Society is on the cusp of a revolution in robotics in which personal robots will become an everyday fact of working life—in Australia the revolution is being driven at QUT.

QUT is the headquarters for a new $19 million Australian Research Council Centre of Excellence in Robotic Vision, led by Professor Peter Corke from the Institute for Future Environments.

'The centre will form one of the largest groups of its kind in the world, and will become a focal point for international activity in creating the next generation of robots,' Professor Corke said.

'It brings together outstanding research talent at QUT, University of Adelaide, ANU and Monash University, with overseas partner universities Oxford, Imperial College, ETH, INRIA and Georgia Tech.

'Our scientists are creating robots that will use cameras, like eyes, to perceive their environment,' Professor Corke said.

'We will deliver the science and technologies that will turn cameras into powerful sensing devices.

'This will enable robots to operate reliably over long periods, in complex unstructured surroundings where they will interact with humans as well as objects.'

Professor Corke said the scientists would demonstrate applications of the technology in agriculture, smart manufacturing, construction and remote inspection and monitoring.

'Robotic systems have proven their value in controlled environments where the complexity and variation of tasks are low,' he said.

'For example, factory robots are a mature and highly successful technology and robotic trains in Japan are amongst the most efficient in the world.

'However without capabilities approaching those of human vision a vast array of potential applications is closed to robots.

'These include complex manual assembly, packing, manipulation, navigation, machine operation, fruit picking, remote assistance, smart homes, smarter appliances, autonomous driving, and environmental survey and monitoring.'

'The technology to build the mechanical vehicles and robotic devices for these applications is available.

'Robotic systems have proven their value in controlled environments where the complexity and variation of tasks are low,' he said.

'For example, factory robots are a mature and highly successful technology and robotic trains in Japan are amongst the most efficient in the world.

'However without capabilities approaching those of human vision a vast array of potential applications is closed to robots.

'These include complex manual assembly, packing, manipulation, navigation, machine operation, fruit picking, remote assistance, smart homes, smarter appliances, autonomous driving, and environmental survey and monitoring.'

'The remaining technological roadblock is the ability to perceive and thereby adapt to the environment, and to seamlessly integrate perception with action.'

QUT is already a world leader in unmanned aerial vehicles and farm robotics, and has recently demonstrated a light-weight, driverless farm vehicle that can autonomously spray weeds for broad-acre crop production.

Professor Peter Corke
When QIT transformed to QUT 25 years ago, the changing of that one little letter triggered an enormous wave of new energy.

We had a proud history as the Queensland Institute of Technology, but as the Queensland University of Technology we embraced a new era as ‘a university for the real world’.

That pledge forms the very heart of QUT. We are characterised by our real-world teaching, excellent employment outcomes, applied research and close links with industry.

Our relative youth in the Australian tertiary sector means we bring vitality and innovation to all our endeavours and achievements.

QUT’s 25th anniversary in 2014 commemorates the passing of the Queensland University of Technology Act in November 1988 and the approval of QIT’s new university status to operate as QUT from January 1989.

Our predecessor institutions date back 165 years and include the Brisbane School of Arts (established 1849), Kedron Park and Kelvin Grove Teachers’ Colleges (1961), Brisbane Kindergarten Teachers’
College (1965), QIT (1965), and Brisbane College of Advanced Education (1982).

Looking back over the past 25 years, the university has grown in infrastructure and research reputation.

We were named the top Australian university under 50 years of age by the global Times Higher Education Top 100 Under 50 in 2013.

We now have two major research institutes (Institute of Health and Biomedical Innovation and Institute for Future Environments), as well as research centres across the fields of health, law, education, creative industries, business, and science and engineering.

QUT is one of the nation’s leading universities in national competitive grants for education, creative industries, applied mathematics/statistics, information technology, and robotics, avionics and automation.

In the vital health arena, we have strengths in nursing, wound healing, optometry, prostate cancer, and biomedical engineering.

Two major precincts have been developed in the past 25 years. Ten years ago the Creative Industries Precinct opened within the Kelvin Grove Urban Village, and last year the Science and Engineering Centre breathed new life into Gardens Point campus.

In 2014, we have over 45,000 students (including 7000 international) and 4400 staff spread across three campuses—Gardens Point in the Brisbane central business district, Kelvin Grove in the city’s inner north-west, and Caboolture in the growing northern corridor.

The lectures students experience are very different from 25 years ago: they learn in open-plan collaborative environments on campus, or through a burgeoning online—and often mobile—environment.

Whichever way their education is delivered, students have the benefit of world-class educators who are recognised every year by the Australian Awards for University Teaching.

More than 170,000 students have graduated from QUT in the past 25 years, many of whom remain linked with the university through QUT Alumni.

The university’s longevity is in good hands thanks to our financial stability, our environmental sustainability, our talented students and staff, and our global alumni.
QUT
25th Anniversary Appeal

The world needs them. They need you.

They are our future scientists, teachers, engineers, paramedics, entrepreneurs, legal professionals and performers. These talented students might never reach their full potential without philanthropic support to pursue their studies. As a QUT alumnus or supporter, please make a donation to invest in their future.

The effects of your 25th anniversary gift today will last a lifetime.

Visit https://alumninet.qut.edu.au/giving-to-qut-appeal to make your donation. Or see overleaf for more gift options.
Yes! I would like to make a gift to celebrate QUT’s 25th anniversary

There are many ways of supporting a student’s future. The following examples focus on three key areas in need of extra support.

Your donation towards:

1. The QUT Learning Potential Fund will provide scholarships for financially disadvantaged students. Donations to the Learning Potential Fund are matched dollar for dollar by QUT.
2. QUT’s Institute for Health and Biomedical Innovation (IHBI) will support scholarships for student researchers who will become our future scientific and health research leaders.
3. QUT creative arts scholarships will support Australia’s next generation of exceptional visual artists, musicians, dancers and actors.

How to donate:

Online  Visit https://alumninet.qut.edu.au/giving-to-qut-appeal

Scan  the QR code at right

Phone  +61 7 3138 5356, 9am–4.30pm AEST, Monday–Friday

Post  Reply paid mail to: (no stamp required)
Queensland University of Technology
Reply Paid 2434
Brisbane Qld 4001, Australia

I would like to direct my donation towards:
- QUT Learning Potential Fund scholarships
- QUT’s Institute of Health and Biomedical Innovation (IHBI) research scholarships
- QUT creative arts scholarships
- Other _________________________________

$5  $25  $100
$500  $________________ my choice

I will make my gift by:
- Cheque/money order (made payable to QUT)
- Credit card
  Name on card __________________________
  Card number ______________/_____/_______/_______/_______
  Expiry __/____ CVV number ______
  Date ______________
  Signature _____________________________

My details are:

Full name __________________________________________
Street/PO Box address __________________________________________
Suburb _____________________________________
State ___________ Postcode ___________
Country _________________________________________
Email ____________________________________________
Phone ____________________________________________
[Please include country code and area code]

Thank you! Your donation makes a real difference. A receipt will be sent to you shortly. All gifts of $2 and more are tax deductible in Australia.
Welcome to the most sophisticated creative space in Australia.

Stage two of QUT’s Creative Industries Precinct opens for business next year as more than just specialised studio spaces for the Creative Industries Faculty’s visual arts, music, dance and drama cohort.

The $80 million state-of-the-art facility is being fitted with a full digital backbone, with a network of fibre optic connections between each of the rooms, and real-time data and processing capabilities.

That means projects staged in any studio can be streamed to the web, QUT’s world-leading digital display and learning space The Cube, and other parts of the university.

With music recording suites, a studio devoted entirely to research and development and several others with extra high ceilings to allow for aerial dance and oversized artworks, the precinct will be a hotbed of innovative interdisciplinary and industry collaboration.
When leading Australian businesswoman, Rosemary Vilgan, decided to establish a scholarship through the QUT Learning Potential Fund, her parents were just as much in her mind as the female students who will benefit from her $125,000 gift.

The 2013 Telstra Australian Businesswoman of The Year and QSuper CEO has dedicated the new scholarship to the memory of her parents, Carmel and Alwyn Smith, in tribute to the strong community values they gave her and her four sisters.

The alumnus, long-serving QUT Council member and former Deputy Chancellor relishes the opportunity to pass those values on.

‘I see these students, they have a spark … and I want to invest in that spark,’ Rosemary said. ‘They will go on to make a positive contribution to the world. I love helping them invest in that future.’

According to QUT philanthropy researcher, Dr Wendy Scaife, Ms Vilgan is not alone in her motivation.

The Australian Centre for Philanthropy and Nonprofit Studies research fellow’s work shows approaches to giving are changing and people want more personal reasons to give. They also want to see direct outcomes from their gifts.

Ms Vilgan was just 33 when she became CEO of one of the largest superannuation funds in Australia 16 years ago.

The self-effacing corporate leader personally added to the award money from her Telstra honour to create the perpetual Rosemary Vilgan Learning Potential Fund Scholarship.

The $27.5 million QUT fund is supported by the university and donations from staff and the wider community, with QUT matching gifts dollar for dollar.

It provides around 2000 scholarships and bursaries every year and is the biggest fund of its kind in Australia for students suffering financial hardship.

‘I value education enormously, it’s the way society improves,’ said Ms Vilgan who studied business and marketing through a QUT predecessor institution at Kedron Park.

The seeds of her philanthropy were sown in a large, less than wealthy Brisbane family, where benevolent giving and caring was part of life.

‘My dad always gave to charity, and he impressed the importance of that, even though we didn’t have a lot,’ she said.

Figures from the 2013 World Giving Index show that Australians are ranked second in the world for donating money over the past five years, with 71 per cent giving.

Dr Scaife said Australians were becoming more discerning about their charity dollars.

‘It’s a very personal thing, giving—it’s as much about the giver as it is the project,’ she said.

‘Some philanthropists like to pilot and springboard innovation. They might also see a worthy project that would enable them to create a legacy and to make a real difference.’

She said it was important for donors such as Ms Vilgan to speak up about the reasons they give to charity.

‘That’s one of the key reasons people give—because they have followed the example of someone else giving.’

www.qut.edu.au/giving
Honourable Australians

QUT warmly congratulates our top 2014 Australia Day Honours awardees. Mr Tim Fairfax AC, QUT Chancellor and leading advocate for philanthropy and the arts in Australia, was made a Companion of the Order of Australia. Executive Director of QUT Precincts Professor Sue Street AO, pictured right, was awarded an Officer of the Order of Australia for her leadership in the performing arts. QUT Council member Dr Lee-Anne Perry AM was awarded a Member of the Order of Australia for her significant service to secondary education.

Research funding

QUT is making inroads into its ambitious research agenda with strong growth in research funding. QUT’s research income for 2012 (reported in 2013) grew to a record $86 million—exceeding the university’s target. This result confirms our position as a growing and influential research institution, being ranked ninth in the sector behind the Group of Eight universities.

G20 business focus

As part of its involvement with the upcoming G20 in Brisbane, QUT is hosting the G20 Global Business Challenge, a new international Graduate Business School competition initially proposed by QUT, and now joined as partners by UQ and Griffith. Set to be an annual event, the challenge will ensure Brisbane’s prominence on the international business case competition calendar.

www.g20gbc.org

Executive moves

After 30 years of service, Professor Tom Cochrane has retired from his role as Deputy Vice-Chancellor (Technology, Information and Learning Support). Replacing Professor Cochrane is former Director of QUT Library Services Ms Judy Stokker. Also leaving the executive ranks is Creative Industries Faculty Executive Dean Professor Rod Wissler who retired in January after 26 years at QUT. With faculty recruitment processes underway, Professor Mandy Thomas is acting in the role of Creative Industries Executive Dean, while Emeritus Professor David Siddle, former DVC [Research] at The University of Queensland, has been temporarily appointed Executive Dean, Science and Engineering Faculty following the departure of Professor Martin Betts.

Legal voice

Associate Professor Rachael Field has been named the Women Lawyers Association of Queensland’s Woman Lawyer of the Year. Professor Field is also president of the Women’s Legal Service and a member of QUT’s Higher Education Research Network.
Explore the future

QUT is hosting an evening with famed futurist Dr Michio Kaku at the Brisbane Convention and Exhibition Centre on 5 June, the first event of his inaugural Australian tour. The theoretical physicist and science communicator will explore the wonder and weirdness of the universe and describe how scientific advances will transform our lives over the next 50 years and beyond. Tickets are on sale through Ticketek.

Giving thanks

Powerful and moving, QUT recently held an inaugural thanksgiving ceremony for families involved in the university’s Body Bequest program.

Attended by more than 230, the event paid tribute to people who have selflessly donated their bodies to the university to benefit medical education and training at QUT.

Leading Brisbane surgeon and professor of QUT’s orthopaedic research, Ross Crawford, told families that the program had enabled many surgeons to advance their surgical techniques and train many other health professionals.

‘Many people spend a lifetime creating a legacy. Our donors make an exceptional contribution after death, for which we are very grateful,’ Professor Crawford said.

A poignant part of the ceremony was the reading of donors’ names inscribed in a special Book of Remembrance which was presented for families to view. The book is on permanent display within QUT’s Medical Engineering Research Facility on the grounds of The Prince Charles Hospital.

www.qut.edu.au/giving/ways-to-give/body-bequest-program

Former G-G at GP

Australia’s former Governor-General, the Honourable Dame Quentin Bryce AD CVO, has based her official Brisbane office at QUT in the Chancellery on Gardens Point campus. Ms Bryce, pictured below, was made an honorary doctor of the university in 2004 for her long and distinguished record of advocacy for women and children. VC Professor Peter Coaldrake said Ms Bryce has had a lifetime commitment to education and social justice, particularly for the needs of people in regional and rural areas and for the challenges Indigenous Australians face. ‘We welcome her into our community,’ he said.
THE world

By Rose Trapnell

Remember BandAid, where Sir Bob Geldof harnessed the talent and goodwill of world-leading artists to highlight hunger by recording the song *Do they know it’s Christmas?* and promoting the Feed the World logo?

Thirty years on, food security in many third-world countries remains a chronic problem and it is being compounded by climate change.

But could the talent and goodwill of bands of genetic plant scientists be harnessed to deliver technology with the potential to really feed the world?

At QUT we believe so and have now assembled a remarkable team, the ‘Fab Four’ at our Centre for Tropical Crops and Biocommodities (CTCB), who are using different technologies and expertise to drive some of the world’s most significant food security projects.

Take the banana. A staple crop throughout many African nations, cooking bananas and plantains are great sources of starch but lack other vital micronutrients. With vitamin A deficiency causing hundreds of thousands of deaths and blindness each year, CTCB Director, Distinguished Professor James Dale, and his team are working to enrich the fruits with pro-vitamin A and, soon, iron.

Supported by Bill and Melinda Gates Foundation funding, the project is on the brink of major milestones with human trials to get underway in the U.S. and the launch of a three-year Ugandan field trial of an elite line of banana plants.

‘This is good science that will lift the health and wellbeing of countless millions of people over generations,’ Professor Dale said.

Professor Dale has also had encouraging results from field trials of bananas resistant to TR4 Fusarium wilt, a disease deadly to Cavendish bananas, a variety that makes up 40 per cent of the world’s crop.
The Indian Government is now partnering with Professor Dale to develop iron-enriched bananas to provide better nutrition to poor, vegetarian communities. The moral responsibility of the work being carried out at the CTCB is uppermost in the mind of the centre’s molecular geneticist Professor Roger Hellens who believes the ultimate goal is to make fruit and vegetables that are eaten on a daily basis as nutritious as possible.

‘Fruit has evolved to be healthy,’ he said. ‘Kiwi fruit for example is much higher in vitamin C than oranges and if we can find out why we can then use that information to make it and other fruits more nutritious.’

‘Many wild species of fruit are highly nutritious and how those desirable traits can be harnessed is likewise being investigated.’

The former leader of a $10 million per year breeding program at New Zealand’s Plant and Food Research, Professor Hellens, believes that modern genetics, working alongside conventional breeding, will ultimately produce fruit that is healthier, tastes great, and is convenient to eat. The CTCB is also carrying out significant work to help solve the looming crisis in worldwide protein production. Meat production is not expected to keep up with demand as the population grows and grazing land is rendered useless by climate change. Scientists are turning to tropical pulses such as chickpeas and mungbean to fill the protein void.

Pulses are staples across much of the world and Professor Sagadevan Mundree is leading a team at the CTCB developing new drought-tolerant and disease-resistant varieties for arid-land cultivation.

Professor Mundree’s research is attracting international attention, and the Australian and Indian governments are now funding a research project involving the water-intensive staple—rice.

Professor Mundree and his team have identified novel strategies in a native ‘resurrection’ grass that enables the plant to survive in Australia’s outback.

‘We are very confident that we will be able to harness this death-defying property and, with Indian collaborators, provide rice varieties that will help sustain the growing world population in the midst of global warming,’ Professor Mundree said.

However, bringing new varieties of staple crops to commercialisation currently takes years. Enter QUT new recruit and world-leading gene silencing researcher, Professor Peter Waterhouse.

Professor Waterhouse has won a string of awards including the Prime Minister’s Prize for Science but—most importantly—he is a molecular whisperer. Professor Waterhouse and his small team of scientists discovered a naturally occurring pathway in plants that fights viruses and switches off genes. Knowing the keys that start and direct the pathway, and the enzymes that power it, he aims to persuade plants to embrace, rather than silence, the genes introduced for beneficial modification.

‘If we can provide the new genes with “certificates of authenticity” so that the plant accepts them as “self”, we will reduce the time it takes to successfully improve an array of staple crops,’ he said.

Professor Dale said Professor Waterhouse’s research would potentially enable nutrient-enriched and drought-tolerant crops to be taken to those who needed them, much sooner than is currently possible.

From left, Professors Sagadevan Mundree, James Dale, Roger Hellens and Peter Waterhouse in QUT’s greenhouse facility at Gardens Point.
By Rose Trapnell

In a world-first breakthrough Queensland Unmanned Aircraft System researchers have developed an on-board, vision-based system that allows small unmanned aircraft (UA) to detect other aircraft in flight—a critical point for allowing UAs to fly in commercial airspace.

Currently, the usage of UA is restricted to small areas where human observation can ensure there is no collision risk to other aircraft in the area. Enabling all aircraft to equally share the airspace requires new technology and new regulations.

Chief technical hurdles include the inability of UA to detect and avoid oncoming aircraft and to land safely in emergencies.

Under the banner of Project ResQu, QUT’s Australian Research Centre for Aerospace Automation (ARCAA), in conjunction with Boeing Research & Technology—Australia (BR&T-A) and UA systems industry leader Insitu Pacific, has successfully proven a UA can detect another aircraft while in flight.

ARCAA director, QUT Professor Duncan Campbell, said once all technical and regulatory hurdles were overcome, UAs had the potential to perform a myriad of functions from providing real-time information to urban-fringe firefighters, to delivering life-saving medical supplies, to enabling farmers to inspect livestock and crops from their homesteads.

‘They will be able to provide public services such as assistance in disaster management and recovery, as well as in environmental, biosecurity and resource management,’ Professor Campbell said.

‘The challenge worldwide has been to develop an on-board system of appropriate size, weight and power usage for a small UA.

‘We can see benefit in the use of this technology in general aviation, too, as a detect-and-avoid aid to the human pilot.

‘In coming months, we expect to deliver recommendations to the Civil Aviation Safety Authority in relation to necessary regulatory changes. It is hoped that these, in conjunction with our technology research achievements, will accelerate the integration of UA into everyday life.’

Project ResQu is a $7 million project supported by the Queensland Government and involves some of the nation’s top aerospace experts drawn from QUT, CSIRO, BR&T-A, and the Boeing subsidiary Insitu Pacific.
By Amanda Horswill and Mechelle McMahon

A leading engineer who is helping rebuild Brisbane’s flood-destroyed Riverwalk has been named QUT’s Mentor of the Year in recognition of his inspirational work with tomorrow’s engineers.

Stephen O’Brien is a senior design manager with the John Holland Group and has spent eight years helping students in his volunteer role as an industry mentor with the QUT Career Mentor Scheme.

The scheme has been running for 22 years and has linked 6500 students with mentors, including the perfect pairing of Mr O’Brien and civil engineering student, Aaron Vujicic, last year.

Aaron was so impressed with his mentor’s enthusiasm and knowledge that he successfully nominated him for the annual Mentor of the Year award at the end of 2013.

Mr O’Brien’s ongoing work on the John Holland rebuild of the 850-metre Riverwalk between New Farm and the Brisbane CBD was just one of the industry insights he shared with Aaron.

It inspired Aaron to secure hotly contested work experience as an undergraduate engineer with John Holland and their Riverwalk replacement project.

In addition to monthly meetings to discuss the industry and an engineer’s day-to-day work, Mr O’Brien also provided regular feedback on resumés, job applications and assignments.

‘It has never been a one-way street ... I get a lot out of it,’ Mr O’Brien said.

‘It’s a chance to relive vicariously my own university years and share the youthful enthusiasm of some bright young person. And it is satisfying to put a little back into a profession that has given me so many rich opportunities and experiences.’

Aaron said he would always be grateful for the guidance Mr O’Brien had provided.

‘As an undergrad, it was so helpful to start developing a network of people in the industry, and to find out what it would actually be like working as an engineer,’ Aaron said.

‘It was great to have someone to discuss my future with, and to get an insight into industry expectations and how to make myself more employable.’

QUT Career Mentor Scheme coordinator, Diana McCluskey, said mentors donated their time to the scheme and were paired with students across the breadth of the university’s disciplines.

‘The students gain invaluable access to someone who knows what it’s like to work in their field, and can give advice on where and how to apply for jobs,’ she said.

‘Most mentors say they wished they had such a scheme to help them when they were starting out.’

www.careers.qut.edu.au/student/mentor
Fatal attraction

By Kate Haggman

Cuddly fur, bright eyes and cute nose—no one would ever suspect this adorable creature of hiding a dark secret.

QUT mammalogist, Dr Andrew Baker, and his team have discovered this new species of mouse-like marsupial in Queensland’s Springbrook National Park, the third new member of the genus Antechinus the team has uncovered in the state’s south-east in the past two years.

Called the Black-tailed Antechinus, Dr Baker said this animal also displayed the unique mating behaviour of its kind. For the males, it’s deadly.

‘Antechinus males and females are highly promiscuous. Males mate for long periods of time with many females to promote their own genes,’ Dr Baker said.

‘A single female’s brood of young will typically be sired by several fathers. ‘But during mating stress hormone levels rise dramatically, eventually causing the males’ bodies to shut down. The males all die before their young are born.’

New mammal discoveries are rare, with only a handful typically discovered in the world each year. The Black-tailed Antechinus is a coup for Dr Baker and his research partners from the Queensland Museum and Queensland Parks and Wildlife Service.

Dr Baker said he suspected it was a separate species when he and his team came across the marsupial last May because it had distinctive yellow-orange markings around its eyes and on its rump, and a black tail and feet.

‘We laid about 300 traps baited with peanut butter and oats. When we caught the first Black-tailed Antechinus in a trap, we knew we were onto something pretty special,’ he said.

Dr Baker is now applying for an endangered species listing for the animal.

The results of the team’s studies have been published in the journal Zoosyx.
From left, Dr Andrew Baker with research partners Ian Gynther from Queensland Parks and Wildlife Service and Dr Steve van Dyck from Queensland Museum.
Don’t judge older drivers by age

A person’s age is not an accurate predictor of their driving ability, QUT research has found. Ides Wong, from QUT’s Centre for Accident Research and Road Safety—Queensland (CARRS-Q), said her study shows that encouraging older drivers to self-regulate their driving—rather than revoking their licence based on age—had the potential to improve their safety and maintain their independence. ‘Older drivers tell us that they have changed their driving patterns as a result of age,’ Dr Wong said. ‘I used in-car monitoring to confirm that older drivers do self-regulate their driving such as avoiding peak hour traffic and night-time driving. This suggests we could aim to improve their safety, as well as mobility, by supporting them to self-regulate their driving behaviours.’

Eye on recovery

Two teams of QUT researchers are helping communities to better cope with and recover from natural disasters. The Bushfire and Natural Hazards Cooperative Research Centre (CRC) is a $47 million project bringing together Australia’s fire and emergency service authorities with the nation’s leading experts across a range of scientific fields. QUT School of Clinical Science’s Professor Vivienne Tippett is leading the Communication and Warnings cluster in the CRC, which will examine how the law might influence risk communication and warnings.

QUT’s Dr Paul Barnes is co-research leader of the CRC’s Emergency Management Capability theme, in which he is leading a project investigating the capabilities disaster response agencies need to invest in now in order to work better in the future.

Crunching the numbers

Gaining deeper insight into raw data will be the mission of a $20 million Australian Research Council Centre of Excellence for Mathematical and Statistical Frontiers of Big Data, Big Models, New Insights, in which QUT is a core participant. Co-deputy director and QUT research professor of statistics, Kerrie Mengersen, pictured, said the centre aims to find new ways of making sense of the huge variety and volume of available data. ‘It will focus on three areas—healthy people, sustainable environment and prosperous societies,’ Professor Mengersen said. ‘We will be working hard with partner organisations to make sure our work translates into helping address the major problems in those areas.’ The University of Melbourne will lead the new centre and work with researchers from QUT and leading institutions such as the University of California, Berkeley.
Brisbane’s Translational Research Institute (TRI) is Australia’s most innovative biomedical research facility and QUT is proud to be one of the institute’s four ‘pillars’ of support.

Housing researchers among the best in their field, TRI and its co-located biopharmaceutical manufacturer, DSM Biologics, will accelerate the development of vaccines and new therapies for serious and common diseases and illnesses.

Located at the Princess Alexandra Hospital campus, the seven-storey TRI building incorporates four floors of state-of-the-art laboratories, facilities for research support, administration and teaching, while its Clinical Research Facility, located at the hospital, enables human trials of new drugs and therapies.

TRI represents four leading medical research institutes—QUT’s Institute of Health and Biomedical Innovation (IHBI), the University of Queensland’s Diamantina Institute and School of Medicine, Princess Alexandra Hospital Centres for Health Research and Mater Research.

QUT Deputy Vice-Chancellor (Research), Professor Arun Sharma, described TRI as a visionary bench-to-bedside facility.

‘To have a facility that enables new biopharmaceuticals and treatments to be discovered, manufactured and clinically tested in one location elevates Brisbane’s research profile internationally as only a few places in the world have such capability,’ he said.

IHBI Executive Director, Professor Lyn Griffiths, said TRI was an intellectual powerhouse that would facilitate collaborations between all those involved in the development of new drugs and therapies and better enable researchers from its four partners to work together with common purpose, for a common good.

Led by CEO and Director of Research, Professor Ian Frazer AC, the co-inventor of the cervical cancer vaccine Gardasil, approximately 120 IHBI researchers occupy TRI, including the internationally recognised:

- Distinguished Professor Judith Clements—Cancer Research Program, and incorporating the Australian Prostate Cancer Research Centre—Queensland, led by Professor Colleen Nelson
- Professor Michael Schuetz—Trauma Research Program
- Professor Selena Bartlett—Neuroscience of Addiction and Translation into Treatments Program
- Associate Professor Derek Richard and Professor Ken O’Byrne—Cancer and Ageing Research Program.

A spectacular building that incorporates a combination of glass, steel and timber, TRI has received a number of design accolades, including the F.D.G. Stanley Award for Public Architecture and the G.H.M Addison Award for Interior Architecture.
If you find your local supermarket is willing to deliver your online groceries to your kitchen bench and service is getting faster and friendlier, don’t be surprised according to QUT’s retail expert, Dr Gary Mortimer.

Dr Mortimer, pictured, has been mapping the changes in supermarkets—their response to competition and our change in shopping habits—for years. He also is a close follower of the department stores’ battle to stay relevant.

‘Supermarkets are popping up all over the city. Their concentration in certain areas such as Brisbane’s Ashgrove where Woolworths, Coles and Aldi are all within walking distance, reflects their fear of losing market share or a foothold in a suburb,’ he said.

‘But it’s a win for shoppers because intense competition drives prices down and brings much greater choice of products.

‘Because low price strategies are easy to replicate, supermarkets will vie to give us superior service.’

Dr Mortimer said it is we, the customers, who are calling the shots.

‘Supermarkets are changing to meet our new demands. The downsized trolley and pull-along plastic baskets are appearing in our response to faster, smaller, more frequent shops on the way home from work or the gym,’ he said.

‘We can expect to see more and more supermarkets offer iPads to browse specials and recipes, in-store kitchens with freshly prepared meals, more authentic sushi chefs making fresh and imaginative morsels in front of our eyes, and barista-made coffee to complement your treat from the in-store patisserie.

‘As supermarkets’ marketing and point-of-sale becomes ever more closely integrated with our beloved reality cooking shows, people will continue to turn to them for new and innovative meal ideas.

‘Health and wellbeing are also important; we are choosing fresh-made, healthy alternatives to fast food while smaller households have brought the advent of small portion tins of tuna, cereal and other items packed for one or two.

‘This change in shopping habits is linked to demographic changes. We are seeing growth in Mediterranean, Asian, Arabic and Indian heritages. As a result, rice, noodles and couscous are key staples in our shopping trolleys.’
QUT invention could prove gold in the pool

By Kate Haggman

It’s the simple device that could help the Australian swim team reach for more gold—and it was developed at QUT.

The Corsuit straps on like a belt, keeping a swimmer’s spine straight and body streamlined.

With their torso lower and their hips higher in the water, the swimmer gains a mechanical advantage because their muscles are positioned to generate maximum power and minimum drag.

Sam James developed and prototyped Corsuit in 2010 while studying industrial design at QUT. He’s now commercialised the performance enhancer with the help of the university’s innovation transfer company, bluebox.

‘2010 was a tough year for swimming because it was the year that full bodysuits were banned from competition, which immediately slowed swimmers down,’ said Mr James, himself a national-level swimmer.

‘I wanted to design something that would support and strengthen a swimmer’s core muscles and posture, instead of artificially bracing them like the bodysuits’ in-built corsets did.’

The Corsuit is designed to be worn for short periods in training so swimmers can build their strength and experience what position their body should be in.

It is particularly helpful when worn during a pre-race warm up, where the timely reminder of good body position can help shave a little extra off a swimmer’s time.

If you have an innovative idea like Sam’s, keep an eye out for bluebox’s upcoming innovation competition.

This year’s scaled-up event comes with a bigger prize pool and will be open to alumni as well as staff and students. Details will be on www.qutbluebox.com.au soon.
By Sandra Hutchinson

New research shows Dr Google could prove a public health saviour.

Published in *Lancet Infectious Diseases*, the research has shown that because so many people have adopted the habit of googling their symptoms before visiting a GP, it is possible to use search engine algorithms to predict infectious disease epidemics.

‘This is because traditional surveillance relies on the patient recognising the symptoms and seeking treatment before diagnosis, along with the time taken for health professionals to alert authorities through their health networks,’ QUT senior research fellow, Wenbiao Hu, said.

‘In contrast, digital surveillance can provide real-time detection of epidemics. For example, a digital data collection network was found to be able to detect the SARS outbreak more than two months before the first publications by the World Health Organisation (WHO).’

‘Early detection means early warning and that can help reduce or contain an epidemic, as well as alert public health authorities to ensure risk management strategies such as the provision of adequate medication are implemented.’

Dr Hu said the study found social media including Twitter and Facebook could also be effective in detecting disease outbreaks.

‘The potential for digital technology to revolutionise emerging infectious disease surveillance,’ he said.

‘While this study has looked at the effectiveness of digital surveillance systems retrospectively, Australia is well placed to take the lead in developing a real-time infectious disease warning surveillance system.

The next step would be to combine the approaches currently available such as social media, aggregator websites and search engines, along with other factors such as climate and temperature, and develop a real-time infectious disease predictor.’

He said it was also important for future research to explore ways to apply internet-based surveillance systems on a global scale.

‘The international nature of emerging infectious diseases, combined with the globalisation of travel and trade, have increased the interconnectedness of all countries and means detecting, monitoring and controlling these diseases is a global concern.’

The other authors of the paper were Gabriel Milinovich (first author), Gail Williams and Archie Clements from the University of Queensland.
Natural disasters destroy more than just buildings. They strip away a person’s sense of safety, belonging and identity. The desire to restore these lost values has propelled successful QUT alumni design duo, Nicholas Gonsalves and Nicholas Martoo, to create an emergency shelter that won the prestigious 2013 International Young Architect’s Design Competition in Turkey. The design competition was held by the International Union of Architects and the Turkish Chamber of Architects, attracting 98 entries from around the globe.

‘The brief was to build a shelter five to 10 square metres in area that could be constructed by non-skilled labour in a day,’ Mr Gonsalves said.

‘A big part was to make people feel secure and comfortable in a disaster environment, and to return to victims a sense of control.’

Mr Martoo said natural disasters inherently cause much more than just physical damage and destruction of property.

‘Victims are reminded of the fragility of human existence and will endure a tough emotional recovery, facing a loss of comfort, security and control over their surrounding environment,’ he said.

The award-winning shelter is an elegant plywood box that slots together without mechanical tools, clad in ply and plastic shingles that can be uniquely arranged by the occupant.

Its flexible skin of shingles may be arranged and rearranged, allowing the occupant to personalise the shelter according to their individual needs, and reconfigure it over time.

Mr Martoo said this arrangement allows the occupant to express their individuality and create a sense of ownership.

The design evolved in 2012 as a part of the charitable Emergency Shelter Exhibition and was exhibited in Brisbane and Melbourne.

Now the shelter lives in the George Street office of Brisbane’s Conrad Gargett, Riddel, Ancher, Mortlock and Woolley, where the alumni work.

The designers continue to be recognised, being chosen as finalists in the 2013 Canberra Lodge on the Lake Competition for a new prime minister’s residence.

Mr Martoo’s trophy case also includes the Royal Australian Architects QIA Medallion, the Board of Architects of Queensland Prize, and a host of filmmaking awards.

Both alumni graduated with a Bachelor of Design before each going on to complete a Master of Architecture in 2012.
A revolutionary QUT program matching the best and brightest trainee teachers to schools that need them the most is about to work its magic across Australia. The National Exceptional Teachers for Disadvantaged Schools (NETDS) program will be offered in up to eight universities after receiving a $2 million grant from the Origin Foundation, secured with support from Social Ventures Australia.

Developed by associate professors Jo Lampert and Bruce Burnett, from the School of Cultural and Professional Learning, the program specially prepares high-performing education students and then finds work experience placements for them at schools identified as disadvantaged on the Index of Community Socio-Educational Advantage. More than 50 students have already graduated from the program and the vast majority have opted to secure employment at a disadvantaged school.

Program graduate, Erin Hobbins, said she loves working at Loganlea State High teaching home economics and technology, after working for 10 years as an executive chef. Ms Hobbins undertook multiple field experience placements at the school, which she said helped her move into her role as a first-year teacher there last year.

‘I have a really good rapport with the students. I am straightforward and have high expectations of them, even if they start off with not much faith in themselves.’

‘With plenty of constructive feedback and encouragement, the students respond positively,’ Ms Hobbins said. ‘We have a trade training centre where I teach Certificate II Hospitality (Kitchen Operations). The facility caters for school and community functions and we also run a restaurant for the students and teachers to dine at throughout the school year. The students are so keen, they turn up at 5.30am for breakfast catering functions.’

Loganlea High School deputy principal, Maria Doblo, said Ms Hobbins had come to the school with a preparedness to engage with the many problems students and their families face. ‘Erin had a readiness to deal with the layers of complexity that exist in the school as a result of poverty, generational unemployment and some parents with literacy and numeracy issues,’ Ms Doblo said.

Dr Lampert and Dr Burnett started the program in 2008 and have found that the high-achieving students are keen to join the program that runs for the last 18 months of their studies. ‘Anecdotal data from the school principals is that our exceptional graduates are doing incredible work,’ Dr Burnett said.
Physical philosophy

By Mechelle McMahon

John Rigby spends five days a week at QUT researching plant fossils, lifts weights at the gym four days a week, does a week three- or four-kilometre run twice a week, regularly competes in national running and bodybuilding titles, and could soon be in the Guinness Book of World Records.

He’s also 86.

The QUT voluntary researcher’s amazing ethos of ‘use it or lose it’ has kept his mind and body in peak condition and he shows no signs—or desire—of slipping into quiet retirement.

Mr Rigby’s bodybuilding dedication saw him add the Australian Natural Bodybuilding Titles crown to his trophy cabinet late last year, and he is currently waiting for the Guinness Book of World Records to ratify his application to be recognised as the world’s oldest competitive bodybuilder.

‘I’m often the only over-80 competitor but it still gives me a thrill,’ he said.

He also competes in a major Masters athletics event each year—where he enjoys the company of a larger number of over-80 runners—and was a member of the Australian team at the 2012 Pan Pacific Masters.

‘I go in one major competition every year and I normally do the longest running event they’ve got,’ he said.

That has included events such as the half marathon and eight-kilometre cross-country—as well as extra challenges like trampolining.

Mr Rigby’s motivation for keeping up his daily training schedule is simple—running and working out makes him feel better.

‘If I don’t do it I get a headache,’ he said. ‘I can go for a couple of days without exercise but then I get head pressure—it must be something to do with the hormones and endorphins.’

Originally from Melbourne, Mr Rigby’s palaeobotany career took him around the world to the United States and Brazil—as well as some slightly colder places.

‘I’ve also spent a couple of summers in Antarctica—in fact, I had my 65th birthday in a tent in inland Antarctica with a few other scientists,’ he said.

Since retiring to Brisbane in 1992, he has conducted research at QUT as an honorary visitor. His current work includes collaborating with Indian researchers on Indian fossil research.
Graduates of QUT and its predecessor institutions are invited to the 2014 QUT Alumni Annual General Meeting (AGM) and volunteer reception. The reception will be held on Tuesday 14 October from 5.30pm with a 6.30pm start in Room Three Sixty, QUT Gardens Point, George St, Brisbane.

Voting for four Alumni Board positions will take place and the results of the election will be declared at the meeting. Further details will be posted on the QUT Governance and Legal Services website in July. This year alumni will be able to vote online through the QUT e-ballot system or at the AGM itself. Postal ballots will also be available.

Alumni must be active to be eligible to vote and we encourage all alumni to register an email address with us for future correspondence.

For further AGM information or to register as an active alumnus, contact the alumni office on (07) 3138 4778 or alumni@qut.edu.au.

All welcome at 2014 Alumni AGM and volunteer reception

Rural champion

A rural-raised woman determined to help other country women achieve their dreams has been awarded an honorary doctorate by QUT. Philanthropist Laurie Cowled accepted the doctorate during the university’s 2013 graduation ceremonies. She has donated to and formed a number of charities, including setting up the Cowled Foundation. This charity has the charter of helping to educate gifted but disadvantaged and underprivileged girls, particularly Indigenous young women. She also created The Cowled Gift when she gave QUT a large parcel of Noosa Waters land. QUT sold the land and then matched the sale dollar for dollar to create several scholarships which have helped 25 women achieve their education goals.
On your marks

Our annual QUT Classic kicks off on the first Sunday of May each year at 8am. Run, walk, shuffle or dance your way through a scenic 1km, 5km or 10km route around QUT Gardens Point and the CBD to support the QUT Learning Potential Fund, providing scholarships to help financially disadvantaged students attend university. This family-friendly event attracts thousands of runners and is open to all—whether you’d like to compete as a team or individual, and whether you’re in it for fun or fitness. There’ll be some great prizes on offer, so join to support a great cause and enjoy food and entertainment following the run.

Sign up for our alumni enewsletter

for special offers, alumni events and activities, QUT and alumni news.

