A NOSE for discovery

MACQUARIE ALUMNUS AND AUSTRALIAN OF THE YEAR ALAN MACKAY-SIM ON HOW NASAL CELLS HELPED PEOPLE WALK AGAIN
Each year, Macquarie University celebrates the graduations of thousands of its students, marking the completion of their degrees and the start of their lives as alumni. These graduation ceremonies hold a special place in the University calendar. For those celebrating, they mark the culmination of hard work and determination, and the beginning of the next stage of their lives.

As Vice-Chancellor, I take great pride in welcoming a new generation of graduates, full of promise and potential, into our alumni community.

In this edition of Sirius, you will read about some of the exciting achievements your fellow alumni have made. Our cover recognises alumnus Professor Alan Mackay-Sim who, 37 years after graduating, was recognised as the 2017 Australian of the Year. His story, and his recollections of life on campus in the early 1970s, are recorded in these pages.

Work by Professor Daryll Hull, Acting Director of the Centre for Workforce Futures, to establish a triple bottom line for the wine industry is also featured, along with stories of resilience, innovation and urban greening. MQ Health and its groundbreaking programs are also introduced.

These achievements demonstrate the extraordinary impact that you, as a member of our global community of graduates, is having on the world.

Closer to home, work continues on improving our facilities and buildings as we roll out the campus master plan with work recently completed on the renewal of Building E7A (now known as 12 Wally’s Walk). Later this year, we will mark the end of an era with the closure of the Campus Hub before its demolition to make way for a brand new, state-of-the-art facility situated at the heart of the University. I encourage you to visit in the next few months to relive old memories and to return over the coming years to see how we are changing the University to meet the challenges of the future.

These are exciting times for us all, and I remain proud to lead the University as we grow and excel.

Professor S Bruce Dowton
Vice-Chancellor and President
MACQUARIE OPENS FOR BUSINESS
Step back in time 50 years to the first day of lectures, when computing at Macquarie was taught without computers.

SHOWCASING MACQUARIE MINDS
From teenage sex lives to the formation of our universe, no topic was off limits at the inaugural Macquarie Minds Showcase.

ON THE SCENT OF A MEDICAL BREAKTHROUGH
Macquarie alumnus and Australian of the Year Alan Mackay-Sim shares the story of his research breakthrough – and his adventures as one of Macquarie’s pioneer students.

VOLUNTEERING FOR A BRIGHTER FUTURE
Will time poverty mean the end of volunteering or is the nature of volunteering changing too?

FROM THE VINES
We all know the value of a great bottle of wine. Measuring the value of the wine industry is much harder to gauge.

BE RECOGNISED FOR YOUR ACHIEVEMENTS
Applications are now open for the Macquarie University Alumni Awards.

THE PURSUIT OF RESILIENCE
Are we in such a sad state that we can no longer bounce back from adversity?

ISLANDS OF GREEN
Is there a way to balance urban growth and development with urban greening?

THE BRIGHT IDEA BEHIND THE LIGHTHOUSE
The story of the historic Macquarie Lighthouse and how it is continuing to shine a path for those in need.

CAPTURING LIGHTNING IN A BOTTLE
There’s more to innovation than just waiting for a light-bulb moment.
MACQUARIE OPENS FOR business

Students began at Macquarie in March, 50 years ago. Pioneer student John Croucher reminisces about the good old days when a horse helped cultivate vegetables where the sports fields are now, and computers were only found in the imagination.

There were, however, some serious resourcing challenges in those early days – like trying to undertake ‘Introduction to Computing’... without a computer.

“The lecturer, poor Harry Hancock from IBM, used to draw pictures on the blackboard of what a computer would look like if we had one,” he recalls.

“The library wasn’t finished until August that year, which was too bad if you wanted to borrow a book, while vegetables were still growing on the sports-fields site, cultivated by a man with a horse and plough,” Professor Croucher says.

Macquarie’s first lecture was given by Professor Peter Mason in Building E7 T1 – or, as it is known today, the Mason Theatre.

The 1967 lecture was given by a formal robe-clad Mason, who wrote notes on the blackboards. His robes were usually coated in a fine layer of chalkdust by the end of each lecture, Croucher says.

IT’S 1967. PRIME MINISTER HAROLD HOLT DISAPPEARS WHILE SWIMMING AT CHEVIOT BEACH IN VICTORIA. POSTCODES ARE INTRODUCED THROUGHOUT AUSTRALIA. THE AVERAGE WEEKLY WAGE IS APPROXIMATELY $57 ($740 IN TODAY’S DOLLARS). EVERYONE IS LISTENING TO THE SEEKERS, THE MONKEES – AND SNOOPY VS THE RED BARON BY THE ROYAL GUARDSMEN.

On 6 March at 9am, Professor Peter Mason delivered the University’s very first lecture, ‘Structure and Properties of Matter’, which was attended by 79 students, including Don White (BA 1970, MA 1974), Roger Badham (BA 1970, BA Hons 1971, PhD 1981) and Professor John Croucher AM (BA 1970, BA Hons 1971, PhD 2005).

Fast-forward exactly 50 years. Professor Croucher spoke at an event celebrating the 50th anniversary of students starting lectures with 150 fellow pioneering students. He has fond memories of being among the enthusiastic first cohort of students at Macquarie.
**MIXED BAG**

“The day the University’s doors opened on 6 March 1967, there were 294 full-time students enrolled,” he says, adding that even though it was a new university with no track record or standing, it proved to be a far more popular choice than anticipated.

Thanks to an earlier introduction of a sixth year of high school, there were no high school leavers in 1966, the year before Macquarie opened its doors. It meant that all of the University’s first students were either people like himself who had worked for several years before saving enough funds to attend university, mature age students – often local residents who had decided to return to or try university – and a host of Catholic nuns and brothers.

Croucher’s interest was in mathematics and statistics, but Macquarie’s innovative credit point system allowed him to pick and choose from among all of the subjects on offer.

“In that first year, I did 11 subjects, including French, chemistry, maths, physics, computing and statistics,” he says. “It was probably the equivalent of about 35 credit points of study today, but because the University was so new, only first-year subjects were listed and it was hard to know where you were heading.

“There were no course descriptions or even listings beyond 100-level (first year) and so we all went in blind, like heading into a black hole,” he explains.

“For example, in the 1967 soft-covered calendar, which was a very small, thin book costing 50 cents, courses in the School of Education were listed as ‘to be announced later’.”

There were two other versions of the calendar: a hard-cover version for $1 and a leather-bound version that Croucher discovered recently – but it was only for Macquarie’s first Vice-Chancellor, Professor Alexander Mitchell.

