HOW TO TRAIN YOUR ROBOT
Hands-on projects creating complex, cooperative robots

INVESTIGATIVE GENETICS
Using DNA to create real portraits of real people

FROM GOTHAM CITY TO NYC
Could Batman save the United States, for real?
You’ve had over one year as VC, what’s been your biggest learning?
One of the more enjoyable aspects of this job is that I’m constantly learning! Particularly at the moment, with the dynamic national and international environment for education there is always something new happening; a new challenge that we haven’t come across before. It’s endless! And in many ways that has been the biggest challenge, but because we have such a clear vision and strategic priority areas it’s always been a case of making sure everything that I’m doing ties back to those priorities. Perhaps the other important learning for me this year is how to best influence public policy debate – it can be much trickier than I anticipated.

Proudest moment of the year so far?
There have been a couple. Standing on Alumni Green after all the openings had been completed, looking around at the transformation the university has achieved (both the buildings and the teaching approaches inside), with a key federal minister who had repeatedly voiced their opinion during the tour at how unique UTS is amongst Australian universities. The second would be my first alumni event in Hong Kong. Just hearing the stories of how our graduates are shaping the world made me almost burst with pride for what our institution is doing.

On the personal front, my two kids have taken to fencing with a vengeance. I may be biased, but I think both Eleanor and William have great potential – and very different styles. Eleanor, the eldest, is very calm and precise, while William is, as usual, a bundle of energy and movement. Seeing their rapid progress, and more importantly their utter enjoyment, is a delight.

What are you looking forward to in 2016?
As I said at the recent staff forums, 2016 is all about “unleashing UTS!” We’ve got fabulous new buildings and new facilities – a truly world-leading campus – it’s up to us, the UTS community, to make the most of this period of opportunity.

With so much changing in the workforce, so many careers and roles that will be created that don’t exist yet, I’m excited about continuing our innovative approach to teaching and learning and seeing us develop and roll out more cross-disciplinary courses. Throughout 2016 we will be focusing on providing a quality student experience that will equip UTS graduates with the skills they need to be leaders in their chosen careers, and even more importantly, making a positive difference to society.

I’m also really looking forward to growing our community here at the City campus and building on the vibrancy we have – firstly, by welcoming the Kuring-gai community, and secondly, through our staff growth strategy.

One thing I’m not looking forward to is farewelling our Chancellor Professor Vicki Sara, AO. Vicki is retiring from UTS in February, after 11 years as Chancellor and an even longer career dedicated to science, research and the higher education sector. It has been a pleasure and a privilege to have worked with her over the last six years – I will miss her wisdom, energy and wit immensely. Vicki will certainly be a tough act to follow, but we will do our best to find the right fit for UTS in our new Chancellor.
Gutsy is a second-generation personal robot (PR2), the first and only in Australia. UTS, together with Stanford, MIT, UC Berkeley, U Tokyo, Samsung and Bosch, are the only research group in the PR2 research community. Photographer: Mary-Anne Williams

NEXT ISSUE
This is the last issue for 2015.
The next issue of U: magazine will be released on Monday 7 March 2016.

All U: articles are available to read online via newsroom.uts.edu.au
Send your story ideas, opinions and events to u@uts.edu.au

discover, engage, empower, deliver, sustain

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WHAT’S ON: NOVEMBER & DECEMBER

ART & U: UTS ART COLLECTION
At the start of 2016, UTS will make the historic shift to a new academic calendar with three balanced teaching sessions. The change not only signifies a renewed and contemporary structure for UTS, but also more flexibility for students and staff.

Environmental scientist and First-Year Coordinator for the Faculty of Science Megan Phillips is embracing the change and the challenges it presents.

One of the biggest, she says, is the introduction of Orientation and Preparation weeks at the beginning of each session. Phillips believes these weeks offer a valuable opportunity for students to ease into their studies and hit the ground running when classes start.

“For my first-year subject called The Biosphere, I’m going to offer an online learning package to set my students’ expectations about the class. It will include an overview of content but I also want it to demonstrate that we’re taking the long view about their career as a future scientist,” she explains.

Next year, Phillips will also be teaching an industry-focused third-year subject called Environmental Remediation, and although she isn’t looking to offer either course in the new Summer session, she does see the potential opportunities. “A lot of what we do as environmental scientists depends on patterns in nature, so the interesting thing about the balanced teaching periods model is there might be really unique annual species patterns that could be explored in summer subjects.”

Phillips’ chief concern about transitioning to the new calendar is making sure her students receive the same high-quality education, and that condensing subjects into 11 weeks doesn’t dilute their learning.

It’s a perception Director of the Institute for Interactive Media and Learning Jo McKenzie, is also anxious to dispel. “Students have at least the same 14-week period to learn as they always had, the time is just distributed differently,” she explains.

In addition to helping staff prepare for the new academic calendar, McKenzie is also part of the team spearheading learning.futures, the conceptual shift shaking up traditional learning methods at UTS. She acknowledges that change can be hard, especially with the time pressures facing academics, but is convinced the new calendar can be a “transformational trigger” for people to consider learning in a much broader sense.