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Encouraging potential

A business stalwart is turning his considerable leadership and management talents toward enticing students to reach their full academic potential. Dr Ray Weekes, Chair of the CEO Institute in Queensland, 20-year high-level company director and corporate CEO, is the new chair of QUT’s $27.5 million Learning Potential Fund. Dr Weekes takes over from Mr Anand Shah, who resigned as chair after two years at the end of 2013. Mr Shah has been a member of the fund committee since 2007, overseeing the growth of the endowment fund from $15 million to more than $27 million.

Brisbane Executive Club

The Brisbane Executive Club (BEC), an alumni chapter of QUT Business School, invites EMBA and MBA current students and alumni to join them at a special series of roving rooftop events to be held in 2014. ‘The rooftop series aims to encourage sharing within the current and past EMBA and MBA cohorts,’ BEC president, Ryan Morse, said.

‘We have a unique group of people who would gain from networking and sharing their learning and business experiences. We are looking forward to this informal quarterly get together and hope it becomes a “must do” event on the alumni event calendar.’

The first event was held at The Exchange Hotel’s refurbished Sky Bar on 14 March and four more events are planned to be held at a variety of different venues throughout this year. Visit the BEC website for future rooftop series dates and professional development events to be held in 2014.

Our first chapter planning day a success

The QUT Alumni and Development Office held the inaugural domestic chapter planning day in February at the Gardens Point campus. More than 65 chapter committee members joined the alumni team to learn how to grow and improve their chapter through a series of presentations, open forums and networking.

Attendees were treated to a progressive reception in the evening and were shown many of the unique venue options available for events at Gardens Point campus including the QUT Art Museum, Courtyard at Old Government House and The Cube.

Caroline New, a Sydney alumni chapter member, said she was pleased with the outcome of the day. ‘I am leaving motivated and better informed about how to support my chapter and maximise our presence, impact and engagement,’ Ms New said.

An international chapter planning day was held 28-30 March in Kuala Lumpur.

The next domestic chapter planning day is scheduled for Saturday 7 February 2015. For more information on QUT alumni chapters, please visit www.qut.edu.au/alumni

Fostering Executive Women

The Fostering Executive Women (FEW) Executive Conversation Series for 2014 will kick off with Rosemary Vilgan, Chief Executive Officer of QSuper and 2013 Telstra Australian Businesswoman of the Year.

As conducting business becomes increasingly global, this conversation series will explore how competition, markets and consumers can no longer be defined by geographic regions and how this has impacted on the careers and businesses of women.

Date Wednesday 30 April 2014
Time 5.30–7.30pm
Venue EEC, Level 4, B Block, QUT Gardens Point campus

Interested in joining a QUT alumni chapter?

Tap into a network of fellow alumni with shared experiences by joining a QUT alumni chapter in your area.

Six chapters are currently looking to expand their membership. If you would like to become involved in one of the alumni chapters for Canberra, Creative Industries, Law, Sydney, The Big Lift and Young Alumni, contact the alumni office at alumni@qut.edu.au

Golden Graduates Morning Tea

Due to the G20 occurring in Brisbane in November 2014, the date for this year’s Golden Graduates Morning Tea will be Saturday 18 October 2014. If you would like to attend please place this date on your calendar and contact the alumni office via email alumni@qut.edu.au or phone +61 7 3138 4778 to update your details.
Universities might be widely respected as orchards of knowledge, but they are not always seen as good as they should be in selecting the right fruit and spreading the bounty.

In Australia there have long been concerns about the apparent lack of priority given to the needs of the economy and society, and consideration is being given to embarking on an exercise of formally assessing the impact, as well as the academic quality, of Australian university research.

This follows the trial of such an assessment in the UK, where there has been a similar long history of concerns about the lack of practical engagement by universities.

Done properly this could provide valuable information and, arguably, more incentive for universities to follow QUT’s lead in giving priority to research that concentrates on practical issues and engages business, professional and community partners.

But we also need to be careful not to focus research policy too much on the past. What matters is research that enables us to deal better with the future.

Biotechnology is a key part of that future, and one where universities can readily demonstrate visible engagement and results.

In many people’s minds biotechnology is about human health, the development of new therapies and devices, and their commercial development. But plant biotechnology is of at least equal importance.

There are important debates to be engaged about the risks of genetic modification. Equally, there needs to be an understanding of the potential for the field of plant biotechnology to contribute positively to addressing some of the world’s most pressing problems, particularly those of nutrition, economic development and alternative fuel generation.

This issue of QUT Links includes a two-page spread on the vital work being done by our Centre for Tropical Crops and Biocommodities, which is part of our Institute for Future Environments. The scale of potential impact here is enormous, giving millions of people around the globe hope for improved nutrition and economic improvement.

Consider the stakes involved in just one project, the development of bananas resistant to TR4 Fusarium wilt. An earlier relation of this fungus was responsible for what was known as Panama disease, which nearly wiped out the global banana export industry more than half a century ago before the adoption of the familiar yellow Cavendish banana. However, Cavendish is not resistant to TR4, which also cannot be controlled by chemical fungicides, and the race is on to find a new alternative.

Today the banana industry is more economically important than ever before, with production globalised and the fruit comprising the main export commodity for several nations. In Africa bananas are a staple food for many people and a vital source of income to many who struggle to make a living off the land.

If TR4, which has already been detected in Darwin, spreads widely then the potential risks for our national banana industry would be multiplied greatly across the developing world.

This work in the Centre for Tropical Crops and Biocommodities is a very good example of QUT’s efforts to link cutting-edge knowledge with the most pressing problems of our age.

It is also a great example of how the university’s research capacity has matured over the past 25 years. Staff and students past and present can be proud of the role they have played in QUT’s many successes and I look forward to seeing as many of you as possible at our 25th anniversary dinner on 10 September.

Professor Peter Coaldrake
Vice-Chancellor