**LEAP OF FAITH**

Croucher says that all of Macquarie’s early students felt the pioneering spirit.

“We had no idea whether we would get a job [at the end of a degree] because employers didn’t know anything about the University. We were going up against established universities. It was a leap of faith.”

Like Macquarie, Croucher has come a long way. Prior to becoming a Macquarie Graduate School of Management professor in 2004, he was a professor of statistics (1998–2003) and has four PhDs, including an honorary doctorate from the Divine Word University in Papua New Guinea. In 2013, he received the Prime Minister’s Award for the Australian University Teacher of the Year and was made a Member of the Order of Australia in 2015.

Looking ahead, Croucher doesn’t try to guess what the future holds for the University.

“Who knows?” he says. “When we started [50 years ago], there were no calculators, no colour TVs, no mobile phones, no internet and no-one had computers. Everything has led to where we are now, and where we are going is sure to be very exciting.”

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*Professor Peter Mason presented Macquarie’s first lecture in what is now known as the Mason Theatre.*
ON THE SCENT OF A medical breakthrough

Macquarie alumnus and Australian of the Year Professor Alan Mackay-Sim shares his journey of discovery, which began with an interest in a rat’s sense of smell, and is now changing the way insidious diseases are treated.

“Solving a biological puzzle

Each day the nerve cells that are responsible for smelling – known as olfactory ensheathing cells – do their job, die and are reborn.

“I thought if we could find out how they regenerate, maybe we could use that knowledge in some way to help regenerate the nervous system.”

His team started culturing olfactory cells from patients with schizophrenia – a disease of the brain, literally the head of the nervous system – as well as those from people without the disease.

“We could see the nervous system development happening right there in the dish and found there were differences in the way the schizophrenic cells grew compared with healthy controls,” Mackay-Sim says. The discovery confirmed what had long been suspected: brain disorders and diseases have a biological basis.

There was a big ‘aha moment’ in the late 1990s when teams of researchers published results showing that olfactory ensheathing cells could be used to repair injured spinal cords, although the source of the cells was the brain.

“That was a moment that changed our lives in the lab, because we were already getting tissue from people's noses and growing it in a dish.” With collaborators from the University of New South Wales, his team showed that olfactory ensheathing cells from the nose could help regenerate the spinal cord, even when it was completely severed. This was important because nasal cells were easily accessible, but brain cells were not and require a major operation.

“This led quickly to a human clinical trial where we took those cells from people with very large injuries to their spinal cord, grew them in a dish and put them back into their spinal cord. While they did not improve function below the injury site, one person had improved sensation above the level of injury,” he says. Significantly, it showed the procedure was safe.

“That led to an animal clinical trial in which dogs that had had car accidents had cells taken from their noses and put into their
From there, researchers in Poland took the olfactory ensheathing cells from a man whose spinal cord had been severed after suffering a stab wound two years earlier and transplanted the cells into his spine. Following extensive rehabilitation to strengthen atrophied muscles, he was able to walk again – a feat that made worldwide headlines.

Meanwhile, Mackay-Sim’s lab had continued to research the idea of using olfactory tissues to treat brain diseases. “Our ‘aha moment’ was being able to grow the stem cells responsible for regeneration of the olfactory sensory neurons,” he says. “We could cultivate them in a dish, which has become the way we’ve looked at several brain diseases we’ve looked at several brain diseases, such as schizophrenia, Parkinson’s disease and some genetic diseases, including hereditary spastic paraplegia.

“In the case of hereditary spastic paraplegia – which progressively reduces a patient’s ability to walk – we’ve gone from identifying the biological differences at the cellular level to finding a drug that we want to take into clinical trials. We have literally fixed the disease in a dish.”

“Most people couldn’t imagine sticking at something for a year or two. Scientists can spend decades researching something without knowing if there will be clinical applications for their work.

“DESPITE THE IMMENSE PROMISE HIS RESEARCH HOLDS, MACKAY-SIM SAYS THAT BECAUSE OF ITS COMPLEXITIES, IT’S HARD FOR PEOPLE TO GET EXCITED UNTIL THEY SEE A REAL CLINICAL OUTCOME.

“These outcomes change people’s lives, and that they can relate to. It’s the journey that is harder to understand.”

One of his goals during his time as Australian of the Year is to help people better understand the nature of scientific research.

“The first challenge is having people recognise the long-term nature of science; whether it’s science that has a payoff or science that doesn’t have a payoff, it still takes many years to find out.”

He says that he started on his research into the regeneration and repair of the sense of smell in rats about 30 years ago, and it took 20 years before there seemed to be clinical applications.

“Most people couldn’t imagine sticking at something for one or two or three years. While politicians have a three-year timeline, scientists have a very long-term view and obsession to keep going.

“That will be part of the education process – telling people about my science and how I got to where I am so that people can understand what it takes to achieve clinical outcomes when you’re doing basic research.”

In his acceptance speech, Mackay-Sim made the point that science should be as important as the federal health or defence budget.

“We should have high and consistent levels of funding for scientific research because that’s where the new jobs are going to come from: that’s where the savings in the health system are going to come from.

“Although it’s very painful for people to potentially lose their jobs because of changes in technology, there will be different kinds of jobs in the future.

“We should be supporting innovation, rather than just buying in new ideas from elsewhere.”
Professor Mackay-Sim says that when he was at Macquarie back in the early 1970s, it was a small campus. “There were only around 3000 people, which meant you basically knew everyone on campus by sight.

“Campus life was very vibrant with dances all the time and lots of clubs. In second year, I joined the rugby club and tackled my way up the ranks, and then in third year I joined the Maquanauts.”

“Club members went diving every weekend and headed up to the Great Barrier Reef for a couple of weeks every year.

“For the first few years we drove up to Gladstone with cars and trailers filled with stuff, but later on we rented a bus to carry everything instead,” he says. “We’d get a trawler to take us out to one of the islands in the Whitsundays, and we would be left there – just 20 or 30 students and friends – for two weeks.

“We had boats, compressors, food and water, and we’d just camp and have the most wonderful, idyllic time separated from the world. At that time, the islands hadn’t been exploited by tourists.”

One year was a bit traumatic for everyone, he recounts, after the trawler didn’t arrive – leaving them with just enough food and water for the entire two weeks.

“It turned out that the captain had got a bit drunk, run into a reef and damaged his boat. We didn’t have any radio connection with him or the mainland and were just there waiting, stranded on a deserted island.”

They finally hailed a passing yacht and made contact with the mainland. “Once we discovered what had happened, we just had to wait, catch fish to eat and relax,” he says.

“I’ve got friends now who are ex-Maquanauts – including Harry Mitchell, Gordon Malcolm, Greg and Jacqueline Murray (BA/DipEd 1974) and Frank Howarth (BA 1973, BA Hons 1974) – and we still catch up. You become very close to people when you go on all these trips together and have these great experiences.”

He says their passion for adrenalin sports wasn’t restricted to diving.

“We also started a hang-gliding club. We’d seen a picture of somebody flying at Stanwell Park and we thought ‘we should do that’. We got the sports association to buy a glider and away we went. It was fantastic,” he laughs.

For more stories about Macquarie’s pioneering days, visit mq.edu.au/macquariematters/

**NEW MASTER OF SCIENCE LAUNCHES**

Technological change is transforming the way we live, work, learn and communicate, causing a vital skills gap for scientists with both entrepreneurship and leadership skills. Macquarie’s new Master of Science bridges that gap, with practical training for scientists who have a passion for sharing their brilliant ideas with the world.

Students choose one of six specialisations in a wide variety of disciplines, including Biology Innovation, Chemical and Biomolecular Sciences Innovation, Earth and Planetary Sciences Innovation, Environmental Sciences Innovation, Information Technology Innovation and Statistics Innovation. Units specifically designed around leadership and entrepreneurship mean that students are exposed to industry and research leaders with real immersive experiences as part of their coursework.

Students also undertake industry internships that not only help maximise their employability but also give them the opportunity to apply their learning in a practical setting, ensuring they are well prepared to meet science’s future challenges. Visit courses.mq.edu.au/MSc for more information.
Macquarie Minds

The inaugural Macquarie Minds Showcase, held in December 2016, brought together a diverse group of visionaries, researchers and experts to showcase the power of university research to drive reinvention and stimulate positive change in the world.

Words Dani Cooper
Images Ben Sanders and Chris Stacey
For years, development professionals and economists have held the view that dictatorships or authoritarian rule are effective drivers of economic growth in developing countries.

However, one of the earliest dissenters to this theory was Amartya Sen, the 1988 winner of the Nobel Prize in Economics. Famously, he pointed out “no substantial famine has ever occurred in any independent and democratic country with a relatively free press. We cannot find exceptions to this rule, no matter where we look.”

Recently the debate about the economic power of democracy in delivering economic growth has stepped up a gear. Leading economists Daron Acemoglu, James Robinson and William Easterly have each highlighted the role of ‘inclusive’ versus ‘extractive’ political and economic institutions.

Inclusive economic institutions allow participation according to people’s needs, desires, skills and free choices. Such institutions are markets in which secure property rights, the rule of law, freedom to contract and exchange, and certain public services and infrastructure promote equality of opportunities. From these in turn come the incentives to invest, to innovate and to create the new products, ideas and businesses that challenge incumbent interests.

But they are also clearly subversive of entrenched economic interests and the extractive political institutions these interests erect to protect themselves against competition.

In Burma, the past 50 years of military rule has resulted in a nation that entered the 20th century as the richest country in Southeast Asia and the 21st century as the poorest.

The practical focus in achieving ‘free development’ right now means such basic changes as opening up closed, crony-dominated markets, delivering land reform, chasing down expropriated resource revenues, improving health and education, reprioritising government spending from the military to enabling infrastructure, and achieving macroeconomic stability — for growth, to reduce the demands of the state.

While democracy, the rule of law and the promotion of human rights are ends in themselves, and need no other justification, there are economic dividends that come from being a true democracy.

Myanmar is the poorest country in Southeast Asia, and we are striving to change this to make better lives for the country’s 53 million people. But it is a desperately hard struggle.

The truth is Myanmar is still a very imperfect democracy – and democracy’s enemies remain all about. Will we win? Hard to say. But we will not die thinking we did not give it a go in the full measure.

Sean Turnell is currently on leave from his role as Associate Professor in the Department of Economics to act as economic adviser to Myanmar’s Aung San Suu Kyi.

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Planets are usually born at the same time as their mother stars, and for a long time they orbit them in a stable way. However, when the star experiences change typical of its ageing process, the planets can become unstable.

A typical change that happens to ageing stars is they expand and can engulf — or eat — their orbiting planets. When this happens, it is usually game over for the planet. But the question I have been researching is what happens to the star?

One option is that the planets are so much smaller than the stars that nothing happens. However, we know that even puny planets can stimulate a reaction in the star — just like a tiny insect can cause a small tickle that provokes a person to scratch.

My research concentrates on what these stellar reactions to planetary tickles might be. For now, we believe the effects of planetary engulfment are not enormous. A planetary incursion into a star can provoke the star to expand and lose more mass than it would otherwise. Some of these effects may be observed from Earth.

We are now trying to understand whether some more dramatic effects could be caused, for example, by the planet interfering with the natural pulsations of the star, or with its magnetic field, something that may amplify a response of the star.

Ultimately, we wonder whether the incursion of a planet into a star can cause it to deviate from its regular ageing path. Since planets are common around stars, such interactions could be a common occurrence in stellar lives. If they do cause stellar change, we need to include these interactions in our theories of how stars live and enrich the galaxy of the elements of life.
IMPROVING OUR CHILDREN’S EMOTIONAL HEALTH
FACULTY OF HUMAN SCIENCES
PROFESSOR JENNIE HUDSON (BA HONS 1995, PHD/MCLINICALPSYCH 2001)

Australians are happy people. We rank ninth in this year’s World Happiness Report, which isn’t bad except our New Zealand neighbours turn out to be happier – they are ranked eighth.

What interests me is that a strong predictor of how happy you are as an adult is determined by how emotionally healthy you were as a child. So, if we want to raise happy Australians, we need to invest in children’s emotional health.

Currently, emotional health problems such as anxiety and depression are common in our young people. For the first time last year in New South Wales, suicide was the leading cause of death in young people aged 15–17 years.

We need to better understand why children develop these problems and how we can best prevent and treat them, which is exactly what we are doing at the Centre for Emotional Health – a Macquarie University Research Centre.

Although we have programs that work for the majority of children, there are a number of problems, such as accessibility, with getting this help to the people who need it.

We are trying to overcome this by evaluating whether we can deliver programs to children through the school system and by moving our programs online. We are helping to train school counsellors, psychologists and other mental health practitioners so that when a child does seek help they get the best care.

We are also trying to better understand why some people respond better to treatments than others – and if there is a genetic basis to this. Although we are still in the early stages of research, it appears this is the case. Certain genetic markers predict how a child responds to treatment. At the moment, we have a one-size-fits-all approach. Our goal over the next five years is to refine our tools so that we can match the best treatment for each child.

Our research shows there are certain strategies as parents that we can adopt that are key to raising emotionally healthy children.

First, we need to provide children with a safe and loving environment. But we also need to listen to them and acknowledge their emotions, gently encourage independence by allowing them to experience challenging situations and as a parent be an emotionally healthy role model.

If we want to raise Australia’s position on the global happiness rankings – and beat the Kiwis – then investing in children’s emotional health is key.

HAS THE SHIP SAILED ON STOPPING EXTREMISM?
FACULTY OF ARTS
DR JULIAN DROOGAN

While 9/11 was a turning point in the perception in the West about the importance of terrorism and talking about issues such as religious radicalisation, I am suspicious of the idea of religious radicalisation as the sole or even primary motivator of terrorism.

Often those with traditional religious educations are quite immune to terrorist leanings. The people in Western countries, for example, who are attracted to global terrorist movements such as the so-called Islamic State (ISIS) are often experiencing a crisis of identity, usually young men. They are isolated from family and friends, have a social or political grievance and a belief that violence is an appropriate solution to their problems. They are searching for a sense of self that can lead them to go through a born-again type of experience that is corrupted or perverted by these terrorist groups.

In New South Wales, we have been quite successful in countering the effects of violent extremism, despite the public’s perception otherwise. While the numbers of people who act out in the name of terrorist groups are minuscule in whole numbers and percentages, they unfortunately create a huge amount of noise and cause significant destruction to perceptions of community harmony when they do take violent action. This destruction is, of course, a big part of groups such as ISIS’ motivation.

This can cause the public to feel that sometimes we are losing the fight against violent extremism and hate, but in Australia we have in fact shown ourselves to be quite resilient to terrorism and its effects. That is in part because we are relatively wealthy, still somewhat egalitarian and our communities are rather integrated, or at
least share a significant amount of social capital and connectedness with one another and with broader society. By comparison, in some European countries there are immigrant groups that never feel like they belong and perceive themselves to be largely excluded from broader society.

Academic research into terrorism helps drive government policy from a local to federal level and helps ensure our responses are driven by research not fear. We should not underestimate the power of positive stories in the media to change public perception. During the Lindt Café siege, a spontaneous grassroots campaign emerged to support Muslim people who felt unsafe travelling on public transport. #illridewithyou attracted more than 150,000 tweets in just four hours, and it went a long way to preventing the Muslim community in New South Wales from feeling under siege and persecuted due to one man’s attack, which was apparently in-part inspired by ISIS propaganda.

According to most sober risk assessments, our country appears to spend a disproportionate amount of resources on combating terrorism. Some claim this is necessary because terrorism is the biggest threat to our national security, or at least that its effects on innocent civilians are particularly heinous. While stopping extremism requires everyone to be part of the solution, a truly whole-of-society response, it is worth remembering that within Australia more people have been killed over the past 20 years by kangaroos than by terrorists. However, often it is the repercussions of extremists and terrorist violence on the fabric of our multicultural society and on community harmony that provides the greatest risk, and need for sober academic research to drive policy responses.

Our research shows we need to change the way we deliver this education. There is good research in what engages young people, and it is around hypotheticals and getting their input. We need to shift into a space where we start listening to young people and give them a space where they can start talking to each other.

Gender structures still strongly inform their intimate relationships even though both sexes are aware of the double standards in play. For example, if you ask girls whether they have the same opportunities as boys, they say ‘absolutely’, and they expect to have a career and a partner to share housework. But when you ask if they would ask a boy out, they reply ‘no way’, because you could be seen as being desperate.

Research shows around 70 per cent of older teenagers have shared a sexy image at least once. Young people don’t have a moral issue about this, but when adults get involved much of the negative response often falls on the girls who are told that they are destroying their reputation.

Young people are very aware of ethical challenges and aware there is a long way to go with the way gender structures relationships.
A HEALTH REVOLUTION HAS TAKEN PLACE AT MACQUARIE OVER THE PAST YEAR. LAUNCHED IN SEPTEMBER 2016, MQ HEALTH IS REDEFINING HEALTHCARE EXCELLENCE BY COMBINING CLINICAL CARE WITH TEACHING AND RESEARCH. IT’S A MODEL DRAWN FROM INTERNATIONAL EXPERIENCE THAT SHOWS PATIENTS DO BEST WHEN THEY ARE AT THE HEART OF TREATMENT, LEARNING AND RESEARCH.

MQ Health is Australia’s first fully integrated university-led health sciences centre that brings together Macquarie University Hospital, the University’s Faculty of Medicine and Health Sciences, and clinical components of the Faculty of Human Sciences, and Macquarie University Clinical Associates, which is the University’s newest controlled entity.

Underpinned by a philosophy of heal-learn-discover, this healthcare model combines the best available knowledge and expertise. It ensures patients receive a comprehensive, integrated service, complemented by quality teaching and learning and cross-disciplinary research into cancer, neuroscience, clinical sciences, cardiovascular, hearing, mental health and sustainable health systems. It allows our clinicians, researchers and teachers to work collaboratively to deliver high-quality health outcomes for patients and the community.

As part of our focus on improving the services available to patients, MQ Health has recently opened a number of new clinics, including General Practice, Cardiology, Plastic and Reconstructive Surgery, Urology, Men’s Health and Lymphoedema.

These clinics are the frontline of our patient-centric care model, which sees their needs coordinated throughout their treatment, from initial consultation through to diagnostic and other health services, and inpatient hospital care if required.

We invite alumni and friends to take advantage of MQ Health’s clinics and services – visit mqhealth.org.au to learn more.

DOCTORS IN TRAINING

Macquarie University Hospital (MUH) is Australia’s first private not-for-profit teaching hospital on a university campus and is committed to education and training. The University has been able to leverage the unique opportunities presented by having a private teaching hospital onsite and has developed a number of innovative undergraduate and postgraduate courses. These include the Bachelor of Clinical Science, the Doctor of Physiotherapy and the Master of Public Health as well as higher degree research.

Starting in early 2017, MQ Health’s new Doctors in Training program provides junior doctors with the opportunity to undertake their postgraduate clinical training in a private hospital. In 2017, 18 places are available for interns, fellows, and registrars, significantly adding to
the pool of internship places available in Australia. By doing so, the University helps address a national shortage of postgraduate clinical training places.

Doctors in Training are a part of MQ Health’s unique integrated ecosystem of students, researchers, allied health professionals, junior doctors, doctors and specialists working together towards improving health outcomes for patients and the community in a research-intensive academic environment.

“The Doctors in Training program is integral to MQ Health’s purpose of heal-learn-discover,” explains Doctors in Training Manager Claire King. “Doctors in training are an important part of the healthcare team as they support specialists in providing high-quality care to patients and are accessible to patients when they need them most. They are also involved in the hospital’s research activities.