“One point we’re eager to get across is that learning happens anywhere. It happens on the bus and on the train; it happens when you’re in the shower in the morning – that’s one of my favourite places! With the opportunities presented by new technologies, I’m hoping teachers will ask themselves, ‘How can my students best learn to become lifelong learners and sought-after employees – or entrepreneurs – in the 21st century?’ and adjust their subject designs accordingly.”

To ensure her students cover the necessary content, Phillips is employing a program called the Learning Futures Loop. For this, students undertake a contextualising, out-of-class, online learning experience, including online modules, readings, scientific research papers, mini documentaries and media articles. This is then followed by in-person workshops, and a reflective or practical assessment.

“This feedback immediately lets me know whether or not they are learning what they need to,” she says.

Despite the challenges of change, Phillips is excited about the future. “I love the direction that UTS has been taking with education. Linking online learning with the in-person experience is so important and is one of the best ways we can prepare students for the modern workplace.”

Penny Jones
Marketing and Communication Unit
Photographer: Shane Lo

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AROUND U
HOUSING
ITD

There’s an app for that

For students in UTS Housing, paying rent, lodging maintenance requests and even making friends will soon be in the palm of their hands, thanks to a new mobile app.

In a first for UTS, the Information Technology Division’s (ITD) Application Development and Integration team has developed an app, in-house, that integrates with existing tools and systems to support the 1152 residents currently living at UTS Housing.

Communications and Off-Campus Housing Officer Sophie Erpicum explains, “Finding out what’s happening in their residence, getting important notifications, submitting a guest request, or even finding out who else lives in the same building isn’t always easy and students currently still have to go through websites, social media, reception and more just to get information.”

The app will let UTS Housing residents access everything they need, anywhere, at any time. It has been designed to streamline administrative tasks and enhance the community atmosphere of UTS Housing. And with international students making up two-thirds of housing residents, the app is set to make a big difference, particularly for those new to UTS and Australia.

“It will be like a home-base so that we don’t have to go searching on Facebook or the UTS website for everything,” says visual communication student and Resident Networker David Simpson.

Erpicum says the app will also “improve the way we communicate with our residents.

“Mobile phones are a big part of students’ lives nowadays so we wanted to embrace that online community and make sure we can get emergency notifications and other important information out to residents through a single channel.”

The UTS Housing app is not only the first native app for UTS, it’s the first time ITD have used the Azure cloud platform and C# coding for a project.

Senior Analyst Programmer Dane Casserly explains the issues with creating an app that can communicate to everybody.

“One of the key requirements for the app was that it had to work on Android and iOS,” he says. “Traditionally, to make that work you have to write two very separate programs, each using their own coded language – it’s like having the same product but one is written in French and one in English.”

With consideration to time and budget, the small ITD team had to be smart about how they moved forward with the development. The solution came through Xamarin – a system that enables developers to write native iOS, Android and Windows apps with just one coding language.

“It’s pretty cool,” says Casserly. “It allows a single person using the Microsoft coding language, C#, to write for multiple mobile platforms.”

UTS Housing residents were involved in the testing and production phases to check the app functioned as it should and to suggest enhancements. Key features designed to help students include a system to find friends based on shared study areas or interests, an event calendar, links to forms and a live news feed.

Says Simpson, “The app will really benefit the life of a resident through the features it provides. I’m really looking forward to using it once launched.”

Erpicum agrees. “Building an app has been a fun and exciting experience. So many enthusiastic people were brought on board. I can’t thank ITD, all the UTS residents and the Housing staff enough for all their involvement, as they have made this project become a reality.”

Hannah Jenkins
Marketing and Communication Unit

App image: Sophie Erpicum

Comment on this article at
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newsroom.uts.edu.au/news/2015/11/theres-an-app-for-that
Imagine being able to create a real portrait of a person using a DNA sample. It sounds like something straight out of a Hollywood blockbuster, but new research in the Centre for Forensic Science is turning science fiction into reality. The implications for identifying victims of natural disasters and unsolved crimes are enormous.

During the last 25 years the use of DNA profiling has absolutely revolutionised forensic investigation. It has provided an unprecedented level of sensitivity, specificity and statistical significance.

The current use of human DNA for the purpose of individual identification relies strictly on comparative grounds – DNA profiles obtained from crime scene material are compared with those of known potential suspects or in the case of paternity, with the alleged father. Similarly, in mass disaster or missing person cases, DNA profiles obtained from an unknown person are compared with those of known relatives, or with direct reference samples from items belonging to the missing person.

During my career as a forensic DNA officer overseas, I saw a lot of serious criminal cases. In many of them, I was able to obtain a DNA profile – that unique ‘barcode’ used in human identification. From that, I was often able to find a matching suspect’s profile. Bingo – case solved! However, in others, where the suspect was not available or no match was produced in the DNA database search, the so-powerful DNA evidence provided no help in solving the crime.

Now, imagine if we could ‘convince’ the DNA molecule to ‘talk’ and give us information about the physical appearance of the person it came from. This kind of information would be absolutely invaluable.

In the last few years this rationale has given rise to a brand new forensic discipline: Forensic Molecular Phenotyping or in other words, ‘Investigative Genetics’. This field of research seeks to obtain additional information about the source of a DNA sample, which might generate an investigative lead such as skin, eye and hair pigmentation, ancestry and more recently, facial morphology.

And that is exactly the focus of my research. In my recent PhD project I was analysing thousands of specific ‘bits’ of our DNA that are responsible for the differences in the way we look. For example, our face – the size and shape of the nose, eyes, ears and other facial features like the eye lids and ear lobes, or our pigmentation (the colour of eyes, skin and hair). These specific ‘bits’ are called single nucleotide polymorphisms (SNPs) and represent a single change in our DNA.

There is a remarkable variety of human facial appearances, almost exclusively the result of genetic differences. However, the majority of the genes and specific genetic variants that affect the size and shape of the cranium and the soft facial tissues are still largely unknown.
In order to find the specific SNPs that influence our facial morphology, I collected DNA samples and 3D facial images, along with extensive phenotypic information and ancestry, from almost 600 volunteers. Those images were analysed with graphical software to collect over 100 craniofacial measurements. Then I used next-generation sequencing platform and bioinformatical software to genotype and analyse the data to see which SNP corresponds to which facial features and other externally visible characteristics.

Surprisingly, I was able to find significant associations between 19 craniofacial traits and 78 SNPs, many of them novel (a summary of these results has been submitted for publication).

The results will not only enhance our understanding of the genetics that underpin the normal craniofacial morphology, but will also be particularly valuable in the forensic field, allowing the prediction of a person's appearance from a DNA sample.

How so? De-coding the DNA information about physical appearance will enable the development of a real image from a molecular identikit that could help to identify the offenders and assist with facial reconstruction in unidentified skeletal remains and disaster victim identification cases.

Eight months ago I was appointed as a new Postdoctoral Research Associate at UTS in Associate Professor Peter Gunn's forensic molecular biology group. Soon I will begin collecting more samples so that I can continue and extend my previous research. I'm aiming to collect over 1000 DNA samples and 3D images and am looking for volunteers to participate and support this project.

To find out more or get involved, email mark.barash@uts.edu.au or book an appointment at bit.ly/3D-DNA

Mark Barash
Postdoctoral Research Associate
Centre for Forensic Science
Photographer (M Barash): Shane Lo
Craniofacial images by: Mark Barash
DNA image: Thinkstock

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UTS:NEWSROOM
newsroom.uts.edu.au/news/2015/11/investigative-genetics
For 75 years, Batman has led Gotham City’s crusade against injustice and the tyranny of villains. In the aftermath of 9/11, is it possible the Dark Knight could also save the United States; this time for real?

Is Batman real? You’ll either scoff or raise an eyebrow at that question. If you’re a research academic, however, your response may come in the form of another question: What do you mean by ‘real’?

PhD candidate Chris Comerford is asking (and attempting to answer) this question through his research. The young academic and graphic novel enthusiast is exploring whether the Batman franchise may offer a more realistic and nuanced view of America than other popular culture.

Comerford explains, “Batman offers a realistic portrayal, or a gothic mirror and representation of the real-world United States – a nation fuelled by fear and responses to criminality, that sometimes resorts to extraordinary measures to ensure security.”

In his research, Comerford explores critiques of America’s ‘imperialism’ in response to multiple attacks, including on the Twin Towers, on 11 September 2001. With no shortage of academics and pop-culture examples to draw from – Batman stories appear in comics, video games, television shows, movies, web clips and more – Comerford argues Batman offers an implicit critique worthy of more attention.

“There are no Batman stories that directly engage with 9/11, in contrast to Captain America who does have stories like that. There are stories where there are links to these problems but articulated through the superhero story genre. My thesis is teasing out those elements.”

As an example, Comerford cites stories where the Riddler takes control of all the cameras and screens in the city, drawing parallels with issues of increased domestic surveillance in the United States.

Part of the appeal, he says, was the representation of shades of grey in Batman’s moral decisions. “One of the things that’s always defined Batman as a character is that he is not easily transfigured into a binary; he has always been a bit ethically questionable. Even though he does all these things with good intent, he shirks the law and there’s always this grey area.”

While there are other notable ‘Batman experts’ who have taken a critical look at the franchise, Comerford’s parallels with domestic horrors after 9/11 is bringing a new angle to the conversation.

“Batman comics look at issues of domestic surveillance, international efforts against terrorism, curtailing of civil liberties, without attacking them. These stories engage with them in a complex manner and that’s in direct contrast to a lot of contemporary pop-culture that seeks to dilute a lot of the conflict into a binary ‘good’ or ‘bad’.”

It’s this ‘shades of grey’ approach to topical issues that Comerford argues makes Batman a realistic reflection in pop-culture of the state of post-9/11 America.
As a finalist in last September’s UTS Three Minute Thesis competition (3MT), it’s perhaps unsurprising that Comerford hopes the implications of his research will reach beyond the academic realm. “I like that comics are able to do some things that novels can’t in being able to use visual shorthand to convey ideas. “I’d like people to start thinking about some of those issues within the popular culture they are consuming and not just blithely consuming it because it is popular. I’d like them to consume it, in part, because it has greater sub-textual and critical value.”

It’s something Comerford, a Casual Academic in the Faculty of Arts and Social Sciences, brings into his Language and Discourse classes. “A lot of the ideas we are dealing with work really well when synthesised with pop-culture. The students really engage with popular culture examples as conveyors of meaning and that really seemed to prove what my research is saying.”

“It’s something Comerford, a Casual Academic in the Faculty of Arts and Social Sciences, brings into his Language and Discourse classes.

“A lot of the ideas we are dealing with work really well when synthesised with pop-culture. The students really engage with popular culture examples as conveyors of meaning and that really seemed to prove what my research is saying.”

“I’ve been writing this draft for 14 months and it’s easy to get lost in your research and what your thesis is meant to look like. You can follow ideas and lose sight of the bigger picture. Doing the Three Minute Thesis, I got the sight of the bigger picture back again.”

Margot Kelly
Bachelor of Arts in Communication (Journalism)
Photographer: Shane Lo

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UTS:NEWSROOM

“BATMAN OFFERS A REALISTIC PORTRAYAL, OR A GOTHIC MIRROR AND REPRESENTATION OF THE REAL-WORLD UNITED STATES – A NATION FUELLED BY FEAR AND RESPONSES TO CRIMINALITY, THAT SOMETIMES RESORTS TO EXTRAORDINARY MEASURES TO ENSURE SECURITY.”
Associate Professor Sarath Kodagoda is known for his hands-on classes and engaging projects that keep his students motivated and inspired as they work through complex robotics subjects at UTS. He was recently recognised with a national Citation for Outstanding Contributions to Student Learning for his role in leading curriculum innovation in the mechanical and mechatronics engineering undergraduate major.

The major has experienced a steep increase in popularity due, in part, to the growing prevalence of robots in our world, and reasons like Kodagoda’s teaching style.

“People like to see robots moving around, they find it fascinating,” says Kodagoda. “But the problem comes when there are things around it. How does the robot know where the obstacles are and where to go? That’s the part students find challenging.”

It’s a big leap from making a simple robot with a micro-controller to creating an autonomous robot with real-world applications. Kodagoda has solved this problem by introducing a hands-on project (and some healthy competition) to the course to motivate his undergraduate students. The idea came from postgraduate research conducted in the Centre for Autonomous Systems.

“I looked at our rescue robots,” says Kodagoda, “which can go into disaster zones and make autonomous decisions, and I decided to use this idea in the Mechatronics 2 subject.

“So now we have a rescue scenario in the form of a maze: students need to create a robot that can navigate within the maze or ‘disaster zone’, create a map of the area, find the target or ‘survivor’, and then come back through the maze by the fastest route – all on its own.”

Sounds difficult? The maze also includes a cliff and an invisible infrared barrier to really test the sensing capabilities and reaction times of the robots.

“Getting through the maze project involved a lot of late nights,” says undergraduate student Ben Barnes. “But the first time we saw our robot solve the maze was awesome – it was the first time I felt like I’d created something autonomous; a ‘real’ robot.”

PhD candidate Alex Virgona agrees. “The practical component of these subjects is what makes them so engaging. The maze also has a competitive element where teams of students egg each other on to produce better and better solutions to the problem.”

The team with the best performing robot from the Autumn session Mechatronics 2 subject then goes on to compete at the National Instruments Autonomous Robotics Competition (NI ARC) – another opportunity Kodagoda has spearheaded for his students.

He’s also pioneered to establish the UTS Robotics Society (RoboSoc) for students looking to immerse themselves in robotics outside the classroom.

Says Kodagoda, “This isn’t about how well I teach, this is about how well the students learn – I don’t want to restrict learning to the classroom. Of course, students need to learn in class but I also think they need to do stuff outside the classroom in their own time and as they wish.”

The idea of autonomous robots performing search-and-rescue missions or helping us in our day-to-day jobs sounds very cool. However, actually creating a robot capable of doing something meaningful is incredibly challenging.
Barnes, one of the founding members of RoboSoc, says Kodagoda’s role in setting up the extracurricular group has been a great benefit to students. “I’ve met a bunch of interesting and motivated people, and been able to work on some pretty cool projects.

“We’ve tried to create an atmosphere where members are encouraged to work on their own projects, and where they can ask others for help and advice in areas where they’re less skilled.”

Kodagoda has been vital in keeping the society running by helping students secure funding, putting them in contact with other faculty members, and helping to manage and improve the students’ robots in external competitions. Thanks to his support, the RoboSoc has more than 60 active members, with students developing their own robots over a period of years, rather than being restricted to a single teaching session.

Says Kodagoda, “My goal is to create more self-sustaining co-curricular opportunities for the students so they stick to campus and have a better experience.”

