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August 2017

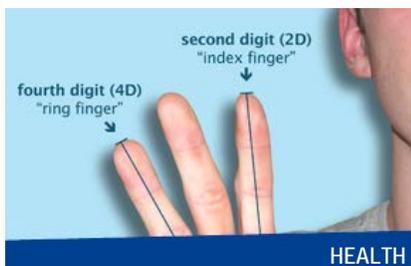
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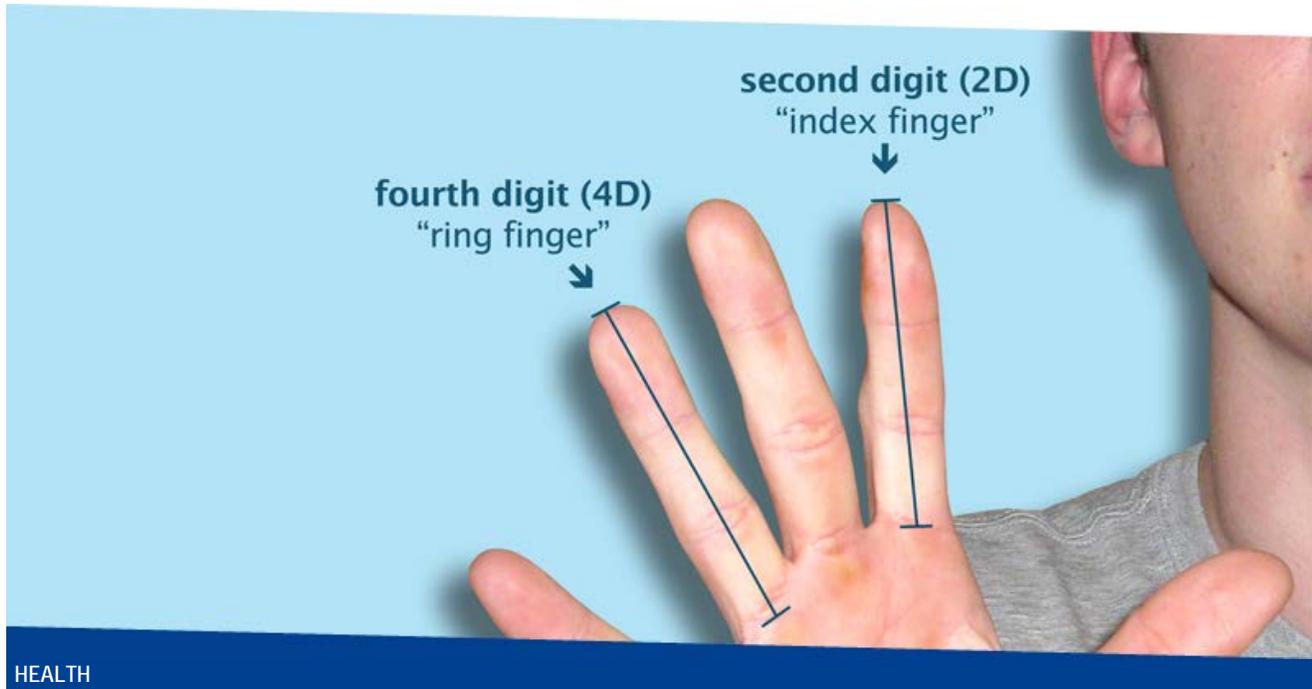
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The long and the short of sports success – it's all in the hands

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by Georgia Aish



HEALTH

Jordan Tomkinson and his digit ratio.

The difference in length between your index finger and your ring finger – known as your digit ratio - could be an indicator of sporting prowess, according to new research by a UniSA senior lecturer.

Research in the United States by UniSA's Dr Grant Tomkinson and his son Jordan, analysed the digit ratio of adolescent boys and its relationship to their sporting prowess.

Their results show that the lower the difference in height between the two fingers, the better sportsperson someone is likely to be, with handgrip strength an important indicator.

Dr Tomkinson says the ring finger in males is typically longer than the index finger, whereas the fingers are about the same length in females.

"There is some indirect evidence that this digit ratio of the length of the fingers is determined during early fetal development by testosterone – the more testosterone the fetus produces, the longer the ring finger, so the smaller the digit ratio," Dr Tomkinson says.

"Testosterone is the natural steroid hormone that enhances sport, athletic and fitness test performance. In general, people with smaller digit ratios are better athletes.

"For example, people with lower digit ratios tend to be better professional soccer players, basketball players, middle-distance runners, sprinters, fencers, sumo wrestlers, rugby players and rowers.

"Our study shows that boys with lower digit ratios have better handgrip strength and this is irrespective of their age or body size."

The study is the first to look at the relationship between the digit ratio and muscular strength in adolescent boys and found that the relationship likely reflects the long-term benefits of prenatal testosterone, especially its effect on growth and development of the musculoskeletal system.

During the study, 57 adolescent males from Sacred Heart School (East Grand Forks, USA) aged 13-18 participated by recording their age, digit ratio, body mass and right handgrip strength.

Given that muscular strength is an important determinant in success in many youth sports and athletic events, the findings suggest the digit ratio may predict performance in youth sports and athletic events requiring high strength.

With muscular strength also an important indicator of good health, the study also suggested adolescent boys with lower digit ratios have better general health.

The research paper *Digit ratio (2D:4D) and muscular strength in adolescent boys* by Jordan M. Tomkinson and Grant R. Tomkinson has been published in the [Journal of Early Human Development](#).

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UniSA home to new research hub for forestry innovation

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by Adam Joyce



COMMUNITY

A drone captures data at Mount Crawford forest. Two-dimensional images coupled with signals related to the drone's motion can be used to create complex, virtual three-dimensional tree structures for use in forestry research to be undertaken at UniSA's Mount Gambier campus.

A \$6 million forestry research and development hub will open at UniSA's Mount Gambier campus by the end of the year to support the South East's \$1.2 billion forest industry.

The new National Institute for Forest Products Innovation Hub is a partnership between UniSA and the state and federal governments. The state and federal governments have each committed \$2 million to the hub over four years, with industry bodies expected to contribute another \$2 million.

The hub will play a vital role in fostering collaboration, supporting research, boosting innovation, maintaining jobs and making Mount Gambier one of the major centres for forest-industry research in the country.

The hub's activities will enhance the strength of a region known as the [Green Triangle](#), which is already one of Australia's most important regions for growing and processing timber. The Green Triangle spans the border area between South Australia and Victoria, covering about six million hectares.

UniSA Vice Chancellor Professor David Lloyd says the partnership follows significant investment by the University in capacity and infrastructure at Mount Gambier.

Forestry hub given green light

ERIN JONES

A NATIONAL forestry research institute will open in Mount Gambier by the end of the year, after the SA Government tipped in \$2 million for its development.

The State Government yes-

The Advertiser, 1 August 2017

“UniSA researchers will be working to find innovative improvements and solutions related to water sustainability and quality, measuring and managing productivity, improving waste management and energy use, growing forestry through product innovations and marketing and ensuring a sustainable future for the industry in the Mt Gambier region,” Prof Lloyd says.

“As Australia’s University of Enterprise this is exactly the kind of partnership where our researchers can add value to industry and support economic growth in the State and significantly, in regional South Australia.”

An industry-driven regional advisory committee will be established to determine priority research projects for the forest and wood products industry – which currently supports about 4000 jobs in the South East.

Minister for Forests Leon Bignell says the facility will be a major asset for the South East, providing opportunities for local industry to influence research priorities.

“Cutting edge research is vital to any industry and forestry offers so much potential,” Bignell says. “It’s exciting South Australia will soon be home to one of Australia’s leading forest and wood products research institutes in the country.

“The allocation of this funding to the new institute is a fantastic way to ensure we carve out a solid future for the sector – in collaboration with UniSA, local industry and the Federal Government.”

The hub is expected to be up and running by the end of the year.

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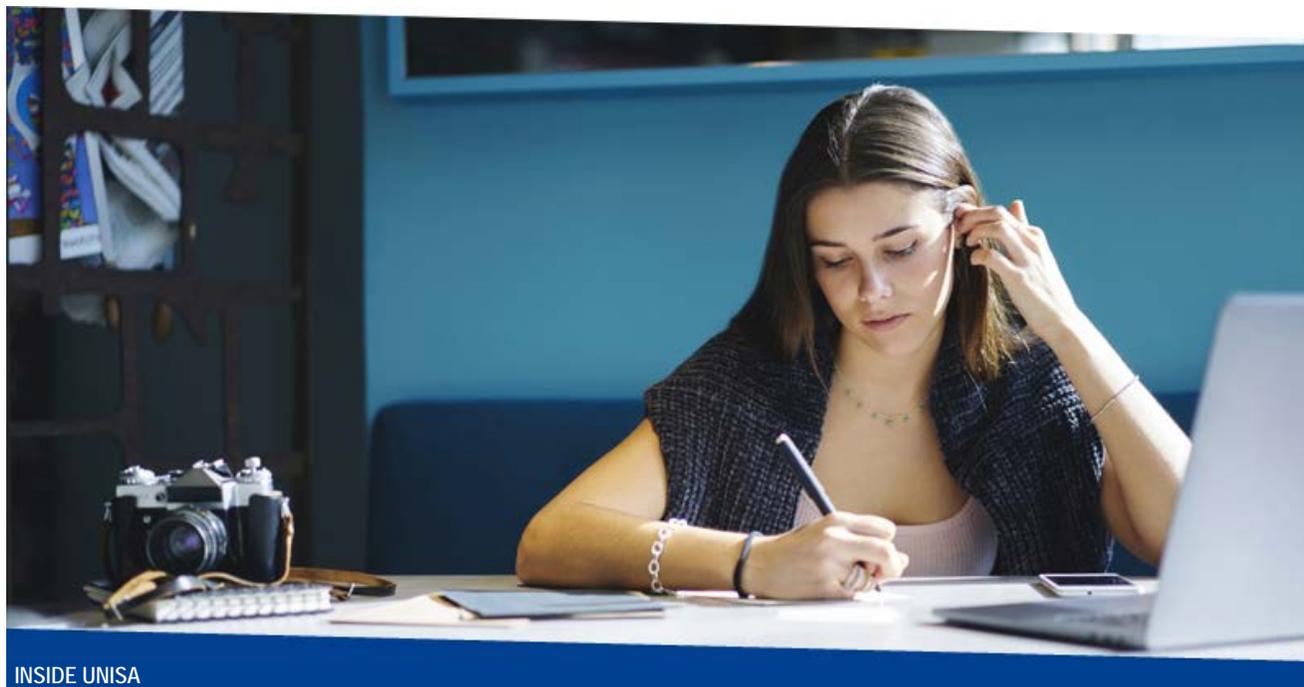
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UniSA launches 100 per cent online study

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by Katrina McLachlan



INSIDE UNISA

For more than 25 years, UniSA students have been able to earn a degree without having to step on to a campus. The launch of UniSA Online in September, builds on the University's history and experience to bring a suite of new career-focused 100 per cent online degrees, designed specifically for online learning.

[UniSA Online](#) opens up more opportunities for people who are looking to earn a degree to advance their career, or reinvent themselves in the workplace.

UniSA Online Executive Director Tom Steer is leading a talented team of learning experts, academics and support staff to develop the degrees and online learning experiences to help graduates achieve their career goals.

"We've been offering online education for decades," Steer says. "At UniSA Online, we're looking to deliver a new and enhanced online study experience, tailored to student needs.

"We have a team of expert academic developers and online educational designers who have worked closely with our experienced academics who teach on campus to design and present course content specifically for online learners.

"Each of our students will have a high quality online university experience where they'll interact with media-rich materials and specialist teaching staff, while building the skills in demand by their profession.

"UniSA Online degrees will give students full control and ultimate flexibility over their study. They aren't required to be online at a specific time and there's no need to visit a campus because all assessments are 100 per cent online, which is perfect for students combining work and study."

Students will also have access to support services seven days a week so they can get help when they need it.

Eleven UniSA Online undergraduate degrees ([see breakout story](#)) will start from 8 January next year. There will be starting dates spread through the year in January, April, June and September to allow students with busy lives to gain the skills and knowledge they need to, when it suits them, to make their mark in a chosen profession.

Courses will be offered in bite-sized 10-week blocks so students can absorb new information and remain engaged and motivated throughout the degree. A 24/7 interactive online environment provides continuous access to tutoring, technical support and learning resources.

Associate Dean of Online Education for the Division of Education, Arts and Social Sciences, Associate Professor Jodie George, is looking after the Bachelor of Psychological Science and Sociology, Bachelor of Digital Media and Bachelor of Communication programs and says all three degrees have been designed to significantly expand students' skill sets and industry connections and propel them forward in their careers.

Bachelor of Psychological Science and Sociology

"The Bachelor of Psychological Science and Sociology is a perfect example of a degree that supports a range of people to access and progress in the social services and health services sector which is one of the most significant sectors for employment growth," Assoc Prof George says.

"With an ageing population and the NDIS rolling out there are enormous opportunities in this sector. For people who may be working in the field and looking to move forward in their careers, or maybe for someone in another sector who's had a 'how am I going to make a difference?' moment, this degree is ideal.

"Even if people don't work in health or social services but have always wanted to study psychology or sociology, this program is perfect because the flexible structure where all course content is available from enrolment gives full control for study timetables to our students."

The degree will combine understanding of the behaviour of the individual – psychological science - with an understanding of behaviours in society – sociology; all informed by research.

"Students will also have many options when it comes to choosing specialised areas of study," Assoc Prof George says.

"A lot of students who take psychology degrees do sociology as their sub major or minor – we have put it into the program and then allowed students to select a specialist sequence of courses focusing on Ageing and Disability or Criminology.

"These minors combine both psychological and sociological understandings that can be applied in areas of contemporary workforce demand while building on the broad-based understandings students gain from the whole program."

She says the Bachelor of Communication and the Bachelor of Digital Media also have similar industry-focused specialities that make them unique degrees for people who are focusing on career progression or reinventing themselves in the workplace.

"The Bachelor of Communication offers students a combination of communication, writing and marketing courses underpinned by a journalism minor and a specialised focus on social media," Assoc Prof George says.

"The Bachelor of Digital Media is also exciting. Through our wider work with industry partners including Rising Sun Pictures, Kojo and Frame Creative, students will be well prepared join one of the [largest projected employment growth sectors](#) – Multi and Social Media and Technology and Telecommunications Professionals."

Degrees offered through UniSA Online:

- Bachelor of Business (Human Resource Management)
- Bachelor of Business (Management)
- Bachelor of Business (Marketing)

- Bachelor of Commerce (Accounting)
- Bachelor of Communication
- Bachelor of Community Health
- Bachelor of Construction Management
- Bachelor of Digital Media
- Bachelor of Health Science (Nutrition and Exercise)
- Bachelor of Information Technology and Data Analytics
- Bachelor of Psychological Science and Sociology

Applications open September 2017 via unisaonline.edu.au

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From the Chancellery

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INSIDE UNISA

RESPECT. NOW. ALWAYS.

Respect is a cornerstone concept in a civil society's fabric: it is to give due regard to someone's feelings, wishes or rights. And this is a term that you may have heard much about in public conversation recently as Australian universities conducted a world-first survey into sexual harassment and assault as experienced by our students within and beyond our campuses.

The [Respect. Now. Always.](#) campaign, a collaborative initiative by all universities, commits us to providing a healthy, safe campus culture that embraces and celebrates the diversity of our community of students and staff. This means we strive to ensure our campuses are free from bullying, discrimination and sexual violence.

As part of this campaign a national survey was conducted by the Human Rights Commission on sexual harassment and abuse on Australia's campuses and the results of the survey were recently released. The results of the survey are challenging and the report makes for confronting reading. I want to acknowledge those who completed [the survey](#) and thank those who had the courage to share their stories in this process.

The statistics, however they are interpreted, give one clear message to all of us that we can and must do more to better support survivors, and that there is still much to do in working with all members of our university communities in creating the kind of environment that is safe and in which we can thrive and achieve.

The challenge to universities is also the challenge to our wider community. Our campuses are largely safe places: our staff and students care and look out for one another. But we can do much better; both within our organisations and as champions and leaders for change within our society.

UniSA has a long-term, integrated safety and wellbeing approach which is designed to protect students against sexual assault, harassment and bullying on campus. At UniSA we have and will continue to have a zero level of tolerance for those who do not display the respect that should be shown always to all members of our community.

We have a suite of programs and services in place at UniSA to support this, from [student counselling](#) and [mental health and wellbeing programs](#), through to apps that support a [Safe Zone](#) on campus, and staff and student education programs around the issues. But that doesn't mean we can't improve. A comprehensive review of our policies and support structures in this domain is well under way and we anticipate a range of improvements to ensure that UniSA models best practice in the prevention of and responses to sexual harassment and violence in our institution.

Accessing your education free from fear and harassment is an intrinsic right. At UniSA we must strive to create a respectful environment where we value our students and staff for their potential to contribute to better social outcomes and where sexuality, sexual orientation, race and religion are no barrier to acceptance, advancement and engagement. We have work to do together to achieve this aim, but I can think of no better focus for our efforts.

Professor David Lloyd
Vice Chancellor and President

Get support

Students and staff who need immediate support are encouraged to call 1800 572 224. This line is available 24-hours a day, 7 days a week and is staffed by qualified counsellors from Rape and Domestic Violence Services Australia.

UniSA's Student Counselling Service is also available if you prefer to speak to a UniSA counsellor face-to-face or over the phone. Counsellors are available for appointments from Monday to Friday, 9am-5pm. You can book an appointment online or via phone: 1300 301 703 (Metropolitan campuses), (08) 8723 1999 (Mount Gambier campus) or (08) 8645 8233 (Whyalla campus).

Staff counselling is available through UniSA's Employee Assistance Program (EAP). To book a consultation with a trained counsellor, call 1300 277 924. You and your immediate family members are able to access four free counselling sessions.

Other [support services](#) are available too.

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ANNOUNCEMENTS

[Speedrunning Marathon connecting the gamer community](#)

A common misconception about video gaming is that it's dominated by solo gamers who play just for fun. But that stereotype was challenged when the Australian gaming community came together for the 2017 Speedrunning Marathon at UniSA's Magill campus in July.

This year's Australian Speedrunning Marathon (a form of video gaming where participants aim to complete the game as fast as they can) was a continuous 35-hour event with 24 live 'speedruns'. This involved 'runners' from all over Australia playing classic video games, raising money for mental health charity, [Beyond Blue](#).

As crowds gathered in the Magill campus TV Studio to watch gamers play and show off their skills, the feed was also live streamed online by Twitch TV reaching audiences across the globe, connecting the gamer community for a good cause.

Event coordinator Alex Westgarth told [ABC News](#) the marathon was a great way to bring together fellow gamers and video game fans and tackle some of the stigma associated with the sport, while raising money for an important cause.

"It's good to have these events to show gaming isn't just all about sitting down and vegging out for a weekend," he said.

"We can actually work towards something important."

UniSA Head of the School of Communication, International Studies & Languages Professor Jason Bainbridge says the event was an enormous success, raising more than \$3300 for Beyond Blue.

"The 2017 Australian Speedrunning Marathon was a terrific event and had a wonderful outcome – great work to everyone involved," he says.



The Speedrunning Marathon was live streamed from UniSA's Magill campus.

AWARDS

[All rivers lead to Rome for two successful architecture students](#)

A design for a new enclosed but adaptable section of Rome's Tiber River has earned two UniSA students an honourable mention in an international design competition.

UniSA Master of Architecture students earned the accolade in the 'Rome17' International Design Competition. Their design, *Tiber Two*, proposes a new 'in-between' space in the Tiber River, transforming one section into a feathered and sculptural multi-use plaza.

Jacqueline says it was pleasing to receive external recognition.

"The competition really helped contextualise our work on a larger scale and made for a very humbling experience," she says.

Cameron says submitting work in a competition, rather than to a studio, was a unique experience.

"There was a lot of good work exhibited – it's nice to see how we contributed a different idea to this brief," he says.

They say the key to their design is attracting people, drawing them into a sanctuary, a sunken retreat from the urban chaos and an escape from the bustle of the city.

"The intervention is interactive and brings into the city a shallow, public pool of water," their design states. "Whether the water is used to dip your feet into, for children to swim in, or to maintain the romanticised separation of the city, the water is rejuvenating and is cleansing for users and city alike."

Jacqueline and Cameron say they're already looking ahead to the next challenge.

"We'd love to one day have another go at a competition," Cameron says. "It's a great way to be totally creative and test your ideas against others around the world."

See their design on the [Eleven Magazine website](#).



Tiber Two by Jacqueline Stacey and Cameron Stevenson.

UniSA among the tall poppies

The ground-breaking work of three UniSA researchers has been recognised through the Young Tall Poppy Science Awards.

The [Young Tall Poppy Science Awards](#) recognise achievements by outstanding young scientific researchers and communicators. This year six UniSA researchers were nominated, with three taking home an award.

Former winner of the Channel Nine Young Achiever of the Year Award, [Dr Kate Fennell](#) (Research Fellow, Sansom Institute for Health Research and Clinical Psychologist) was nominated by Professor Ian Olver for her research on rural health and wellbeing.

Dr Fennell's research has resulted in improved scientific understanding of the health and mental health needs of rural communities, in the delivery of previously unavailable support services and also in wider awareness of the unique needs of this disadvantaged group.

"I love my work, particularly when it allows me to go out into rural communities and speak to the sort of people my research aims to help," she says.

[Dr Zlatko Kopecki](#) was named 2016 Young Investigator of the Year and specialises in wound healing and skin blistering diseases with 28 peer-reviewed papers in top international journals under his belt.

"With my colleagues at the [Future Industries Institute](#) at UniSA, I have developed a therapy to neutralise the activity of this protein leading to improved healing, reduced blistering, wound infection and decreased incidence of skin cancer," Dr Kopecki says.

"A better understanding of scientific challenges and engagement with the community is vital in gaining momentum and support for future research discoveries that will lead to improved quality of life for many Australians."

National Health and Medical Research Centre – Australia Research Council (NHMRC-ARC) Dementia Research Development Fellow, [Dr Ashleigh Smith](#), was nominated by Pro Vice Chancellor Professor Robert Vink with



Kate Fennell, Zlatko Kopecki and Ashleigh Smith
– 2017 Tall Poppies.

outcomes from her research already making a difference.

Recognition for making a difference in Whyalla

UniSA lecturer Shivvaan Sathasilvam has been recognised for his outstanding service in teaching and encouraging the next generation of science, technology, engineering and mathematics (STEM) students.

Based at UniSA's Whyalla Campus in the School of Engineering for the past seven years, Sathasilvam played a large part in the recent establishment of the Science and Engineering Challenge, bringing schools from across the region to Whyalla to participate in challenges relating to STEM.

The event, supported by Rotary and UniSA, provides the winner with the finances to travel to Adelaide for the state competition.

Sathasilvam, who is the regional chair for the Rotary Science and Engineering Challenge, has recently been awarded the Certificate of Honorary Rotarian for his commitment to the community. Honorary membership is awarded in exceptional cases to someone who furthers Rotary ideals and demonstrates great service.

"I did not know I was nominated and when I received the award, I was truly humbled," Sathasilvam says. "I was just doing my part as I think any other person would and to be recognised for it was indeed humbling."

Sathasilvam says he enjoys his role in Whyalla, especially having an impact on the community.

In 2015 he helped secure funding for and develop the [Engineering Teaching and Learning Centre](#) at UniSA's Whyalla Campus.

"The best part about my role is having the ability to have a direct and immediate impact on the community," he says.

"It is great to see the impact of the projects that I have been a part of. At the 2015 Science and Engineering Challenge, a senior (aged) volunteer told me how great it was to see all the kids so enthusiastic. Even he learned something that day. He gave me a big hug and said thank you."

Sathasilvam says his role in the community is an important one.

"We give the community and industry a single point of access to be able to talk to someone and access the University.

"I am here for people to casually knock on the door and have a conversation with. This reassures people that we are here to help and give them access to research, education and great programs."

UniSA alumnus recognised for research excellence

UniSA PhD graduate Dr Joel Fuller has received the PhD Research Excellence Award at the [South Australian Science Excellence Awards](#) earlier this month.

The award recognises recent PhD graduates with outstanding early-career achievement in their field.

Dr Fuller says he never thought he'd be where he is now.

"It was an honour to be nominated as a finalist and be announced as the winner," he says.

"I could have never imagined that my PhD journey would bring me to this point. I'm incredibly grateful for all the support I've received along the way from my supervisors, lab mates, and of course my family."

Six category winners were announced at the event.

Including Dr Fuller, were five UniSA researchers and staff were nominated for an award:

- **South Australian Scientist of the Year**
[Professor Sharad Kumar](#)



Shivvaan Sathasilvam accepts his certificate from Rotary Whyalla president Soto Stuppos.

- **STEM Educator of the Year – Tertiary Teaching**
[Dr Maurizio Costabile](#)
- **Tall Poppy**
[Dr Kate Fennell](#)
[Dr Ashleigh Smith](#)

Nursing and Midwifery professor awarded 2017 Stillbirth Research Award

School of Nursing and Midwifery Associate Professor Jane Warland was presented the 2017 Stillbirth Research Award by the [Star Legacy Foundation](#) at the recent Stillbirth Summit in Minneapolis.

The Star Legacy Foundation is a US not-for-profit organisation dedicated to pregnancy research, education, awareness, advocacy and family support while also recognising individuals, groups and organisations who are making a difference in pregnancy and infant loss.

The Stillbirth Research Award is the only Star Legacy Foundation award open to international researchers with criteria including, demonstrating dedication to stillbirth prevention or care of bereaved families; and work representing an understanding of the issues important to families with preference given to those who engage in collaborative efforts and emerging ideas.

Assoc Prof Warland says she was proud to receive the award.

"I was extremely honoured to receive this award especially given the calibre of my fellow nominees including Prof Vicki Flenady (Australia), Prof Alex Hezell and Prof Baskaran Thilaganathan (UK)."



Star Legacy Foundation's Mr Jason Pratt presents Prof Warland with her award.

Professor Duncan Campbell made fellow of Royal Aeronautical Society

UniSA Head of School: Engineering Professor Duncan Campbell has become a Fellow of the Royal Aeronautical Society.

The [Royal Aeronautical Society](#), based in London, is the world's only professional body dedicated to the aerospace community, and aims to further the advancement of aeronautical art, science and engineering around the world.

Fellowship (FRAeS) is the highest grade attainable and is only bestowed upon those in the profession of aeronautics or aerospace.

Fellows must meet one or more of the following criteria:

- Have made outstanding contributions in the profession of aeronautics
- Attained a position of high responsibility in the profession of aeronautics
- Have had long experience of high quality in the profession of aeronautics
- