Into the Amazon
Our research helping to conserve Peru’s jaguars
Cover story
2 Using technology to track the Amazon’s big cats: it adds up

News
1 Law grad is Australia’s first Indigenous senior counsel
4 News roundup
6 Our new Rhodes Scholar finds great leadership through vulnerability
8 Our Fulbright scholar gives Big Brother a nudge
10 Technology is changing our economy: you bet
12 Crown-of-thorns starfish meets its match in COTSbot
14 Real-world graduates
16 Research update
18 Medical science’s new frontier
20 Will to give
21 Exhibition to die for

Alumni update
22 Alumni news with Alumni Manager Ken Gideon

Last word
25 A message from Vice-Chancellor Professor Peter Coaldrake AO
Raising the bar on Indigenous justice

Communication is key for Australia’s first Indigenous Senior Counsel.

Australia’s legal fraternity needs to be proactive on Indigenous justice to help reduce the over-representation of Aboriginal and Torres Strait Islander people in prison.

Barrister and QUT law faculty alumnus Tony McAvoy SC believes this is just one of many important steps required to address the fact that Aboriginal and Torres Strait Islander people are 13 times more likely to be incarcerated.

Known for his expertise in native title and land rights, Mr McAvoy recently became the first Indigenous person in Australia to be appointed senior counsel and he plans to use the elite honour to shine a spotlight on the crisis.

He said lawyers, especially those defending Aboriginal people and Torres Strait Islanders in court, need to be able to communicate effectively with their clients.

“This issue was highlighted last year by linguist and author of Aboriginal Ways of Using English Dr Diana Eades when she spoke at an event in Brisbane for the legal profession,” Mr McAvoy said.

“Often there is a lack of effective communication between the lawyers and clients, and the same applies to prosecutors and Aboriginal witnesses.

“We in the legal profession need to take the lead on this and ensure we understand the principles of sentencing Indigenous offenders and equip ourselves to communicate appropriately.”

Mr McAvoy said this was just one of many important Indigenous justice issues, and one that would benefit from Indigenous communication skills training being available to law students.

A Wirri man whose country is in Central Queensland, Mr McAvoy graduated from QUT in 1988 and was admitted as a solicitor the same year with the Brisbane Aboriginal Legal Service.

He then joined the Department of Aboriginal Affairs in Sydney, was admitted as a barrister of the Supreme Court of NSW in 2000 and now practices out of Frederick Jordan Chambers.

A mentor for Indigenous law students Australia-wide, Mr McAvoy won the inaugural National Indigenous Legal Professional of the Year Award in 2010.

Among his many career highlights was the securing of native title recognition for the Quandamooka people of North Stradbroke Island in 2011.

Photo credit: John Feder/Newspix
“We went into the belly of the jungle to find out as much as we could from local people and gather evidence about jaguars in this remote part of Peru. The team captured countless photos and videos using 360-degree and 3D cameras to bring back the jungle for others to see in the form of immersive virtual reality.”

“The survival of one of the world’s most elusive animals, the jaguar, is being safeguarded by the work of QUT scientists in Peru’s deepest jungles.

The jaguar is a near-threatened species and its numbers are declining. Threats include loss and fragmentation of habitat.

To advance their conservation, Professor of Mathematics Kerrie Mengersen is using virtual reality and Bayesian statistics in a pioneering project to help create a ‘jaguar corridor’ so the animals can safely roam, feed and breed.

She recently led an expedition to South America where her team combined technology with predictive and statistical modelling, to fill a gap in the evidence used to decide which jungle areas to preserve.

“Jaguars are elusive, rarely seen and difficult to track on foot so the technology helps fill that missing data,” Professor Mengersen said.

“Ecologists use head-mounted display goggles which place them into the environment, enabling them to visualise jaguars’ hunting grounds.”

QUT is also leading a number of projects which use technology to support Australian flora and fauna conservation.

New age conservation
Sophisticated software aboard small unmanned aircraft has led to significant improvements in counting native wildlife and detecting invasive species.

QUT researchers from the Australian Research Centre for Aerospace Automation have conducted flights to count koalas in bushland at the Australia Zoo Wildlife Hospital on Queensland’s Sunshine Coast.

Lead researcher Dr Felipe Gonzalez said thermal imaging from an airborne vantage point better assists in determining how many koalas are in any given space.

Another two-year study is also using unmanned aircraft to determine the impact of the fungus Myrtle Rust on Australian native animals.

Myrtle Rust infects plants in the Myrtaceae family, such as eucalyptus, bottlebrush, paperbark, tea tree and lilly pilly, destroying their blossoms and seeds and thus reducing the food supply of native animals.

QUT ecologist Dr Grant Hamilton said acoustic sensors and unmanned aircraft assess the presence and activity of animals within affected areas.

“We don’t know whether birds and bats will reduce in number because of the impact of Myrtle Rust,” he said.

“Our research will help answer this question.”

Other research projects involving technology to map, monitor and manage feral pigs, dingoes and yellow rust in wheat are underway.

QUT’s technology-rich research to aid conservation will benefit governments, biosecurity agencies and wildlife organisations globally.

Professor Kerrie Mengersen (centre) and Dr Erin Peterson (left) gather evidence on jaguars from Peruvian villagers.

Photos, including front cover, Vanessa Hunter
Top young universities summit

QUT has been chosen to host the 2017 Times Higher Education Young Universities Summit, bringing the summit to the Southern Hemisphere for the first time. University, corporate and government leaders from around the world will come together in a collegiate environment to discuss how best to capitalise on the rapid rise of universities under 50 years old. The summit program will focus on the ways younger universities have risen in prominence and begun to challenge the traditional order of higher education.

Hammy commercial success

A QUT invention is helping to protect some of the world’s most valuable hamstrings. The NordBord Hamstring Testing System, invented by health researcher Dr Tony Shield and his then PhD student Dr David Opar, has been commercialised through QUT Bluebox and is being manufactured by spin-off company Vald Performance. It’s now being used by sporting teams across the world.

Dino stampede

The Cube has presented its most popular project to date - Dino Zoo. The display, which has attracted 25,000 visitors, houses the world’s most scientifically accurate, life-sized, digital dinosaurs. The Cube team, led by Sean Druitt, partnered with Queensland Museum paleontologist Dr Scott Hocknull to create Dino Zoo, which is now part of The Cube’s rotating program.
QUT welcomes new Dean of Education

Professor Carol Nicoll will oversee the future direction of the Education Faculty as the sector undergoes dramatic change in Australia.

The new Executive Dean brings a wealth of experience internationally and domestically in leadership, teaching and shaping organisational strategy through major transition.

She was Minister-Counsellor in Brussels for Education, Science and Training and served with distinction as a senior Commonwealth official including CEO of the Australian Learning and Teaching Council and Head of Backing Australia’s Future Higher Education review team.

Earlier in her career she was a secondary school teacher at Lourdes Hill College and Somerville House in Brisbane.

She holds a Master of Educational Administration from the University of Queensland and a PhD from the University of British Columbia.

Research ranked world-class

QUT is living up to its reputation as one of the fastest growing research universities in the country, following the release of the 2015 Excellence in Research for Australia (ERA) quality assessment. Eleven of the university’s research areas were rated well above world standard, including media and communication studies, agricultural biotechnology and statistics. All 53 of QUT’s areas of research rated at world standard or above (4-digit level).
The global impact of kindness

QUT's eighth Rhodes Scholar is justice graduate Harriet Horsfall.

Queensland’s 2016 Rhodes Scholar, Harriet Horsfall, believes great leadership should be based on kindness, tenacity and even vulnerability.

Ms Horsfall, who completed her Bachelor of Justice (Honours) in 2014, is QUT’s eighth Rhodes Scholar and the fifth in the past six years.

Currently working as an associate lecturer with QUT, she will head to the University of Oxford’s Department of International Development later this year to study a Master of Science in Global Governance and Diplomacy.

Her Oxford degree will build upon her experience in international volunteering and non-government organisations (NGOs) – and also the personal traits she believes are essential for leaders.

“My Rhodes Scholarship will put me in an incredible position to practise kindness, tenacity, and vulnerability in an even bigger way,” she said.

“I think one of the big problems with a lot of leaders in various spaces is we don’t get to see that person’s emotions a lot of the time.

“Vulnerability and strength are not mutually exclusive concepts. Just because you show people that you’re vulnerable and having trouble doesn’t mean that you’re not also an incredibly strong person.”

Social justice is a huge motivator for Ms Horsfall.

She has worked with homeless and at-risk young people in Brisbane and is part of the local LGBTIQ community.

Last year she travelled to Iran and Indonesia after turning down a job offer in Canberra.

Instead, she “couch surfed” across Iran for a portrait photography project aimed at evoking public discussion on women’s empowerment, and then headed to Indonesia as a volunteer development advisor.

During her degree she also spent her uni holidays managing volunteer programs in Cambodia and Nepal and worked as a volunteer teacher in Nepal.

Ms Horsfall hopes her next journey to Oxford will build on her experiences and help her forge a career in global social justice.

“I hope to contribute to a global culture of leadership around critical NGO program evaluation and innovation,” she said.

“I want to foster a culture of strong NGO governance and evaluation that challenges the notion that ‘good is always good’.

“This will maintain my interest in NGO governance that I covered in my honours thesis on anti-human trafficking NGO ideology at the India/Nepal border.”

QUT’s Rhodes Scholar Harriet Horsfall in Tehran, Iran (left), on Rote Island, Indonesia (below left) and Queensland Governor Paul de Jersey congratulating Harriet (below right).
Finding one in a million

In this age of smart technologies, we are upskilling Big Brother.

For three days in April 2013 Boston residents were paralysed with fear as they waited for authorities to release CCTV footage of the people who planted deadly bombs near the finish line of the city’s world-famous marathon.

It took that long to publish photographs of the alleged terrorists, brothers Dzhokhar and Tamerlan Tsarnaev, despite more than 1000 law-enforcement officers working around the clock.

Why? Because those officers had to manually comb through countless hours of CCTV footage and other video evidence submitted by the public for images of suspects who matched the eye-witness reports.

The Boston Marathon bombings provided a sobering example of just how challenging the task is to search for persons of interest in crowded public places, not just because of the three-day lag but because Tamerlan Tsarnaev was already in an FBI database of potential terrorists.

“Had Boston’s CCTV cameras been equipped with future technology to search for people of interest, Tsarnaev could have been identified far earlier,” said Clinton Fookes, a Professor of Vision and Signal Processing in QUT’s Science and Engineering Faculty.

“While the CCTV system was absolutely crucial for post-analysis it played no part in detecting the disaster. Also, the sheer amount of video evidence provided by these systems simply meant that timely analysis and a quick response was extremely difficult.

“We are unfortunately still limited by the speed at which humans can process the video.

“Authorities across the globe spend literally billions of dollars each year on video surveillance systems but these cameras record only passively – there’s no widespread deployment of advanced real-time video analytics operating across any city.

“Our detectives need better tools to help them datamine video information, or at the least, to help them narrow their search.”

Professor Fookes is on a mission to automate video surveillance technology so law enforcement and emergency workers can do their job more effectively and efficiently.