One such project involved students working with Northcott (a support and services provider for people with disabilities) to design a wheelchair-mountable cricket bat. With Kodagoda as mentor, a team of highly engaged undergraduate students met with the clients several times for requirements gathering before presenting a final design.

Now, two years on, the design has been transferred to Northcott under UTS’s open access IP license and manufactured for the client, benefiting both the students’ learning and the community.

Kodagoda’s hands-on projects throughout the mechanical and mechatronics engineering major grow valuable skills around time management, teamwork and problem solving – essential capacities for career-ready engineers.

The practical element of the course is the main reason Virgona decided to study at UTS. “Rather than learn how to do a specific job, I learned a thinking style which has enabled me to break large problems down into smaller ones and solve them systematically. This has not only made me a valuable addition to any engineering team but also changed my approach to other areas of my life.”

Barnes agrees. “I was expecting to be overwhelmed with tough theory and maths, but I feel like there has been so much focus on professional practice, ethics, communication and teamwork.”

And that team-based approach to problem solving, says Kodagoda, is the reason he’s been so successful in his work.

“I really enjoy working in a team and one of the reasons I like UTS is because we have a very good team. We collaborate when there’s a problem and I feel we can take more opportunities as they come because of the team environment.

“For me, so far I’ve achieved what I wanted, so I’m happy!”

Hannah Jenkins
Marketing and Communication Unit
Photographer (S Kodagoda and robots): Shane Lo
Circuit board image: Thinkstock

“THIS ISN’T ABOUT HOW WELL I TEACH, THIS IS ABOUT HOW WELL THE STUDENTS LEARN – I DON’T WANT TO RESTRICT LEARNING TO THE CLASSROOM.”

Sarath Kodagoda
‘Simplicity’, ‘PilWorkatronix’ and ‘Shinbreaker’
RETURN TO HER ROOTS

At only 26 years of age, Stephanie Gonzales has gone from student, to intern, to Recruitment Advisor; all at UTS.

She first came to the university as a Bachelor of Business student in 2007, where she majored in human resource management and sub-majored in management consulting and public relations. Thanks to internal and external opportunities, Gonzales soon found her calling – helping young people achieve their dreams.

Today, she continues to do that, delivering career-related workshops, reviewing resumes and offering advisory consultations for students through the UTS Careers Service drop-in service.

“My role is to cultivate and enhance the employability of students at UTS,” Gonzales explains. “I provide support for those students who are looking for work or needing career direction.

“On any given day I could meet with a mature-age student, a PhD student, international student, or someone who is straight out of high school, so there is a lot of diversity there, and the thing I enjoy the most is being able to help them, even in a small way.”

Gonzales is the first to admit, however, that career development wasn’t an area she envisioned working in when she started her degree. Five years after her first internship with the UTS Careers Service, and other full-time roles in the banking industry, Gonzales made her way back to UTS.

That first internship, explains Gonzales, was a three-month stint as a resume reviewer with the UTS Careers Service. She then secured a second internship in the Human Resources Unit.

“Initially it was just another three-month internship, where I was a Human Resources Administration Assistant, and then they extended that and I went into the role of Human Resources Officer.

“I enjoyed both internships. They were in different areas of human resources, so I got great insight into my different career options. And, being such a large organisation you get to meet lots of different people.”

After graduating from UTS in 2011, Gonzales went on to secure full-time employment with Macquarie Bank and later, Morgan Stanley Wealth Management Australia.

“When I was working in recruitment at both Macquarie Bank and Morgan Stanley, I worked mainly with new graduates and students. I enjoyed that aspect the most, and that was actually what prompted me to come back to UTS and work in the Careers Service,” she says.

“UTS is very forward-thinking, which I like, and it’s culturally diverse; it’s a very inclusive environment.”

When asked where she sees herself in five years, the self-confessed “sushi enthusiast” and “keen traveller” says, “I would really love to stay in the university environment, and working with university students and graduates. It’s where I want to be.”

Lexy Akillas
Bachelor of Arts in Communication (Journalism)
Photographer: Shane Lo

Comment on this article at
UTS:NEWSROOM
James Tawadros isn’t your run-of-the-mill 26-year-old. He’s a scientist, ARIA-winning percussionist and "die-hard for Mozart".

“My favourite piece is the Requiem," he says. “It’s a bit sombre, but it’s something I feel is really underplayed here. Whenever there is a Requiem performance I have to go.”

Thanks to his parents, says Tawadros, music has always been part of his life. He started touring with his brother, Joseph (also a professional musician) at 15 and by the age of 17, undertook his first subscription series, the Travellers, with the Australian Chamber Orchestra.

“We did a national tour in 2006, and it was my HSC year,” smiles Tawadros. “That was the year everyone thought I would fail from touring but, whatever, I got through that one.”

Since then, Tawadros and his brother have been nominated nine times for Best World Music Album at the ARIAs and won three – in 2012, 2013 and 2014. (The 2015 ARIAs, for which they’re again nominated, will be announced on 26 November).

He’s also worked on the soundtracks for documentaries and feature films including The Black Balloon starring Toni Collette.

