Dore, Chief Executive Officer of the Transport Accident Commission; paralympian Richard Colman AM; David McAllister AM, Director, Australian Ballet; and indigenous Australian health and community worker Hannah Gentile.

They come from different professions and different backgrounds, but they all have something in common: they are all Deakin alumni, and they are all inspirational.
Mr Nino Ficca
ALUMNI OF THE YEAR AWARD

Mr James Anthony Farrell OAM
ALUMNI COMMUNITY SERVICE AWARD

Mrs Madison Louise Robinson
YOUNG ALUMNI OF THE YEAR AWARD

Mr John Stanhope
LIFETIME ACHIEVEMENT AWARD
ALUMNI OF THE YEAR AWARD
Mr Nino Ficca
MANAGING DIRECTOR, AUSNET SERVICES
BACHELOR OF ENGINEERING (HONS) 1982 AND
GRADUATE DIPLOMA OF MANAGEMENT 1994
As one of the most respected names in the State’s energy industry, Nino Ficca, Deakin alumnus and Harvard Business School AMP program graduate, has demonstrated a high level of excellence and a keen drive to enable change throughout his prestigious career. In 2005, as Managing Director of SP Electricity, he oversaw the successful listing of SP AusNet on the Australian and Singapore Stock Exchanges. The company (recently renamed AusNet Services) is committed to the safe, efficient and reliable supply of energy via three networks to more than 1.3 million residential and business customers in communities across Victoria. Under Nino’s leadership, AusNet Services has become an advocate for safety and improved working standards via its missionZero safety strategy. Working closely with academic institutions, AusNet Services recognises the importance of investing in the development of skills and has developed an ‘engineering centre of excellence’ philosophy. To support this, their Skilling for the Future Program invests in graduate, apprentice and trainee programs to develop the specialist skills in an exciting industry.

A strong supporter of diversity in the workplace, in his current role as Chairman of the Deakin University Engineering Advisory Board, Nino is looking at the creation and promotion of mentoring opportunities in engineering, especially for women.

YOUNG ALUMNI OF THE YEAR AWARD
Mrs Madison Louise Robinson
PROFESSIONAL NETBALLER – MELBOURNE VIXENS
AND AUSTRALIAN TEAM
BACHELOR OF EDUCATION (PRIMARY) 2010
One of Deakin’s most successful female sporting alumni, Madison began her professional career in 2006, when she was selected to play for the Melbourne Kestrels. Throughout this time she continued her studies, graduating with a distinction average. She currently plays for both the Melbourne Vixens and the Australian Diamonds teams and in 2012 was voted ANZ Championships Player of the Year, International Player of the Year and Liz Ellis Diamond award winner. With a raft of awards throughout her distinguished career, Madison is considered to be not only one of our most valuable players, but a remarkable and inspiring sporting leader. In 2014 she represented Australia in the Glasgow Commonwealth Games, winning gold. Madison is also an ambassador for the Cotton On Foundation, Run Geelong and various other community charities in both Melbourne and Geelong.

ALUMNI COMMUNITY SERVICE AWARD
Mr James Farrell OAM
DIRECTOR, QUEENSLAND ASSOCIATION OF INDEPENDENT LEGAL SERVICES. LECTURER, DEAKIN UNIVERSITY SCHOOL OF LAW
BACHELOR OF COMMERCE 2006, BACHELOR OF LAWS (HONS) 2007 AND
GRADUATE CERTIFICATE OF HIGHER EDUCATION 2012
A recipient of the prestigious 2014 Churchill Fellowship from the Winston Churchill Memorial Trust and a Medal of the Order of Australia, James is an extraordinarily dedicated lawyer and advocate for people experiencing poverty and disadvantage. Throughout his professional career, his outstanding capacity for voluntary work with community based legal services has cemented his status as a leading contemporary social justice lawyer. James is currently the Director of the Queensland Association of Independent Legal Services, the peak body representing Queensland’s community legal centres, and chairs the Queensland Legal Assistance Forum. Previously James was the Manager and Principal Lawyer of Victoria’s Homeless Persons’ Legal Clinic, Deputy Chairperson of the Council to Homeless Persons, and a Director of G21, the Geelong Regional Alliance. He has written and spoken on many socio-legal issues, including homelessness, poverty and human rights. He is an ongoing and passionate advocate for marginalised and disadvantaged people in our community.