He’s been awarded a prestigious Fulbright Senior Scholarship to investigate New York’s large-scale video surveillance systems.

Professor Fookes will work in the Media Lab of the City College of New York on one of the crucial missing capabilities of current state-of-the-art systems – the ability to search for people of interest.

The visit will also enable him to assess the impacts, drivers and impediments of real-time video analytics in one of the busiest and most dynamic cities in the world.

“My project will explore the practical and policy reasons for the lack of adoption of large-scale video analytic systems for monitoring our cities, in order to inform future research endeavours,” Professor Fookes said.
“I will also be working with some of the leading policing and defence organisations – such as the FBI and NYPD – that deploy this technology.”

Professor Fookes has previously developed video analytic technologies for airports as part of QUT’s multi-faceted Airports of the Future research project, and he’s passionate about expanding those capabilities into advanced, city-wide surveillance systems.

“The research is not about giving Big Brother more power but, rather, keeping the public safe, saving countless hours in the tedious analysis of video evidence, and increasing the chances of positive outcomes of critical events due to more timely responses.

“Imagine you’ve lost your daughter while shopping in the city centre,” he said.

“Now, imagine a system smart enough to search every CCTV camera in the CBD simultaneously and in real time for images of anyone matching your child’s precise description – 120 centimetres tall; shoulder-length, blond hair in a ponytail tied with a pink ribbon; short-sleeved, white, knee-length dress with pink belt; pink shoes; Peppa Pig back pack.

“When she’s spotted, the system continues to track her movements while alerting the police about her exact location.

“That’s the sort of functionality we can expect from future city-wide surveillance systems.

“They can alert authorities to crimes as they happen, house fires before the neighbours can react or car crashes before the traffic piles up.

“The potential benefits to the public are enormous. The other advantage is that it will be intelligent machines performing many of these duties, removing the need for humans and the potential for abuse and misuse which we have repeatedly seen. Machines won’t bring existing prejudices, biases or preconceptions. They just learn to recognise patterns of interest.”

Advanced, city-wide capabilities of this nature are still years away but it’s hoped Professor Fookes’ Fulbright project will accelerate the development and help create new strategies to counteract the negatives of our current systems.

His four-month mission begins this October.
Marek Kowalkiewicz, QUT’s Professor and PwC Chair in Digital Economy, gives his nine bets on what’s changing in business, technology and society.

**Bet #1: Doing the same thing over and over again will never take you to new places.**

More and more organisations are looking for new markets and opportunities. This will require looking for radically different ways of running business. Environmental sensing teams will be formed at many organisations with a goal of becoming aware and understanding the potential impact of new trends on their organisations.

**Recommendation:** Set up a team to do “environmental sensing”.

**Bet #2: The gig economy train is not slowing down.**

Newly emerging business models will only get stronger in 2016. The gig economy, where temporary positions are common and organisations use short-term contractors, will go well beyond Airbnb and Uber. We will see at least one new global player, most likely come from Asia; a market that has remained largely untapped.

**Recommendation:** Consider becoming a platform for the gig economy.

**Bet #3: Delight your customers by predicting and meeting their needs ahead of time.**

We will see a rise in proactive organisations, that is, organisations that are able to offer products and services the moment the need for them arises, often even before the customer realises there is a need. We will see the first commercial examples of predictive delivery (“your product is at the doorstep, would you like to buy it, or shall we take it back?”). All of it thanks to progress in digital identity.

**Recommendation:** Redefine your products and services, become a truly proactive organisation.

**Bet #4: Welcome your digital personal assistant.**

Digital identity will enable not only new organisational behaviour, but also facilitate evolution of other technologies. Digital personal assistants, like Siri, will continue to evolve. They will not only be able to tell you where the film you want to see is playing on the weekend or remind you about a doctor’s appointment, they will be able to pay your bills, switch electricity providers or truly support you in your work, like a real assistant.

**Recommendation:** Get more things done by delegating to your digital PA.

**Bet #5: If the world around you moves faster than you do, the end is near.**

Incumbents in asset-intensive industries will be challenged by technology advances even more than in previous years. High capacity batteries in garages

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Nine business bets for our emerging digital economy

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and self-driving cars will enable individuals to trade electricity outside of the grid. The cord-cutting movement affecting cable TV will spread to other industries.

**Recommendation:** If you are an incumbent in your industry, focus on environmental sensing to avoid surprises.

**Bet #6: Digital capital is an enabler of social good.**

Existing technologies will mature and be used in critical situations. Government agencies, emergency responders and disaster management will access Periscope and Facebook Mentions live streaming to gather intelligence. We will retain control of our digital selves and at the same time be able to “share our digital capital” whenever it may be helpful.

**Recommendation:** Have a close look at your assets. Can they deliver new value in the digital economy?

**Bet #7: Hardware will become the new app.**

More and more individuals will find it easy to join the “maker culture”. Platforms will allow more people to rapidly prototype hardware solutions. We will see examples of Internet of Things applications, like Fitbit, that are useful to individuals. Environments like Apple’s HomeKit will only add to the momentum. Crowdfunding platforms like Kickstarter will pave the way to efficient prototype-to-product processes.

**Recommendation:** Join and support a makerspace.

**Bet #8: Build a community and a product (or service) will come.**

We will see more businesses starting in an unorthodox way: by first creating a community and only after that realising what product or service they could offer. Digital communities will become the new unfair advantage in every industry.

**Recommendation:** Identify and invest in your communities.

**Bet #9: Digital intelligence is the new black.**

Society will continue to learn how to deal with digital economy trends. We will move from digital literacy through digital behaviour to digital elegance. And we will see growing interest in cybersecurity.

**Recommendation:** Invest in digital literacy and development.

The PwC Chair in Digital Economy is a partnership between QUT’s Business School and Science and Engineering Faculty, PwC, the Queensland Government and Brisbane Marketing.

This article was originally published on The Conversation.
The Great Barrier Reef’s most prolific pest has finally met its match.

QUT roboticists have completed successful trials of their COTSbot, the world’s first robot designed to corner and control crown-of-thorns starfish (COTS). Outbreaks of COTS are responsible for an estimated 40 per cent of our World Heritage-Listed reef’s total decline in coral cover over the last 30 years.

Currently, only the Association of Marine Park Tourism Operators is providing frontline defence.

Their specialist divers patrol tourism sites off Cairns and Port Douglas, where they manually inject COTS with a fatal dose of bile salts.

One of the ocean’s most fertile animals, each female COTS can produce as many as 65 million eggs during the spawning season from October to February.

In small numbers, the COTS keep the reef healthy by eating fast-growing branching and plate corals, giving the slow-growing soft corals more room to expand.

During outbreaks they collectively consume everything in their path, wiping out whole coral systems.

QUT’s COTSbot could tip the balance back into the reef’s favour.

It’s equipped with stereoscopic cameras to give it depth perception, five thrusters to maintain stability, GPS and pitch-and-roll sensors, and a pneumatic injection arm to deliver a fatal dose of bile salts.

Creator Dr Matthew Dunbabin, from QUT’s Institute for Future Environments and Science and Engineering Faculty, built the robot to work when divers could not – at all hours of day and night and in all types of weather.

“The COTSbot can search the reef for up to eight hours at a time, delivering more than 200 lethal shots.”

“We see the COTSbot as a first responder for ongoing eradication programs - deployed to eliminate the bulk of COTS in any area, with divers following a few days later to hit the remaining trickier-to-reach COTS,” he said.

Key to the autonomous underwater vehicle is its state-of-the-art computer vision and machine learning system.

Dr Feras Dayoub, QUT roboticist with the Australian Centre for Robotic Vision and designer of the COTS-detecting software, has spent the last year training the robot to recognise COTS among coral, using thousands of pictures and videos as well as allowing it to collect data with its own “eyes”.

“Its computer system is backed by some serious computational power so COTSbot can think for itself in the water,” said Dr Dayoub.

“The vision system is incredibly precise - every COTS it detects is a true COTS. That in itself is quite an accomplishment given the complexity of underwater environments.

“We’ve trained the COTSbot to detect the starfish in a wide variety of shapes, colours and depths, which ensures the vision system is extremely robust.”

COTSbot is believed to be the first autonomous underwater vehicle equipped with an injection system.

It operates exclusively within a metre of the seafloor, one of the most dynamic and challenging environments for any robot.

Now the COTSbot’s proof-of-concept trials have been successfully completed, the roboticists will work with community organisations to refine the design.

“The next step for us is how to make this useful to citizen scientists and environmental organisations,” said Dr Dunbabin.

“Imagine how much ground the COTS control program could cover with a fleet of 10 or 100 COTSbots at its disposal.”

The Association of Marine Park Tourism Operators is already on board, providing on-water support for the project.

“We need all the assistance we can get, there’s no doubt about it,” said Steven Moon, Crown-of-Thorns Control Program manager.

“I like the idea and I think it’s a wonderful innovation - any idea that can help us in our mission to control crown-of-thorns will be more than welcome.”
Indigenous institute with impact

Two QUT graduates are at the helm of Australia’s fastest growing Indigenous training institute.

Todd Phillips, who studied teaching, is the training and development manager of the Brisbane-based Institute of Indigenous Australia (IOIA), and Jermaine Alberts, a business graduate, is its CEO.

“After we graduated we both went and worked for the same mining company ... we used to sit together in our lunchbreaks and talk about starting an education company,” Mr Phillips said.

Fast forward a few years and that company is now one of the biggest Indigenous institutions in Australia.

“We started in 2013 with 25 students in a library in Inala and then we moved into a residential house, then a commercial building,” Mr Phillips said.

“We now have more than 900 students from all over Australia and even a few Indigenous Australians who are living overseas in Britain and Canada.”

The institute provides students with in-person and online training for diplomas and certificates, in areas such as business and community services.

“We want to be the leading Indigenous education provider in Australia and to empower students to go back to their community and have an impact,” Mr Phillips said.

“Our training is professional and accredited, but also has a strong focus on being culturally appropriate and 100 per cent of our course facilitators are Aboriginal or Torres Strait Islander.

We think that’s one of the reasons why our graduation rate is much higher than the national average for Indigenous tertiary education.”

Mr Phillips also has a Masters of Education Research from QUT and is doing his PhD part-time with the Faculty of Education.

His work with IOIA is helping fulfil a pledge he made back in 2008, while he was visiting New Orleans for an international student forum organised by former president Bill Clinton. As part of the international forum, students had to commit to one action, with Mr Phillips pledging to “pioneer things” and create resources to help Indigenous communities.
PhD the industry way

Dr Jannah Baker is on the brink of completing a PhD research program undertaken as a collaboration between academia and industry. Initially enrolled in her PhD at QUT, she was encouraged by her lecturer Professor Kerrie Mengersen to apply for a new doctoral training program, established by the Australian Technology Network of Universities (ATN) of which QUT is a member. The result has been a win for both Dr Baker and her industry partner, the CRC for Spatial Information.

“The CRC used spatial information for many purposes including positioning and navigation but was keen to branch out into health research,” said Dr Baker, who also holds a medical degree from Otago University.

“That was where I came in. I developed new methods for modelling patterns for type 2 diabetes and other chronic disorders across space and time, identifying areas of Queensland and New South Wales that had higher risk for type 2 diabetes.”

The ATN’s Industry Doctoral Training Centre is modelled on programs in the UK and pairs students with industry partners to work on research projects with real-world impact.

Dr Baker is now a Postdoctoral Fellow in a collaboration between the University of Sydney, the NSW Ministry of Health and industry partner Capital Markets Cooperative Research Centres.

Gaming entrepreneur

QUT graduate and former senior electronic games design lecturer Dr Penny Sweetser is finding success through entrepreneurship. Dr Sweetser, with her husband Jay Kyburz, has been funded by Screen Australia and Screen ACT with a $250,000 grant to develop a new strategy game Blight of the Immortals.

Her iOS puzzle game Cauldron Quest: A Witch’s Tale, which enables young players to mix potions, cast spells and use other ‘witchy skills’, has been launched in nine languages.

Dr Sweetser said now was a great time to be an independent game developer.

“There’s a multitude of tools and platforms to use to get your game directly to your consumers, without the need for a publisher or distributor,” she said.

“For the same reason, it is also very competitive and players have high expectations. The government funding we’ve received has been a tremendous help.”

Dr Sweetser has a PhD in games development. Her book Emergence in Games was published in 2007 by Thomson.

Rewarding challenge for Bravehearts boss

It’s a heartbreaking issue but QUT law graduate Angelo Venardos finds being the new CEO of child protection organisation Bravehearts “incredibly rewarding”.

The former police prosecutor and police officer (who spent part of his career with the Juvenile Aid Bureau) has been involved with Bravehearts for many years and chaired the organisation’s board before becoming its CEO in early 2016.

“I guess I’ve always been a person who is community-minded, and that’s what drove me to join the police in the first place,” he said.

“I’m also a father with three daughters in their 20s … I’ve raised my children, it’s now about giving back. People in our society need a voice and it’s incredibly rewarding being a part of the big voice that is Bravehearts.”

Mr Venardos said one in five Australian children would be sexually abused by the time they were 18 and that child protection needed to be everyone’s business.

“One of the greatest rewards is seeing our personal safety education program, Ditto’s Keep Safe Adventure, in schools,” he said.

“It has now educated more than 600,000 Australian children aged three to eight. That’s all about prevention and it’s tremendously rewarding to see kids equipped with those skills to help keep them safe.”

Mr Venardos said high child abuse statistics didn’t necessarily mean abuse was increasing.

“There are a lot more people these days reporting it and breaking the silence and that is in part due to more education, better training and support services and organisations like Bravehearts giving people the confidence and a platform to speak out,” he said.
Treating sugar addiction like drug abuse

A world-first study led by QUT may have the answer to reversing increasing obesity levels. Neuroscientist Professor Selena Bartlett is leading the study which shows drugs used to treat nicotine addiction could be used to treat sugar addiction in animals. Excessive sugar consumption has been shown to repeatedly elevate dopamine levels which control the brain’s reward and pleasure centres in a way that is similar to many drugs of abuse including tobacco, cocaine and morphine. The study found that approved drugs like varenicline, a prescription medication trading as Champix which treats nicotine addiction, could also work for sugar cravings.

Could a simple saliva test detect heart failure?

A new method of screening for the ‘silent killer’, heart failure, by testing saliva instead of blood is being developed by Associate Professor Chamindie Punyadeera. The project aims to produce a test so quick and easy to administer that people will be able to monitor their heart health in their own homes. Professor Punyadeera is investigating ways to test saliva samples for the presence of the protein Galectin-3, a biomarker specific to heart failure. “If the test finds elevated levels of Galectin-3 it could indicate the person needs medical attention,” she said. “At the moment, identifying patients who need hospitalisation is not adequate. We hope this test will be able to provide an accurate, quick and easy way for patients to know when they need hospital treatment.” Professor Punyadeera has received a $75,000 Heart Foundation Vanguard Grant.
Closing the loop

People have an emotional need for roller coasters and the feeling of controlled fear they provide, a thrill-seeking QUT researcher has found. During a project which has had more twists and turns than most, QUT “rollercoaster academic” Malcolm Burt corkscrewed his way around the world to investigate why roller coasters exist and created the documentary Signature Attraction. “The world has changed enormously since the Industrial Revolution but, from a biological perspective, we haven’t,” he said. “We aren’t at immediate risk every day any more — we actually live in a fairly lazy, consumerist society, but we still need a way to stay in touch with our primal selves. Coasters and other thrill rides are one way of maintaining a ‘hands on’ form of release, an adrenaline rush without being in any danger.”

What women want (in a sperm donor)

Women choosing sperm donors online favour men who are intellectual, shy, calm and methodical over men who are extroverted. The study, Determinants of online sperm donor success: how women choose, was undertaken by Stephen Whyte and Professor Benno Torgler from QUT’s Queensland Behavioural Economics Group. They interviewed men in Australia, Canada, the UK, Italy, Sweden and the USA who were part of regulated (paid), semi-regulated and unregulated (free) online sperm donation forums and websites.

Kindness to strangers

Australia’s biggest study on giving and volunteering is underway at QUT’s Australian Centre for Philanthropy and Nonprofit Studies. The Giving Australia 2015-2016 project aims to find out more about why Australians from all walks of life do – or don’t – donate their time or money to charities and nonprofit organisations. Dr Wendy Scaife said workplace giving – such as QUT’s payroll donation scheme – was an example of an area where donations had increased since 2012.
A bold new QUT-led approach using genetic profiles of individuals and diseases is leading to more personalised treatment programs for thousands of Queenslanders.

QUT is developing one of Australia’s first major personalised medical programs for cancer patients, which will result in more effective chemotherapy as well as better outcomes and survival rates.

Professor Matt Brown, QUT’s Director of Genomics based at the Translational Research Institute and Princess Alexandra Hospital, said personalised medicine based on genetics research is a new frontier and QUT is at its forefront.

“Our ultimate aim is to provide improved cancer management for patients but what is particularly exciting is QUT’s willingness to partner with the health care system to do so,” Professor Brown said.

“Working with the Princess Alexandra Hospital and Metro South Area Health Services takes us beyond purely academic research and into the real world, where it really matters for patients.

“Public engagement is critical in the personalised approach to medicine where we use an individual’s genetic profile, and their predicted response or risk of disease, to guide decisions on prevention, diagnosis, and treatment.”

Professor Brown is internationally renowned for his research into the genetics of common diseases, including a form of spinal arthritis known as ankylosing spondylitis (AS), osteoporosis and rheumatoid arthritis, as well as other rare ‘single gene’ disorders particularly of bone and joint formation.

He joined QUT last year and is particularly passionate about moving his research from the academic into clinical settings, either through the development of new therapies, or in enabling personalised medicine.

Charged with spearheading QUT’s growing capability in genomics research, Professor Brown is a Queensland Premier’s Fellow. He is also a Fellow of the Australian Academy of Sciences and has been a Professor and Fellow of the University of Oxford.

“When you find the right drug it’s like hitting the jackpot…”

At Oxford he was a founding investigator of the Wellcome Trust Case-Control Consortium, which developed a new method for identifying genes that has been responsible for uncovering more than 2000 genes for diseases common in humans. These discoveries have led to successful trials of new therapeutics for AS and a host of other conditions.

“By identifying the genetic system of AS, we found drugs already being used for other conditions like multiple sclerosis were highly successful in treating AS,” Professor Brown said.

“Using genetics we hope to develop new drugs but also new targets for drugs already developed and approved.

“When you find the right drug it’s like hitting the jackpot and can become a multi-billion-dollar a year earner to further research and development within and outside of the university.”
Individualised tumour-only treatment

A new 3D printable material developed by QUT researchers will open the way to rapid, personalised cancer treatment by enabling multiple, simultaneous tests to find the correct therapy to target a particular tumour.

Professor Dietmar W. Hutmacher (pictured right) said the tiny ‘gel’ slivers would hold the world of a patient’s tumour in microcosm ready for trials of anti-cancer drugs to find the best match for treatment and tumour.

He said the new material was a gelatine-based hydrogel that mimicked human tissue.

“Our big breakthrough is we can produce this high-quality material on a very large scale inexpensively, so researchers worldwide will be able to create it,” he said.

“We will be able to use this hydrogel infused with tumour cells to quickly create a number of models of patient-specific tumours.

“This will allow us to simultaneously test different anti-cancer drugs and different combinations of them so we can pinpoint an individualised treatment that will hit only the cancer cells.

“It will cut the process of finding a personalised treatment for each patient down to a week or two.”

New gene discoveries lead to new therapies

Professor Matt Brown was co-senior author of a recent paper on a globally significant genetic research breakthrough led by QUT and Christian-Albrechts-University, Germany.

It found hundreds of genes which cause five common, hard-to-treat and debilitating inflammatory diseases, paving the way to new treatments.

Involving 50 different research centres the results of the world-first study were recently published in the international journal Nature Genetics.

Professor Brown said they investigated AS, Crohn’s disease, ulcerative colitis, psoriasis, and primary sclerosing cholangitis.

“These diseases affect about three per cent of the world’s population, and commonly occur together in families and in individuals. The big question has been whether this is due to shared environmental risk factors or shared genes and now we believe we have the answer,” he said.

“Studying nearly 86,000 subjects from 26 countries, our researchers identified 244 genetic variants which control whether or not people develop these conditions, a large proportion of which were completely new findings.

“These new gene discoveries will lead to some new therapies, including the use of agents already treating other diseases.

“It’s a major leap forward in our understanding of these common but difficult-to-treat diseases.”
Forward-thinking giving

The challenges faced by students from financially disadvantaged backgrounds are not unfamiliar to QUT alumnus and QUT Learning Potential Fund (LPF) donor and bequestor, Brett Hooker.

“I grew up in a very, very poor family. My mum and dad worked so hard to give me the opportunity to go to university. Nobody in our extended family ever had that opportunity previously,” Mr Hooker said.

“I’ve been in an environment where a dollar makes a difference – I grew up with that.”

After graduating from QUT with a degree in business computing in 1990, Brett spent a number of years working in Silicon Valley.

Upon his return home Brett became an alumni board member and provided industry input on computer studies being developed at QUT. He is now Group Director of Research and Development at TechnologyOne, Australia’s largest enterprise software company.

Hearing the personal stories of students who had to decide between having food on the table or continuing their study, Brett became an LPF donor.

“It is a harsh decision, and for the Learning Potential Fund to take that off their shoulders is something that deeply resonates with me,” said Mr Hooker.

Brett, a father of three, was also inspired to include a gift to QUT in his will in order to create his own named scholarship within the Fund and keep supporting students beyond his own lifetime.

“To know you can leave something that helps people on an ongoing basis is a good legacy,” said Mr Hooker.

“If I make that happen – then I make something happen permanently – because I’m not going to be around forever.

“There are always moments in your life when you need to focus on your own things, but there are times in your life when things are better, and that’s the time to say ‘if I make a small contribution to LPF, I can fundamentally change somebody else’s life.’”