“I’m a percussionist,” explains Tawadros. “I specialise in Egyptian percussion – different frame drums and different kinds of tambourines. I’m a guest soloist with the Australian Chamber Orchestra and I regularly play with Gypsy bands and flamenco bands.”

It may seem a little curious then, that Tawadros has studied both a Bachelor of Medical Science and a Master of Science in Biomedical Engineering at UTS.

But he says, “There is a great deal of creativity in these disciplines. I honestly believe that to be a successful scientist you have to be creative. It’s not about learning what’s in books and learning what you’re told, it’s about that search for knowledge and truth.

“The funny thing was, throughout my undergrad degree I tried to keep a lid on the musical side of things. I wanted to separate the two worlds, like on Seinfeld – you know, ‘independent George’ – I didn’t want the worlds to collide.”

Of course, it hasn’t been all red carpets and recording studios. “As a kid, my mum was quite ill,” recalls Tawadros. “Towards the end of my undergraduate degree, mum passed away. And just before graduation my dad also passed away.

“Needless to say, I did have a really tough time and I thought I wouldn’t finish my degree. It was like, ‘What’s the point?’ But you start to realise you don’t do these things for others, you do them for yourself.

“And if you are to honour their legacy in any way, it’s to make sure you succeed.”
and right now is a crucial moment for her. There’s still quite a stereotype in the industry – like you need to be a programmer or you need to like games or know how to fix computers – but the set of skills required are much broader than that. The nature of the industry is changing. Work arrangements have become more flexible for both men and women and in the long term I hope this trend continues and women will have more opportunities to continue their careers whilst balancing life outside work.

With Harsimran, I’ve tried to break those stereotypes. There are all sorts of people out there; men and women, working together with different skills to deliver the services and products required by telecommunication networks. Today, I’m a Technical Support Engineer for Fixed Networks with Alcatel-Lucent. We support access networks products like Fiber To The Home or Node (FTTH/FTTN) after they are installed and up-and-running in the field. Problems can be related to hardware, software, firmware, cabling, configuration, networking or interoperability problem, anything. Our main customers at the moment are Australian telecommunications companies like NBN Co and Telstra.

A lot of people say, ‘I don’t have time to mentor’, or ‘It’s just one student, what difference does it make?’ But I can see the difference it makes. To step into a multinational company on the first day of work or the first day of an internship is such a scary and intense situation. The Lucy Program is introducing women to that corporate environment. It provides a more personal view of situations and people. It’s 35-hours of work-based mentoring spread over a period of four months. The structure UTS has for this program is great. I hope it continues to be supported because it reaches a large number of women and the changes it makes to people’s lives and careers are fantastic.

I first heard about the UTS Lucy Program through one of my workmates and I thought what UTS was doing was so important that I applied to be a mentor then. My main objective with Harsimran is to show her the wide range of work available in telecommunications. She has learned about my job and she has also met with other managers and engineers and listened to experiences from different women in the company. Everything that she has been exposed to, all these different points of view will add a lot to her experience.

The focus is very much on mentoring on a personal level, rather than on a technical level. And it has been very personal because I’m on maternity leave this year. I took my baby with me to some of our meetings as I wanted to show her that this is part of life. It could be that Harsimran chooses to have children, or not, but the decisions you make and the way you handle your work and your commitments can make a difference to your career in the long term.

I identify myself quite a lot with Harsimran. I think she is a very capable young woman with a lot of potential and I think she has a lot of potential.
The Lucy Mentoring Program and internship have really built up my confidence. I think mentees are more confident if there is a sense of trust – you can easily share your feelings and talk openly about what you need, what problems you are facing and then your mentor helps you, guides you. I feel really happy that Adriana has helped me and thank WiE&IT and Alcatel-Lucent for giving me this opportunity.

To find out more about the Lucy Mentoring Program, visit uts.ac/1Pc2lmy

Fiona Livy
Marketing and Communication Unit
Photographer: Shane Lo
Every Friday, at 5pm sharp, a small group of international postgraduate students gather together. They meet to practice their conversational English and bridge the cultural divide by sharing knowledge, experience and laughter.

Welcome to English Corner – an informal English language conversation group based in the Quantum Computation and Intelligent Systems (QCIS) Research Strength. English Corner is the brainchild of Maoying Qiao, a QCIS PhD student from China.

Qiao, whose PhD investigates ‘diversified probabilistic graphical models’, was drawn to UTS because “I wanted to explore the diversity of practical applications for basic graphical models to solve real-world problems. “Graphical models, which use graph-based representations as foundations for encoding a complete distribution over a multi-dimensional space, are applied in an enormous range of application domains including speech recognition, natural language processing, web searching and image understanding. My research explores the diversity of their usage across a wide variety of practical applications to help either extend existing mature graphical models or guide the design of new graphical models.”

Qiao was inspired to start English Corner after attending the university’s Higher Education Language and Presentation Support (HELPs) Conversations@UTS sessions last year.