LIFETIME ACHIEVEMENT AWARD
Mr John Stanhope
CHAIRMAN, AUSTRALIA POST
BACHELOR OF COMMERCE 1982
The Financial Review’s CFO of the Year in 2011, and recipient of the Dealbook Award for CFO of 2012, John’s contributions and achievements are too numerous and significant to accurately précis. Throughout his extensive and influential career he has led the way in governance, finance, strategy, risk management and more. Serving today as the Chairman of Australia Post, he has previously studied at Stanford, spent many years in senior roles at Telstra, and was instrumental in the introduction of the NBN to Australia. John is also currently the Chairman of the Melbourne International Jazz Festival, a Director of AGL Energy Limited, The Bionic Institute and Our Neighbourhood, as well as being a member of the Deakin University Council.
There are many reasons why it is important to get the interviewing of sexual assault victims right. A bad interview can further traumatise witnesses as well as lead to murky or unreliable testimony that can later be picked apart in court. But the overriding reason why investigative interviewing needs to be handled correctly, says Deakin University’s Professor Martine Powell, who heads up the Centre for Investigative Interviewing, is justice.

‘There is usually very little physical evidence of sexual abuse,’ says Professor Powell. ‘Everything rests on witness testimony. Prosecution rates are much lower than for other indictable offences. We need to make the process fairer. Better testimony is fairer for witnesses and for the defendant.’

Justice for all is now one step closer, with the formation of an innovative Centre that provides the academic rigour and practical assistance needed to support research and training to improve interviewer competency.

The Centre for Investigative Interviewing is a collaboration between academics, police, social workers, prosecutors, judicial officers, teachers, and computer analysts, brought together by Deakin University, to facilitate practitioners’ ability to elicit victims’ accounts in an uninterrupted narrative format.

Investigative interviewing – the process of eliciting an accurate, detailed and coherent account of an event or situation – is a highly specialised area, says Professor Powell. This fact is only just beginning to be fully acknowledged.

‘There’s been a lot of focus on developing measures to get witnesses into the courtroom, by making it more friendly,’ explains Professor Powell. ‘But there’s been relatively less attention on what constitutes good interviewing and how this is learned and sustained.’

‘Interviewing is a highly complex skill,’ she continues. ‘And the more vulnerable your interviewee, the harder it is to obtain a detailed narrative account of what happened.’

‘People are vulnerable for different reasons – vulnerability can arise from limited language or cognitive ability, being part of a cultural minority group, and emotional disturbance caused by trauma itself. Whatever the reason for the vulnerability, best-practice interview technique is the same but it is much harder to apply, and the consequences of poor training is more obvious.’

Interviewing has typically been taught in a classroom, during a single block of time spanning several days or weeks. Most of the training budgets are spent on salaries and transport to get people into the classroom, rather than on course design, delivery and evaluation.

‘It’s difficult to teach practical skills this way,’ says Professor Powell. ‘Imagine trying to master tennis or piano in a three-week course along with a herd of other people. Interviewing is no less complex than these skills.’

Professor Powell’s involvement in this field began in 1996, when Australian jurisdictions started adopting video recording of child witness testimony. Investigative interviewing came under greater scrutiny, and it was felt that improvements to interviewer training were needed. ‘There weren’t many people around to provide support in this area,’ explains Professor Powell. With her background in child
The program has been phenomenal. Over the next decade Professor Powell immersed herself in the abuse investigation field, focusing on building strong relationships with industry partners, gaining a broad understanding of how the justice system works and developing improved practices in interviewer training techniques.

The problem was, there was an issue with the training protocols she was developing – they were having little impact in the interview room.

‘I did a major evaluation that made me realise training wasn’t working. It was a real shock to me because you couldn’t have offered more people resources than I was putting into it. It wasn’t just my programs. It was a problem all around the world.

‘So I thought, let’s look at the elements of training. What do you need? Regular, spaced practice over a longer period of time, individualised and immediate expert feedback, and people learning at their own pace.’

‘Then I thought, we need to get training out of the classroom. Let’s try something radically different.’

The result is a groundbreaking online training program that is experiencing enormous take-up in jurisdictions across Australia and now around the world.

The Centre’s specialist vulnerable witness interview training is delivered on a world-first learning management platform, allowing customised training and tracking of individuals’ progress by organisational in-house training staff. ‘With our range of resources and service we provide a vehicle for organisations to deliver the best available training to their staff.’

The training incorporates a range of practical activities, including actors who provide real life interview simulations over Skype, interactive quizzes and instruction guides.

Resources also include film footage of different witnesses recalling a short film that course participants also see. These films are used to highlight how testimony can differ depending on interviewees’ skills and background.

One of the keys to the Centre’s success in achieving outcomes is collaboration between its team members and industry professionals working on the ground.

‘For the first time, we are experiencing genuine collaboration,’ says Professor Powell. ‘Many of our team members are located in industry so that they can understand the effect of our new techniques first-hand. The extent of industry partnership is widespread, and collaboration is closer than ever before.’

Another example of the Centre’s collaboration is the engagement of crown prosecutors in regular forums. ‘It’s not just about memory. You also have to think about how the evidence presents in court,’ she says. Until now, prosecutors had little involvement in the development of interview protocols.

‘By coordinating the “ecosystem” of collaborations, outcomes achieved in one jurisdiction can benefit everyone. For example, one jurisdiction is championing research on the effectiveness of e-learning; another is focusing on the issue of police and community attitudes towards sexual assault; and another is examining new approaches to the interviewing of Indigenous people.’

‘Everyone benefits from each other. Through this Centre, we have been able to make the criminal justice world smaller.’

And it would never have been done, says Professor Powell, without the backing of Deakin University.

‘It was because of Deakin’s strength in e-learning that we could create such effective computer activities,’ she says. ‘But also, I could not have achieved these outcomes without having senior management who shared our vision and were able to think outside the box. This new venture has involved a lot of “firsts” for us – new types of contracts with industry partners, employment of staff who reside overseas, and the establishment of a centre that involves collaborators from across various universities. These features have enabled our rapid growth.’

And grow it will, as the Centre’s research and training now expands into other non-criminal justice domains, including medicine and family law. ‘The same issues that lead to miscommunication in the criminal justice arena, such as leading questions and interviewees’ misunderstanding of the process, operate in these other domains,’ says Professor Powell.

‘We can now say we can produce vulnerable witness interviewer training that actually works. And this great result has given us the confidence to broaden our horizons.’

Never stop discovering, never stop learning.

investigativecentre.org
As two-time world surfing champion, Tom Carroll, stood before him, explaining what he wanted in a wetsuit and critiquing the one in front of him, Dr Paul Collins, industrial design expert and director of design technology in the School of Engineering at Deakin University, had two thoughts going through his head: ‘Wow, Tom Carroll, surfing legend, is my crash test dummy!’ and how was he going to translate words like ‘gnarly’ and ‘rad’ into his research results.

‘He came back with some hilarious comments – that’s just the way he speaks because he’s a surfer!’ remembers Dr Collins. ‘We had to find a way to translate it into scientific speech. It was an education for both of us.’

Surfing and science may seem like strange bedfellows, but it’s Deakin’s leadership in the area of design technology that has led to the development of a wetsuit that may very well set a new global standard in surfing performance.

Dr Collins’ role as director of design technology at Deakin primarily involves research into how industrial design and sports technology can influence product development.

‘That’s what we do, we help students and industry embrace the creative aspects of engineering, and design better products,’ he says.

Dr Collins and his team first ventured into the field of sports technology in collaboration with sportswear company New Balance, which was looking to expand its range of compression garments.

‘New Balance were conducting a reverse engineering study to better understand their compression garments and those of their competitors,’ says Dr Collins. ‘They asked me to put together a study to look at how compression works, based on the individual and the materials used.’

Compression garments had traditionally been worn beneath sportswear and were used by athletes for improved performance and recovery. The tight fit of the fabric pushes the blood to the heart faster, where it is re-oxygenated and sent back to the muscles more quickly.

It was while researching the development of sportswear with built-in compression garments that Collins made a startling discovery: compression garments work in the same fundamental way as petrol tankers.

‘I did the research and worked out the math,’ says Dr Collins. ‘Compression garments wrap around your body and contain it within, in the same way a tanker is wrapped around the petrol. You fill it up to a certain volume and it exerts a certain amount of pressure. The only difference is that one skin is made from metal and the other one is made from lycra.

‘So the math behind it is the same. Material selection, how much stretch there is in the material, what you fill the pressure volume with – these are the things that make the difference.’
Soon afterwards, the team at Deakin was approached by global surf brand Rip Curl to partner in research, this time focusing on the development of a heat vest that surfers could wear beneath their wetsuits to stay warm in icy waters.

“We were doing research into how much heat the vest should put into a human body, doing some thermal imaging stuff, as well as some material selection.”

The project was a success and today the heat vest, featuring references to Deakin University and the thermal images captured, is available in stores around the world.

At the same time Deakin was working with Rip Curl, another opportunity arose.

It was 2010 and the UCI Cycling Championships were being held in Geelong. To Deakin, it seemed the perfect opportunity to showcase what they do best – material development.

“We wanted to showcase something tangible, something real,” says Dr Collins. “So we built the smart bike. It was made from carbon fibre and a special patented magnesium that Deakin developed.

“We had a waterfront stand, where we were front and centre, displaying a real product, one that actually works.”

“Shortly after the UCI Championships, Quiksilver called Deakin and basically said, we saw the bike and we are really interested in seeing what we can develop together.”

Suddenly, Dr Collins and his team found themselves working with a billion dollar global brand on wetsuit and boardshort technology development.

Although wetsuit technology was new territory for Deakin, Dr Collins says that collaborations with Rip Curl and Quiksilver were almost inevitable, given their shared heritage.

Four years after Rip Curl and Quiksilver were formed in Torquay, on Victoria’s surf coast in 1969, Deakin University opened its doors in the same region. And just as Rip Curl and Quiksilver have grown into global brands with millions of dollars a year in sales, Deakin has established itself at the pinnacle of education.

Part of Deakin’s foray into wetsuit technology involved focus groups with some of the sport’s most elite athletes.

“We sat around at Quiksilver House and we talked about wetsuit design and garment design,” remembers Dr Collins. “We got direct feedback from the best surfers in the world. Kelly Slater told us exactly what he needed. They all had different needs and different things they wanted to look at.

“The project between Deakin and Quiksilver involved looking at cutting edge technology and how it fitted into their existing product line up.

“Some of the stuff we did didn’t work, but that’s research. Some of our research was used. The boardshorts are on the market now.”

Every stage of research added to Deakin’s sports technology knowledge bank, and when Dr Collins pitched the idea of drawing on this knowledge to build a new generation wetsuit and both Rip Curl and Quiksilver passed, Deakin decided to go it alone.

“One of our partners in the wetsuit project is Gordon TAFE,” explains Dr Collins. “We took one of their fashion design students and put him inside Deakin’s engineering department and said, lets design the next wetsuit.”

Deakin positioning itself at the forefront of wetsuit technology is no surprise to Dr Collins. “We are one of the best materials research organisations in Australia,” he says. “We compete globally in materials research.”

The wetsuit project not only draws on materials research, it also involves the development of computer simulation technology and a fair bit of design flair.

“One of the technologies we are developing is building computer models to represent garments,” says Dr Collins. “We’re exploring 3D scanning and how to use it to create a bespoke item like a wetsuit or compression garment. You can use an iPhone to take four or five photos of a person and send them to another program, which will create a pattern especially for it.

“Deakin is home to some relatively free thinkers in terms of how we solve problems,” he continues. “People like Department Head Professor Peter Hodgson challenge you to think differently. That ability to think abstractly and make connections is how I came up with the algorithm on how compression garments work in the same way as petrol tankers.

“At Deakin, risk and failure are seen in a positive light, and that’s how we are making the wetsuit.”

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deakin.edu.au/engineering
GROWING
A HEALTHY
NATION
It’s six o’clock in the evening and if you listen carefully you can almost hear the noise rumbling from the suburbs. It’s the sound of a thousand parents trying to get their kids to eat their vegetables. It begins with the faint, ‘Come on Darling, eat your broccoli,’ before progressing to, ‘Here comes the broccoli train, all aboard!’, and finally the roar from a thousand houses: ‘Eat your broccoli or there will be no Peppa Pig!’

As the night wears on, the pleading becomes intermingled with the rumble of cars lining up outside the local fast food drive-thru; tired workers looking forward to a night on the sofa, watching the Big Game and switching off from a long day at the office. Maybe tomorrow they will go for a run, or take the kids to the park – but inadequate nutrition in the meal they will soon be chowing down on means they probably won’t have the energy.

Sure, everyone knows that we need to eat more fruit and vegetables and exercise more. Nobody needs to read another article or brochure about the benefits of a healthy lifestyle. But that vital step between reading the fact sheets and making real life healthy living choices is a stumbling block that has thwarted many good intentions. Until now.

Deakin University’s Centre for Physical Activity and Nutrition Research (C-PAN) believes it has found the missing link.

‘There is not a parent who does not want the absolute best for their child,’ says Professor David Crawford, who heads up the C-PAN team. ‘We all want to do well, but not everyone has the same opportunities – it’s not a level playing field.

‘What we’re doing at C-PAN is finding ways to actually skill people up so they can do the best for themselves and their kids.’

Professor Crawford says that when C-PAN was formed 14 years ago, interest in their work was minimal. ‘When we started doing research into obesity, especially obesity in children, people thought we were crazy! But look where we are now.’

‘The statistics tell us that around 25 to 30 per cent of Australian primary school age children are considered overweight or obese,’ says Professor Crawford. ‘We are second only to the USA. If the trend continues, Australia is set to become the most obese country in the world.’

Professor Crawford and his team realised that what Australia needed was not another healthy eating pyramid poster hanging in classrooms. ‘We understand a lot about the results of poor nutrition and physical inactivity,’ he explains. ‘Our research is not about that. It’s about, OK we know this – so what can we do to develop prevention and management strategies and therapies?’

So Professor Crawford gathered together an eclectic team of exercise scientists, nutritionists, psychologists and sociologists and got to work.

Their award-winning programs are now being implemented in schools, maternal health centres and supermarkets across the country.

One of their greatest successes has been the InFANT (Infant Feeding Activity and Nutrition Trial) program, which targets mothers of children aged 3 to 18 months.

‘The InFANT program is based on research we have done over many years,’ says Professor Crawford. ‘We developed an intervention trial, which looked at how we might support first time parents in getting their kids eating well and moving at a very early age.’

The C-PAN researchers knew that three-quarters of first-time mothers are involved in mothers’ groups and so they developed a program that taps into mothers’ groups, run through maternal and child health centres.

‘We know that knowledge is not enough, that you need to talk to people about strategies and you need to provide a social environment that supports them,’ says Professor Crawford.

‘It’s not just knowing you should play with your child, it’s knowing how to play. It’s not just knowing you shouldn’t watch TV, it’s having strategies to cope when your child throws a temper tantrum because they want to watch TV.’

In the InFANT program, mothers are provided with information about healthy lifestyle choices and encouraged to share tips and helpful advice with each other.
So successful was the initial rollout of the InFANT program, that it was picked up by the Victorian Department of Health and rolled out across communities across Victoria. It even picked up an award for knowledge translation.

What sets the work of C-PAN apart from other healthy lifestyle research centres, is its focus on behaviour change. ‘Many groups do really great high level research, but not many groups are good at then translating it into the real world,’ says Professor Crawford.

The key to developing these strategies, he says, is identifying the causes of poor nutrition and inactivity. ‘We have a group in the centre that focuses on understanding social and economic inequalities. We have done a large program of work recently looking into a number of communities, which are considered to be disadvantaged.

‘A lot of the time it’s not just lack of education,’ he continues. ‘In many cases we were looking at what is “normal” within that community. So, if you are a blue-collar worker, rating three sausage rolls for lunch everyday, how will it go with your colleagues if you want to change that?’

To add to their knowledge bank, C-PAN enlisted the expertise of a geographer. They understand how built environment contributes to people’s opportunities. We map communities to see things like, is there a park at the end of the street? Is it full of rubbish and needles? Do parents have to pass fast food outlets on the way to the park?

Importantly, Professor Crawford’s team didn’t restrict their research to families who were struggling. ‘Not everyone in these disadvantaged communities were doing poorly. So the question we posed was, what is it about these people that allowed them to be resilient in an environment that was working against them? And how can we apply what we learn from them more broadly.’

To answer this question, Professor Crawford and his team sat down and decided to ask the most fundamental of questions: How do we get people to eat more fruit and vegetables?

The C-PAN team knew that in their quest for an answer, they would have to get into the communities and the places where dietary decisions are made. So they teamed up with Coles supermarkets and the Heart Foundation for a groundbreaking study.

There are many ways we can help the community,’ explains Professor Crawford. ‘There are a whole lot of leverage points. We can work with some of them but not all of them and that’s where collaboration comes in.

‘We knew that one of the ways to get people to eat more fruit and vegetables is to provide greater skills in how to shop and prepare food, and we wanted to see if a modest price reduction would increase people’s purchasing and consumption of fruit and vegetables.’

Coles provided C-PAN with access to its customers as well as data from its flybuys program, which detailed items purchased.

The result? It worked. ‘Even a small price decrease saw sales and consumption increase,’ says Professor Crawford. ‘We are now able to demonstrate to people that choosing fruit and vegetables has a tangible impact on the family’s budget.

Professor Crawford firmly believes that the key to the success of their work hinges on setting in place the elements of healthy eating and physical activity in the young.

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49
Alumni events

Deakin Alumni Relations coordinates a range of events both locally and internationally for graduates of the University. Deakin alumni are encouraged to participate in 100 events held globally each year.

Most of these events are free of charge and provide wonderful opportunities for our alumni to interact, socialise and attend professional development seminars facilitated by industry experts, who in many cases are Deakin graduates themselves, across different disciplines and sectors.

Deakin Alumni Awards

Our distinguished Alumni Awards are held annually to recognise, acknowledge and promote prominent alumni around the world who have achieved outstanding success within their career or community by demonstrating leadership and achievement.

The awards are presented at a gala event in Melbourne in October every year.

Career mentoring

Deakin’s Career Mentoring Program is a free online career resource designed to strengthen global links between our alumni, staff, current students and industry by providing career progression advice and assistance through networking.

There are two forms of mentoring available:
- i. career information interviewing (shorter term); or
- ii. career mentoring (longer term over a period of a few months)

The many advantages of being an Alumni Mentor include:
- helping mentees to enhance their career development and prospects;
- gaining an insight into the latest education trends, graduate skills and the expectations of employers;
- opportunities to further develop your communication and leadership skills and industry knowledge;
- obtaining a new perspective on your professional and personal experience;
- a great addition to your resume; and
- providing opportunities to re-engage with the Deakin Alumni Community.

Library membership

No matter where you are, you can access a number of library and information resources through the Deakin University Library or online at discounted rates. Alumni members can sign up today at deakin.edu.au/library/join. If you are a first time alumni library member, please take advantage of the first 12 months’ free membership offer now available.

Giving to Deakin

The joy of giving, and the immense impact a scholarship can have is deeply personal. It is in most cases those that give, feel they have gained just as much from the experience as those directly impacted by their gift.

Deakin continues to receive generous support from friends and alumni worldwide. This has helped the University to augment funding provided by the Federal Government and maintain the quality of its educational programs and learning environments.

In the future, the University will be increasingly reliant on support to continue to fund new programs, research, scholarships and facilities.

There are a number of ways you can support Deakin in this way including:
- Student scholarships – Deakin is committed to offering educational experiences that widen participation and support students from diverse backgrounds. Help students access, participate and achieve through higher education by giving to the Change 100 lives scholarship fund.
- Grants and donations – your donation may be in the form of a monetary grant or a gift of a significant item for example the giving of a historic book collection for the library, an artwork for display or materials for use in education and research programs. You can also direct your gift to a particular program, initiative, faculty or centre.
- Major gifts – the gift of learning and pioneering research is changing lives now and into the future as well as making a difference to communities here and around the world. A dedicated team works closely with individuals, Trusts and Foundations and the corporate sector to match areas of personal giving interest with Deakin funding priorities. This team is highly motivated to ensure your gift has a lasting impact.
- Planned giving – an estate gift is much more than a financial decision. It is a personal statement about who you are and what you care about. You can give to Deakin through bequests, wills and trust distributions, leaving a lasting legacy to assist students and research transforming the lives of future generations.

For more information visit deakin.edu.au/giving or email giving@deakin.edu.au