For more information on the QUT Learning Potential Fund, please see the insert enclosed with this edition of Links or email LearningPotentialFund@qut.edu.au.
“A woman should dress first and foremost for her own pleasure”, so says ABC’s Miss Phryne Fisher, a collection of whose gorgeously glamorous garments will be on display at Old Government House from 15 July to 4 September 2016.

Clothes, hats, shoes, and accoutrements specially designed for TV’s doyenne of roaring 20s-style crime-solving and her entourage in series three of Miss Fisher’s Murder Mysteries will fill the ground floor of Old Government House on Gardens Point campus.

Visitors will be able to to take high tea with the show’s costume designer, Marion Boyce, who will discuss where her inspiration for the stunning designs comes from and how she deals with the pressures of designing to a tight schedule.

Behind the Seams tours, hosted by fashion experts, will take visitors on an exclusive journey through the exhibition, and The Lindy Charm School for Girls will hold tutorials on the dos and don’ts of perfect 20s hair and makeup.

The Speak Easy Bar will open for a special evening viewing of the Miss Fisher’s Murder Mysteries Costume Exhibition.

QUT is holding the exhibition in conjunction with the National Trust and Every Cloud Productions.

For all the dates and details go to: http://bit.ly/1rg0Vhv
A family of QUT alumni have thrown themselves a challenge in restoring and reopening a formerly derelict hotel in the heart of Tenterfield.

Hailing from Brisbane, the Sibley family have strong ties to QUT, with father Robert not only an alumnus, but also a senior law lecturer for over 20 years and now a visiting fellow in the Faculty of Law. His son Justin and daughter Cassandra are also QUT alumni, graduating with degrees in law and psychology respectively.

The restoration project began in 2013 following Justin’s return from Iraq where he worked for the Department of Foreign Affairs and Trade as a counter terrorism specialist. On a visit to Tenterfield he was immediately taken by the grandeur of an old hotel on the High Street.

“At that point the hotel had been vacant for about eight years, but even in the state it was in, it was incredibly iconic,” Justin said.

“It was built in 1942 and has an art deco style. Buildings like that can – and should – stand the test of time. My family and I were excited to be a part of making that happen.”

The restoration took place throughout 2014, transforming the hotel from a set of 19 pub rooms to a boutique hotel featuring a craft beer and wine bar, a restaurant and eight accommodation suites.

Today, the Commercial Boutique Hotel continues to be a family effort, managed on site by Cassandra and her husband Tim, with the support of Justin, who works from Brisbane, visiting the hotel regularly.
CS Energy supports disadvantaged students

Queensland energy company CS Energy has established a new QUT Learning Potential Fund scholarship to support promising but financially disadvantaged students.

The company’s commitment will see an annual scholarship awarded to a student who comes from a regional Queensland or Greater Brisbane background undertaking studies in an undergraduate bachelor degree in engineering or science relevant to the power generation industry.

QUT alumnus and CS Energy chief executive officer Martin Moore said the company’s decision to support the scholarship was in line with its commitment to contribute to economic and social wellbeing in regional Queensland, and would support efforts to attract high quality people to CS Energy.

“The QUT Learning Potential Fund is a way for CS Energy to invest in the next generation of the power industry by supporting highly motivated students in regional areas who are facing economic challenges,” said Mr Moore.

For more information about the QUT Learning Potential Fund, please visit: www.qut.edu.au/giving/learning-potential-fund

Alumni Board Nominations open August 2016

The Alumni Board is the representative voice of QUT Alumni, providing strategic leadership for engagement and policies. Alumni are invited to nominate for six elected positions: Alumni President, Alumni representative on Council and four Alumni Board members. Nominations open in August, with voting to be undertaken via online ballot. Results will be announced at the Alumni AGM on 18 October. Alumni must have a current contact address or email to be eligible to nominate or vote. For more information or to update your details contact the Alumni and Development Office on (07) 3138 4778 or alumni@qut.edu.au

High honours for our alumni

Emeritus Professor Mary O’Kane (pictured right) was appointed a Companion (AC) in the General Division in this year’s Australia Day Honours. QUT Council member Professor O’Kane was recognised for her eminent service to science and engineering, as a contributor to national policy development and governance, to the promotion of technology research and future energy supply, to higher education, and as a role model for young scientists.

Alumnus Professor Carol Dickenson (pictured top far right) was appointed a Member (AM) in the General Division for significant service to tertiary education as a senior administrator, and to professional academic standards and development. Professor Dickenson has been the university’s Senior Deputy Vice-Chancellor since 2012 - an appointment which followed a decade serving as the university registrar.

Her career with QUT began in 1989 as a lecturer in the School of Management and she was the Director, Human Resources from 1997 to 2002.

Other alumni recognised in this year’s honours included:
- Mr Noel Cisowski AM
- Dr Ralph Hultgren AM
- Mr Mark Brimble OAM
- Mr Allan Fazldeen OAM
- Mr Paul Holley OAM
- Mr Paul Parkinson OAM
- Mr Ross Patching OAM
- Dr Keith Tronc OAM
- Mr Bradford John PSM
- Mrs Katherine Schaefer PSM
- Assistant Commissioner Maurice Carless APM (pictured far right)
- Inspector Jo-Anne Henderson APM
- Sergeant Linda Smith APM
- Mr Andrew Bickerton ESM

Others connected to QUT who were recognised included:
- Mr David Liddy AM (former Council member, pictured below left)
- Mr Terence Oakes-Ash OAM (former chair, Construction Industry Institute)
- Ms Helen Gluer PSM (adjunct professor and former Council member)
Chapter news

Calling new committee executives

Join a QUT alumni chapter executive committee and you’ll play a key role in the chapter’s development and event planning as well as gain valuable leadership and networking skills.