“I had lived in Sydney for over two years and although I read English newspapers, wrote academic papers in English, communicated about my research in English and gave presentations in English, I didn’t actually speak much conversational English. I had no confidence to open my mouth,” explains Qiao. She enjoyed the daily HELPs conversation classes so much, Qiao decided to share what she had learned with her QCIS colleagues – a research centre with a rich mix of cultures and backgrounds.

“Thanks to HELPs, I’m becoming more confident with my spoken English. I wanted to share what I’ve learned so I came up with the idea of a regular event where students could meet socially and practice their spoken English. QCIS and the School of Software welcomed the idea and encouraged me to start the group.

The group, which started with 12 students, is growing every week and includes both English as a second language and native English speakers.

“Each week we do something different. We’ve been introduced to some Australian games like pub trivia. We’ve been tested on our knowledge of Aussie etiquette and manners – especially on appropriate topics for dinner conversation – politics, religion and salaries are not good topics. We’ve also learned about pop culture and tried Australian food. I had Vegemite and avocado for my breakfast every day after I tried it once in our English Corner activity,” says Qiao.

“The activities that involve everyone speaking and having fun are the ones that help expand our vocabulary the most. We’ve also talked about our different cultures – exchanging cultural or personal experiences opens your mind and increases tolerance,” she says.

Teresa Ashworth and Jemima Moore are Administrators in QCIS and the School of Software. They also double as English Corner’s volunteer native English speaking tutors. They say the group has been a fun and supportive way for students to develop their language skills, boost their confidence and make new friends.

“It’s given me the opportunity to get to know the students. It’s a small step to achieving the school’s aim of building a closer working relationship with QCIS staff and students so they feel they belong to their school as well as their research centre,” Ashworth says.

“It’s great to see the students relaxing and feeling more confident with their English conversation skills whilst making new friends and learning about Australian culture. We also really enjoy learning about their cultures,” adds Moore.

Qiao plans to continue with, and build upon, English Corner next year. “Everyone has so many great ideas that we’ll continue doing different things. We may cover more academic-related activities like mock presentation practice and conference networking. It’s a work in progress.”

Amy Ripley
Postgraduate Certificate in Journalism
Photographer: Shane Lo

Comment on this article at
UTS:NEWSROOM
Saturday 10 December, 1994: That’s the day Renee Summers disappeared. Her bag, shoes, make-up, passport, plane ticket and keys are found scattered around the suburb in which she was last seen by “an acquaintance”. The 21-year-old escort is never found. Fast-forward two decades and her killer and whereabouts remain unknown. The task of finding Summers falls to rookie Detective Dimitri Telegonus and Detective Senior Constable Gale ‘Rhino’ Ryan. Will the pair finally pin the crime on main suspect Gregory Omri Samsa – the last person to see Summers alive – or will their investigation uncover new leads that point to the killer? Detective Work may sound like a typical whodunit, but it’s so much more. Author John Dale seamlessly weaves a series of subplots into his novel – police corruption, an absent father, the young detective’s sometimes-rocky relationship with his academic girlfriend and Telegonus’s ‘green-thumbed’ mother who has been charged with cannabis cultivation on Tasmania’s Bruny Island. All-in-all Detective Work is an enthralling read; one that will lead you to champion I, for one, found it refreshingly real. and Ned Kelly Award-winning Huckstepp. The 21-year-old escort is shortlisted for the ALS Gold Medal 2014. Can we save the planet and end food shortages by reducing the amount of meat we eat? Meat the Future is a compelling selection of international research and expert opinion investigating the environmental, social and economic issues linked to meat consumption. Our addiction to meat contributes significantly to challenges like climate change, loss of biodiversity, food insecurity, resource inefficiency, and water and land pollution. The compounding effect of current meat-eating habits is pushing to the brink the ecosystems we rely on to survive. Yet these inconvenient truths have been largely absent from public debate. In this engaging and easy-to-follow book, Stuart White and Dana Cordell from UTS’s Institute for Sustainable Futures contribute a chapter on phosphorus security. Their important research shows diets heavy in meat are a key driver of phosphorus use, a vital nutrient in agricultural production. This non-renewable resource will become increasingly scarce, leading to food and water insecurity as well as volatile food prices. And with the world’s population projected to increase by 1 billion over the next 12 years, serious questions need to be raised as to whether a meat-heavy diet is viable. Movements like Meat Free Mondays show it’s easy to reduce meat consumption and increase more plant-based food consumption – a change that will be kinder to animals, the environment and our health.

Joanna Leonard
Equity and Diversity Unit

Eleanor Limprecht is a UTS Doctorate of Creative Arts graduate. Long Bay is her second novel. Her first, What Was Left, was shortlisted for the ALS Gold Medal 2014.
“Up to 85 per cent of Bangladeshi women have experienced sexual violence and 35 per cent of Indian women don’t feel safe at night,” explains Deputy Executive of ActionAid Australia Michelle Higelin.

“Cities are places of opportunity for women, but they are also places of danger and violence.”

In places like Bangladesh and India, says Higelin, infrastructure and public services have been unable to keep up with rapid globalisation and massive urban population growth, and particularly the needs of women. Higelin states, “Governments must increase spending on infrastructure whether it is traffic lights, or the maintenance of roads so women can access appropriate health facilities when their wellbeing is threatened.”

That’s why, last month, ActionAid (a not-for-profit international development organisation that operates in 45 countries) launched their Safe Cities for Women Campaign at UTS. The centrepiece of Safe Cities is a public exhibition of images, currently on display in the Tower foyer, by renowned photographer Stephanie Simcox.

The photographs capture the experiences of everyday women in Bangladesh and Cambodia as they work, study, move and live around their cities.

“The exhibition highlights how sexual violence, harassment and discrimination impact women’s lives and consequently their opportunities to succeed,” reveals Higelin.

She hopes viewers will not only gain an insight into the dangers women face in these cities, but also appreciate how fortunate Sydneysiders are living in the world’s sixth safest city.

The exhibition is being sponsored by UTS’s Equity and Diversity Unit (E&DU). “The Equity and Diversity Unit, with its commitment to social justice, human rights and gender equality, firmly support this campaign,” explains E&DU’s Administrative Assistant Spence Messih. “We have an obligation to maintain a safe, comfortable learning space at UTS and support safer environments and cities for women and girls to live in.”

Says Higelin, the Safe Cities for Women campaign aims “to make streets, public places, work places, learning institutions and transportation safer; so that women and girls are able to share in the vast benefits of their cities. We as global citizens need to demand safer cities for not just women but for everyone and condemn sexual violence against women living in developing countries.”

ActionAid’s Safe Cities for Women will be open to the public from 9am to 9pm until Monday 30 November. For more information, visit actionaid.org/australia

Angela Zhao
Bachelor of Arts in Communication (Journalism)
Photographer: Shane Lo
NOVEMBER & DECEMBER

Email your events for March 2016 to u@uts.edu.au by Monday 8 February.

**EXHIBITION**

**Safe Cities for Women**
Check out ActionAid’s latest exhibition - Safe Cities for Women - and discover the struggles women and girls experience daily that impact their rights - to live, learn, work, move freely and thrive.

- **UTS exhibition space**
  - 8 October-30 November
  - Building 1, level 4
  - actionaid.org/australia

**EXHIBITION**

**The Magpie Tree**
Newly returned to the walls of the UTS Tower, is a lively painting by Queensland-born artist Davida Allen, titled *The Magpie Tree*. Close inspection does not reveal the magpie of the title, but its presence is portrayed through the urgency of the two bike riders rushing past the tree.

Allen’s distinctive expressionistic style and heavily applied paint describes the scene in a simple, almost primitive fashion that glows with vibrant colour and movement.

Painted during the school holidays at the end of 1992, the artist has perfectly captured two of her children avoiding dive-bombing birds, a quintessential moment in Australian childhood.

She recalled of that time “… my daughters became excellent bike riders with one hand! In the other hand each held a stick to ward off the magpies.”

In the following year, *The Magpie Tree* was selected by the trustees of the Art Gallery of NSW as a finalist for the prestigious Wynne Prize for Australian landscape painting.

The painting was gifted to the UTS Art Collection by the artist’s husband Dr Michael Shera through the Australian Government’s Cultural Gifts Program.

It is currently on display in the UTS Tower foyer, above the stairway between levels 3 and 4.

Janet Ollevou
UTS Art

**FROM**

**26**

**INDEX**
Opening on Thursday 26 November, INDEX brings together the work of students from UTS’s Bachelor of Design in Architecture and Master of Architecture. Their body of work is multi-faceted but is anchored by a central interest in reshaping global cities.

- **Building 6, level 6**
  - Until 30 Nov
  - 6pm-9pm
  - festivalofdab.uts.edu.au

**STAFF TRIVIA**

Fancy yourself a quiz master? Or just after a good excuse for a good time with your colleagues? Gather together your team (of up to eight people) and get involved in ActivateUTS’s Staff Trivia comp.

- **The Underground**
  - Building 1, level 3
  - 12pm-2pm
  - To register, email your team name to laura.earl@uts.edu.au

Art & U profiles a piece of work from the UTS Art Collection every issue.
The world is an amazing place, especially when it’s up close and in high-def. Nowhere is this more obvious than in these two images by researchers from UTS’s Climate Change Cluster. The first is a close-up of Maze Brain Coral (*Faviidae: Platygyra sp.*) taken by UTS research scientist Olivier Laczka. The second is a cross-section of a seagrass leaf (*Thalassia testudinum*, or turtle grass as it’s also known) taken by UTS PhD student Stacey Trevathan-Tackett and her collaborator at the University of North Florida Amy Keagy.

Both were recently selected, from over 120 entries, as finalists in the Scimex Multimedia Hub image competition. The hub is a free collection of images, footage, audio and graphics provided by the research community for use by journalists, editors and producers. Its aim: to provide a visual avenue for science stories.

Photographer [Maze Brain Coral]: Olivier Laczka, taken in Poindimie, New Caledonia
Photographers [seagrass leaf]: Stacey Trevathan-Tackett and Amy Keagy, taken at the University of North Florida, USA