“Above all, though, our medical interns are at MQ Health to learn and develop their skills by making use of the education and training opportunities available in a unique research-intensive environment that brings together committed teachers, the simulation laboratory and other teaching spaces, as well as the clinical opportunities that are unique to our environment as a private, not-for-profit teaching hospital.”

“MUH is a great environment for an intern,” explains Dr Glendon Inkster, one of Macquarie’s pioneer Doctors in Training. “It’s a beautiful facility with state-of-the-art technology. The staff enjoy working here and are very pleasant. Many of the doctors have chosen MUH to further their careers in research, which means I am surrounded by brilliant minds who are leaders in their field of expertise.

“Being able to learn from these people is an amazing opportunity.”

He says that while his internship has been busy, he has also had time to learn and to experience things that are normally not available to interns.

“I cherish the opportunities that are made available to me. I have spent a number of hours in theatres learning hands-on skills and gaining knowledge I don’t think I would have attained elsewhere.

“Some of my favourite moments have been attending theatres during my neurosurgical rotation. The brain is a beautiful organ that textbooks just don’t do justice to, and the opportunity to see them firsthand is an amazing experience.”

mqhealth.org.au

MAKING MEN’S HEALTH A PRIORITY

MQ Health’s innovative Men’s Health Clinic has been designed to address the full range of men’s health needs – from routine preventative care to specialist treatment for complex health conditions.

We recognise that many men have busy lives or feel uncomfortable about visiting the doctor. Our services ease this burden by offering convenient hours, a discreet location, on-site access to any specialist services needed and a dedicated coordinator for follow-up appointments and test results.

To make an appointment, call (02) 9812 3944.
VOLUNTEERING FOR A brighter future

Will increasing time poverty erode the power of volunteering to change lives. Or is the nature of volunteering changing too?

‘BUSY, BUSY’ IS A CATCHCRY HEARD EVERYWHERE THESE DAYS AS PEOPLE TRY TO SQUEEZE MORE AND MORE INTO THE SHRINKING TIME AWAY FROM WORK.

In this era of time poverty, it’s not unreasonable that volunteering would be one of the first things sacrificed on the altar of efficiency. And if you looked at data from the Australian Bureau of Statistics, there has been a small but significant decline in volunteering since 2010, from 36 per cent of the population down to 31 per cent.

But that’s not the whole story, according to Associate Professor Debbie Haski-Leventhal from the Macquarie Graduate School of Management. She argues that volunteering is not only increasing but also evolving.

“With so many different life demands, people cannot volunteer the way that our grandmothers used to, such as spending four hours a week every week delivering meals,” says Haski-Leventhal.

“The way that people volunteer has actually changed, and they like combining volunteering with other life demands.”

This means volunteering now often happens in conjunction with work, study, travel, family time and even social media use.

EMPOWERING CHANGE

Macquarie’s PACE – Professional and Community Engagement – program is one example of how generosity from a supervisor, including alumni, is supporting Macquarie students. All undergraduate courses at Macquarie now include one PACE unit, where students choose a relevant volunteering opportunity from more than 2500 host organisations both in Australia or overseas and receive academic credit for their work – while host organisations receive measurable benefits from hosting PACE students.

Macquarie psychology student Stephanie Hunt (BPsych Hons 2017) spent a month in Fiji with Empower Pacific, an NGO that provides counselling and social services focused on mental health in young people. Her task, along with two other Macquarie students, was to develop a survey for school and university students that would help Empower Pacific produce more targeted support programs.

Hunt says that while she was initially daunted by the idea of diving straight into such a practical challenge, the experience has had a lifelong impact.

“The crazy thing with being put in a practical situation, and this is true for the local work experience PACE units as well, is that it all just comes together; you’re sitting there and things are popping into your brain that you learned in first year and second year with things you thought you’d forgotten,” Hunt says.

“Everything that I’d learned, whether it was in developmental psych or psychopathology and development disorders or statistics and research methods, came together and helped me understand the bigger picture.”

The experience of doing a pilot survey of students at a local technical college also drove home the significance of the work they were doing with Empower Pacific.

“While analysing the data we gathered, we found that of the 23 people we had surveyed at that school, five of them had had suicidal thoughts or tried to commit suicide within the last year,” Hunt says.

“That’s the moment when we realised that we needed to do more.”

So the group went beyond the original brief and put together a survey package that included advice on how to deliver these surveys in tandem with counselling follow-up.

The experience also changed Hunt’s career preferences towards more hands-on work rather than research, and she is now putting that into practice by getting hospital experience through Macquarie’s Faculty of Medicine and Health Sciences.
FIGHTING THE HOUSING AFFORDABILITY CRISIS

Another Macquarie student group completed a PACE activity with the Salvation Army and contributed to the development of Ryde Council’s affordable housing policy.

Salvation Army team leader Nathan Moulds says the group of three students helped develop and conduct a survey of Ryde residents about housing affordability issues, wrote a report based on the results and presented the report to the City of Ryde.

“The contribution they made through the survey, ensuring that it was a mixed message survey that elicited meaningful responses from participants, really helped to form some case studies and pictures of the need and the impact,” Moulds says.

“Hearing people’s stories of hardship, but also what it means to live in affordable housing and the difference it makes in their lives, put a human face on the issue.”

The City of Ryde has since adopted an affordable housing policy and is actively supporting and encouraging affordable housing opportunities in the local government area.

WIN-WIN SITUATION

Associate Professor Debbie Haski-Leventhal says that for students, volunteering is a great way to increase employability as many employers are now actively seeking graduates with volunteering experience. But volunteering can have its downsides, particularly if volunteers are not well managed, if their contribution is not constructive or acknowledged or if they are used in positions alongside paid employees,” she says.

“When organisations decide to recruit volunteers they need to understand that it will cost them time and money and effort to manage volunteers correctly, but it’s going to cost them even more money and time and effort to manage volunteers incorrectly.”

For the most part, volunteers offer significant benefits to an organisation, giving them effectively free human resources and providing skills and talents that may not be available or affordable for that organisation.

There’s also evidence that people prefer receiving services from volunteers – something Haski-Leventhal calls ‘perceived altruism’.

But in the end, research suggests that the greatest benefit from volunteering is actually gained by the volunteer themselves.

“Volunteering contributes to the physical and psychological wellbeing of the volunteer; they get social benefits and they get psychological benefits because they feel better about themselves.”

SUPPORTING PACE

At Macquarie, we want to produce more graduates who are well-rounded individuals, have a global perspective and are equipped to actively promote more inclusive and sustainable societies.

We believe our students need depth and breadth of understanding in a particular discipline. Our PACE program provides a platform to apply the deep knowledge students gain from their studies to work in the real world.

Partner organisations also benefit from becoming a PACE partner. PACE partners:

- access innovative, dynamic and motivated student thinkers to complete key projects
- enthuse students and their peers about the organisation and its line of work
- create a channel for finding and attracting bright new recruits
- inspire students and their peers about future career paths.

If your organisation would like to develop a mutually beneficial partnership with Macquarie, and host our PACE students:

pace.mq.edu.au
E: pace@mq.edu.au
T: +61 (2) 9850 6461
The pursuit of resilience

Are we in such a sad state that we can no longer bounce back from adversity and rediscover happiness?

Words Caroline McDevitt
Images Chris Stacey

Olympic diver and Macquarie student Melissa Wu (B Arts Media student, 2008 Olympic silver medallist, and 2012 Macquarie Female Sports Athlete of the Year) has overcome both injury and personal challenges to stay at the top of her field for almost a decade.
“Are you happy?”

It’s an incredibly important emotion.

But do we crave too much comfort when we’re feeling down? Is our sense of being ‘unhappy’ heightened by our quest to be happy all the time?

Social researcher and author of The Good Life Hugh Mackay (MA 1991, DLITT (Honoris Causa) 1999) says we need to feel sadness, pain, loss and tedium to feel happy. Mackay, who holds an honorary doctorate and Master of Arts in Moral Philosophy from Macquarie, says we’re in the midst of an “obsession with the pursuit of happiness – we think we are all entitled to be happy, and there’s something wrong with us if we’re not.”

So if we can’t be happy all the time, how do we recover from a down period?

Macquarie Distinguished Professor and ARC Laureate Fellow Ron Rapee specialises in the prevention of anxiety and depression. “If people can deal with stressors in their lives and can bounce back quickly from stressors, they’ll be much more likely to be happy and happy for longer,” he says.

**BOUNCING BACK**

This ability to bounce back is called resilience.

“Resilience is not the same as happiness,” explains Rapee. “But it has a lot to do with it. No-one can live a life without adversity. Being able to return to your usual level of functioning as soon as possible is incredibly important to our quality of life.”

Mackay takes it a step further: “If we privilege happiness, we’re likely to become...
Strive for 'wholeness' – being able to absorb, interpret, understand and learn from whatever life throws at us by harnessing the appropriate emotions to deal with it.

HUGH MACKAY

scared of sadness, and I think we're in that situation now when people experience absolutely understandable down periods.”

He suggests striving for ‘wholeness’ – “being able to absorb, interpret, understand and learn from whatever life throws at us by harnessing the appropriate emotions to deal with it. You could also describe that as resilience.”

Resilience, or lack of it, impacts more than the individual, says Rapee. “Being able to manage emotions and stress can impact everything from family, social relationships and jobs to medical and physical issues. The financial costs are very high if we look at absenteeism, family breakdown and problems in the classroom.”

RESILIENCE IN THE ELDERLY

At the other end of the age spectrum, Associate Professor Viviana Wuthrich (B Psych Hons 1999, PhD 2005) has found older age is usually associated with better mental health.

“Their ability to focus on positive experiences and emotions appears to be enhanced, and as such they are more resilient,” says Wuthrich, who last year received a prestigious Young Tall Poppy Science Award for her work in developing anxiety and mood treatment systems.

Through her research, Wuthrich has developed a cognitive behavioural therapy program that treats both anxiety and depression in older adults, and assists them to bounce back from stressors and deal with future stressors better.

TIME TO TOUGHEN UP

So how do we achieve real happiness by being able to cope with adversity?

Rapee and Mackay agree resilience is something we can all learn.

“Personality, genetics, the whole make-up is a large part of how resilient we’re likely to be,” says Rapee. “But we can learn coping strategies. One example is problem solving, which allows people to look at ways around the problem and think up solutions. We can learn that – and how to do it better.

“A newer technique is coping flexibility – the ability to shift your coping strategy in response to different types of stressors.”
THE STORY OF VITICULTURE AND WINEMAKING IN AUSTRALIA IS ALMOST AS OLD AS EUROPEAN SETTLEMENT.
IN THE NEW SOUTH WALES HUNTER VALLEY, ONE JAMES BUSBY FIRST PLANTED VINES IN 1817, LAYING THE FOUNDATIONS FOR A WORLD-LEADING INDUSTRY TODAY. SINCE THOSE EARLY DAYS, WINEMAKING HAS BECOME AN IMPORTANT PART OF OUR HERITAGE AND OUR NATIONAL ECONOMY, WITH WINEMAKING AND VITICULTURE UNDERWAY IN 40 SEPARATE REGIONS ACROSS AUSTRALIA.

We export more than $2 billion of wine each year, while domestic consumption is worth more than $3 billion per year. If we add wine tourism to the mix, we add an extra $10 billion to the value of the sector. And when numbers of employees working directly in the grape and wine industry are combined with those employed indirectly in associated fields such as tourism, more than 172,000 people are employed across the country. Any way it's measured, the wine industry is a significant contributor to the Australian economy.

DIVERSE INDUSTRY
The industry's status is reflected in the amount of discussion it generates. The economics of wine in Australia has been at the centre of national, state and local government policies for decades. Taxation regimes, subsidies, land use planning and incentives for exports are always being debated, but no-one ever seems totally happy with the outcomes.

This is in part because the industry comprises small, medium and large producers with differing interests, as well as wide regional variations in climate, varieties and geology. Some regions are isolated in rural areas, while others are cheek by jowl with urban development and sometimes with open-cut mining.

Input-output analysis has serious limitations, meaning that modelling has been unable to resolve the debates around wine economics. Fortunately, we now have access to better modelling methods. Using computable general equilibrium (CGE) software and sensible assumptions, academics from Macquarie's Faculty of Business and Economics, in conjunction with colleagues at other universities, have begun the process of defining and calculating the relationships between and among the many aspects of viticulture at the regional level.

They are weighing heritage value (the worth of winemaking in our Australian culture), economic questions (the connection between grape production, winemaking and wine tourism), and social issues (the best use of land when choosing between vineyards, coal mines, horse studs and urban spread), against the appropriate taxation regime to ensure jobs and growth in the wine sector and the long-term impact of climate change, soil condition, access to water and sustainable use of the land.

It is a triple-bottom-line approach to a complex set of problems, and it is the first time it has been done for the wine industry.
TECHNICAL COMPLEXITY
This has turned out to be more than a technical modelling exercise. The research issues were first raised with the University through active industry stakeholders – winemakers in the Hunter Valley in New South Wales and in Margaret River in Western Australia. They were concerned that governments were making decisions about the industry without a complete understanding of the regions and without an appreciation of the complexity of activities in the sector. The politics and pain of decisions being made without evidence-based modelling was obvious to all concerned.

After a year of discussions and preliminary research, it was decided that the University and the Hunter Valley winemakers would form a consortium to explore alternative economic models to explain and inform government (and the industry) about the ‘big picture’ of wine in Australia. The University provided some seed funding, with the winemakers providing the rest. This was the start of a search for national funding to develop the research across the whole sector – all 40 regions.

Fortunately, Australian Government Assistant Minister for Agriculture and Water Resources Senator Anne Ruston recognised the need for a strong economic model and is considering a staged proposal to undertake the research. This will first be undertaken in the Hunter Valley and then rolled out across all 40 wine regions, giving for the first time an aggregated view of the total Australian industry for policy purposes. Through Wine Australia, the Australian Government has been closely examining the research potential in this area. All parties agree that ‘we need to do it once and do it right’.

BALANCING ACT
It is still early days in the research. The government is still working out its funding priorities. The consortium of universities involved in the research has grown to include campuses across Australia, with researchers from across the fields of economics, accounting, and science keen to become involved in the project. Industry stakeholders are equally keen to be involved in the governance of the project and remain intensely focused on their commercial needs. Overall, the initiative remains a balancing act of good ideas, good intentions and goodwill – a little like the wine industry itself.

The end result will be worth it if we obtain full funding. We will have an evidence-based triple-bottom-line regional model that allows government and industry to have constructive discussions on policy options and budget outcomes that are based on fact, rather than speculation. It can be used to encourage regional development and to create targeted strategies for growth and job creation in regional and rural communities. Not least, we will gain a sense of the true value of wine in our culture and in our heritage for future generations.
Macquarie’s living laboratory is a source of knowledge for learning, teaching and research. Students develop their understanding of ecological sustainable development in the award-winning rehabilitated Mars Creek and wetland, permaculture garden, bush-tucker garden, arboretum and remnant forest.
ISLANDS of green

Green spaces are vital for improving our health and creating a sense of community. Is there a way to balance urban growth and development with urban greening?

Words Dani Cooper
Images Chris Stacey


Today Singapore has one of the world’s highest population densities but is also one of the world’s greenest cities, with parks and gardens covering 47 per cent of the land (in New York the figure is just 14 per cent). While Lee understood the economic, social and aesthetic value of his ‘Garden City’, the visionary nature of his approach is only now becoming evident as governments globally embrace urban greening to ensure the sustainability of our cities as climate change takes hold.

In Australia, the University’s Professor Michelle Leishman (BSc Hons 1987, PhD 1994) is one of the nation’s leading researchers working at the intersection of urban greening and climate change.

Through the $10 million Green Cities Project, Leishman and her team are identifying climate change-resilient urban plants that will maintain the livability of our cities into the future.

“Just over half of Australia’s threatened species occur within the urban fringe. And that makes sense because they are threatened because of residential development,” North says.

With urbanisation at the heart of their dilemmas, it is no surprise they have found commonality in a solution that lies with more vegetation. For North, it is about using people power to create wildlife corridors. “If we can get people in that urban fringe putting in more native plants then those threatened species can survive.”

Meanwhile, Leishman is investigating green ways to mitigate climate change and the evidence to drive policy change. “It’s about being clever with what we do with our urban spaces and finding opportunities in places that people didn’t really think about before [for plants] like rooftops and green walls, as well as maximising the benefits that come from street planting and parks and gardens and other common spaces,” Leishman says.

It is a sentiment supported by Macquarie alumnus Antony Fabbro (MUrbanPlan 1990), who now oversees Ku-ring-gai Council’s open space acquisition program. Fabbro says green spaces are critical offsets in the medium-density development occurring in the northern Sydney council area.

“Just over half of Australia’s threatened species occur within the urban fringe. And that makes sense because they are threatened because of residential development.”

FRINGE DWELLERS

While Leishman is focused on the plants of the future, colleagues at the Australian Research Institute for Environment and Sustainability (ARIES) are using urban greening to improve the resilience of native fauna.

With 90 per cent of Australians living in regional centres and cities, a focus on urban greening to improve human habitat seems obvious, but ARIES executive director Jessica North says our native wildlife is equally suffering the effects of urbanisation.

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“Providing good-sized parks that are accessible and safe with high-quality landscaping, playgrounds and meeting places are essential elements in promoting a sense of local community and improving our health,” he says.

The University’s new Centre for Green Cities Director Leishman agrees greening has wellbeing benefits – but it is the effect it has on temperature moderation, water recycling and pollution reduction that excites her. The urban heat island effect is a case in point. It has been long understood cities create their own heat – the US Environmental Protection Agency estimates the annual air temperature of a city with one million people is one to three degrees Celsius warmer than its surroundings. Trees and vegetation can mitigate this, says Leishman, by shading building surfaces, deflecting radiation from the sun and releasing moisture into the atmosphere. And while more shaded areas will reduce greenhouse gas emissions and make waiting for a bus more pleasant, it can also be the difference between life and death. A study by the Global Cool Cities Network showed a 10 per cent increase in vegetative cover led to an average seven per cent drop in mortality during heat events.

Similarly, increased vegetation in cities can improve water recycling and reduce the amount of pollutants flowing into our waterways. As Leishman notes, “in the city you have a lot of impermeable surfaces, and water captured through stormwater systems drains into harbours and creeks. Green space helps capture more water, reduces pollutants entering the harbour and increases our sustainability via reduced water use.”

With climate projections showing steep temperature rises and more extreme weather events, planting more trees and plants is no longer enough. “There are a whole lot of plantings by councils of chosen species that are suitable for the current conditions,” says Leishman. “But if we are talking about gum trees, they are going to live for 50 to 100 years, so we have to have some consideration about the conditions they will face.”

This is the challenge Leishman is addressing. Her five-year project – co-funded through Horticulture Innovation Australia’s Green Cities Fund – will deliver new research on plant water efficiency and heat stress, and case-study demonstration sites along with a national online database that will allow the public and local government to find the right plant species for the right green space under current and future climates. “We must be strategic in what we plant and where we plant,” she says.

Strategic planting is also the cornerstone of the University’s Habitat Stepping Stones program. Showcased by the International Union for Conservation of Nature as one of its international success stories, the program asks residents to pledge to install food, water or shelter elements to their backyard to help local wildlife. ARIES researchers support the scheme by identifying plants that will be easily grown and maintained, but are also suitable for each council area.

Started as an education program with Ku-ring-gai Council, it is now operating in 13 New South Wales local governments and is in the early stages of interstate rollouts. Now in its infancy as a self-funded program, more than 500 people have already pledged to add more than 4000 habitat elements. North believes the work sits nicely within the Green Cities framework and supports its long-term goals not only by increasing vegetation levels but also by harnessing public opinion.

“The impact of future climate change is taken into consideration, but it is important to get plants in that people will see work well now. When people understand how they can personally make a difference, their attitudes change. Once people notice the wildlife in their gardens, they begin to care more about it. We are right at the beginning of that and hopefully will see the impact in 10–20 years’ time.”

habitatsteppingstones.org.au

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MASTER OF PLANNING

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Macquarie University is extremely proud of every one of its 178,000 alumni, their achievements and their contributions to our local and global communities.

The Macquarie University Alumni Awards recognise and celebrate these alumni and share their inspirational stories throughout the University community and to the wider public.

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- Education
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- Rising star (aged 30 years or under)
- Science and technology
- Sport

Information about the awards and nomination forms are available at mq.edu.au/alumni/awards

Nominations close Friday 29 September 2017
CAPTURING
lightning
IN A BOTTLE

There’s more to innovation than just waiting for a light-bulb moment.

Words Dan Kaufman
Image Lipman
Innovation is a creative process ... and the challenge is to try to get people to understand their own creative language.

“At least, that’s what Malcolm Gladwell suggested in his book Outliers, in which he writes that Gates and Jobs happened to be born at a certain time in just the right place for them to meet the people they needed to learn from and work with, and to have access to the right technology.

Which then leads to the question: Is it possible to create the right time and place? Is it possible to capture lightning in a bottle?

“There is no algorithm for innovation,” says Professor Michael Heimlich, Associate Dean of International and Corporate Engagement at Macquarie University’s Department of Engineering.

Heimlich says he’d like to believe the genius of Jobs and Gates would have flourished in any time or place – but adds that everybody has the potential to innovate.

“And people don’t realise it; they think they have to be a Steve Jobs or Bill Gates,” he says.

“Innovation is a creative process ... and the challenge is to try to get people to understand their own creative language. Some people are tactile learners, and they’ll do best by prototyping or playing around with solutions. Others are abstract thinkers, and they’ll do better by sketching or designing, and then we have our theoretical or maths and quantitative people, who will do calculations and simulations.

“If you want to innovate, you have to find your own inner song or language to go about doing that. Personally, I do better by analogy – so someone will give me a problem and I’ll say ‘oh, that’s just like a problem I’ve seen in a different area, and they solved it this way’ – so I can take the same sort of approach and try it in a different field.”

According to Heimlich, the word innovation is overused and often misunderstood. “To me, innovation is doing something clever – it can be a new spin on an old idea or taking two ideas and combining them in a clever way,” he says.

“There’s certainly inventiveness, where you’re creating something ostensibly new – but innovation doesn’t have to be new.”
Although you can’t bottle innovation, Heimlich says that an environment that encourages collaboration can certainly help. “Collaboration is more important than ever – and you never know where the seed for a good idea will come from,” Heimlich says.

**INNOVATION, CENTRALISED**

This is where the Macquarie Park Innovation District (MPID), which was launched in August 2016, comes in.

There are already more than 180 large international and 200 small businesses in the technology park next to Macquarie University – and so the idea behind the innovation district is to make the most of this by encouraging collaboration between academics, researchers, students and industry.

Phase one of the MPID was the launch of Macquarie’s pop-up incubator, which has been home to eight start-ups and has hosted a variety of workshops.

A more permanent 1500 square metre Innovation Centre will be built this year and will include flexible work spaces, an exhibition space and recreational areas to promote collaboration. For example, there will be what’s called ‘collision areas’ – namely, areas where people from different research teams and organisations can run into each other to exchange ideas.

“My job is to help our researchers take the world-class research that’s in their lab and to make it impactful – which means getting it out of the laboratory, and the innovation district is a place for that to happen. It’s optimised as a halfway house for good ideas that need something else, that need some extra collaboration,” Heimlich says.

“It’s also a place where people can have that conversation among diverse groups to create new innovation.”

**HACKING FOR HEALTHCARE**

A hackathon might sound like something out of a Hollywood movie – but it’s also one of the ways in which the MPID is inspiring people to create practical solutions.

In February this year, it ran the Healthcare Hackathon in which 80 people competed to design and create a working prototype (all within a weekend) of a digital service that would help the public access helpful healthcare information. The service could draw on government health data, the Health Industry Claims and Payments Service (HICAPS) and other publicly available information such as Google Maps.

Sponsored by NAB, the hackathon offered a first prize of $3000 – which was won by a team that came up with a mobile app solution that consolidates a patient’s healthcare invoices, making it easier to track, query and pay them.

“That might sound straightforward, but the health sector is so complex that that isn’t something that’s happening at the moment at all,” says Nathan Plummer, the hackathon’s organiser.

Keven Bennett, a Macquarie alumnus who was a member of winning team Hello World, along with alumnus Neil Anderson, Macquarie student Marley Palin and MGSM’s Anjana Rao, agrees.

“I love entrepreneurship and one of the hardest things to find when you want to start a business is a talented team,” he says. “There’s no better place to find programmers, designers and business-minded people [than at a hackathon].”
SUPPORTING THE NEXT GENERATION OF MACQUARIE’S HISTORY

The world needs capable people to find solutions to the world’s most complex challenges. We will need to continue to commit to areas where we will have the most impact, where the need for research and discovery is greatest.

But to do this, we need your support.

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Donations of $2 or more to Macquarie University are tax deductible and 100 per cent of every gift will be directed to the purpose specified.

Macquarie University’s namesake, Major-General Lachlan Macquarie, was responsible for Australia’s first lighthouse, which began operating in 1818. For nearly 200 years, the Macquarie Lighthouse at South Head has been shining light into the darkness across the Pacific, casting a warm glow to boats and ships, and leading the way to safety.

This lighthouse forms the central element on your University’s coat of arms. It is a powerful symbol of our proud heritage and our vision for strength and wisdom – a beacon that lights a brighter future for everyone. As a member of our alumni family, you are part of our history and our future.

The bright idea behind the Lighthouse
Ildiko Kovacs, *Way Through*, 2009, oil on Masonite, 82.0 x 61.0 cm. 
Donated through the Australian Government’s Cultural Gifts Program by Ildiko Kovacs. 
2016 Macquarie University Art Collection. 
Photograph Effy Alexakis, Photowrite. Courtesy the artist and Martin Browne Contemporary.