Chapters currently seeking enthusiastic new members for their executive committee are:

Canberra alumni chapter

Established in 2013, the Canberra alumni chapter brings together QUT alumni, students, faculty, staff and friends living or working in and around the ACT. The chapter focuses on remaining engaged in lifelong learning, and providing opportunities to give back to QUT and the local community.

Creative Industries alumni network

The Creative Industries alumni network includes those who have graduated from one of QUT’s diverse range of creative disciplines. The network assists members to cultivate new professional relationships, nurture existing connections, keep informed of industry developments, and open up pathways for career growth.

Sydney alumni chapter

The Sydney alumni chapter provides networking opportunities for QUT graduates living and working in Sydney. Members use the chapter to connect with other graduates, and plan and attend alumni events, including professional development opportunities, special talks, dinners, or social and networking events.

QUT Young Alumni

Comprised of alumni under 35 years of age, QUT Young Alumni is one of Australia’s most dynamic alumni chapters, providing members with access to personal and professional development and social networking opportunities in Brisbane.

To become involved with any of the above chapters, please email the QUT Alumni team on alumni@qut.edu.au

Professional development opportunities

Motivated to broaden your career horizons, acquire new skills or capitalise on the impact technology will have on your profession? QUT offers some flexible learning options.

Leadership through coaching and mentoring

The Executive Graduate Certificate in Business (Leadership through Coaching and Mentoring) is designed for managers. The 14-month, part-time program is delivered primarily online but is highly interactive with group, executive and peer coaching. The course is available for individuals and groups sponsored by their employer.

Contact: Program manager Peter Hollands p.hollands@qut.edu.au

Free online learning

Big data professor Kerrie Mengersen has developed a number of short courses. Learn how to apply selected mathematical modelling methods to analyse big data. Discover the methods, tools and processes involved in data visualisation.

Award-winning teacher Professor Peter Corke (pictured right) offers two robotics online courses. ‘Introduction to robotics’ helps participants understand the fundamental mathematics and algorithms that underpin modern robotics while in the second course, ‘Robotic vision’, participants learn how to make robots perceive the world around them.

More information: www.qut.edu.au/study/open-online-learning

Domestic violence course

QUT is offering Australia’s first Graduate Certificate in Domestic Violence. The part-time course is designed for frontline workers, policy developers and any professionals who come into contact with domestic violence victims or perpetrators. Offered by the School of Justice, participants can study online from anywhere in the world. During the one-year program participants learn techniques for working with victims of abuse, apply risk assessments to actual cases and learn how to craft safety plans.

Contact: Course coordinator Professor Molly Dragiewicz molly.dragiewicz@qut.edu.au
Universities have many purposes. Traditionally they exist to extend the boundaries of knowledge and to educate people in the academic disciplines, exposing them to the ever-changing frontiers of what we know.

They provide opportunities for people to explore their passions and creativity, and for contemplation. But we expect that university education will also enable people to enjoy productive and rewarding careers, and this expectation lies behind the rapid increases in enrolment we have seen in universities around the world in recent years.

The OECD has documented clear advantages in employment and earnings for university graduates compared to those who have only completed upper secondary education. For example, on average across the OECD, bachelor graduates earn some 57 per cent more while in the US that figure is as high as 65 per cent. The OECD warns that too much imbalance is a sign of a lack of social inclusion, and Australia’s lower premium of 37 per cent is noted in that light. But the message is clear: higher education is linked to better employment and career prospects.

This is good news for most graduates. QUT takes great pride in the achievements of our alumni and we celebrate their many successes. The real world brand of this university is grounded in a determination to do our best to prepare people for the world of professional work, and to provide opportunities for ongoing development.

While global rankings in this area are in their infancy we are reassured to see that the pilot global QS Graduate Employability Rankings for 2016 places QUT eighth in Australia and in the top 100 overall, with a ranking of 13th for employability rate and 24th for partnerships with employers.

However, we must not be complacent. There are signs that we may be in only the earliest stages of fundamental disruptions to our workplaces, and the fallout of the global financial crisis is still being acutely felt, with some of the weakest employment rates for new Australian university graduates being recorded across the nation over the past two years.

As businesses actively seek ways of working more productively in the face of global competition, and as technology provides the means for achieving greater productivity, there will be increased opportunities for some but disruption and dislocation for others. In January, the CSIRO released a report entitled Tomorrow’s digitally enabled workforce which explores some of the increasingly familiar ideas of digital disruption and anticipates a trend towards individualised work that is entrepreneurial and freelance in nature, rather than fixed with an employer.

The idea of more actively focusing on graduate employability is gaining traction among universities, and QUT is at the forefront in this. Universities are not job placement agencies but we need to rethink, at all levels, how we can best help students to succeed in their working life. This year QUT will be developing further some major changes to the ways we engage with students, including through our use of technology, with the intention of making our operations and services more strategic and effective. Part of this effort will be delivering our Real World Learning 2020 Vision, which has strengthening employability at its heart, and I am confident we will continue to see our graduates finding employment and longer term success, as the future unfolds.

Professor Peter Coaldrake AO
Vice-Chancellor
Dadang Christanto
Lost and found #3 2013
cast aluminium and acrylic
QUT Art Collection
Purchased 2013
Photo: Carl Warner

QUT Art Museum is custodian to the QUT Art Collection, which was established in 1945. The collection is one of the largest in Queensland and comprises close to 3000 objects, including paintings, sculptures, decorative arts and works on paper by Australian and international artists.

The Museum is open Tuesday to Friday from 10am to 5pm, and on weekends from 12pm to 4pm.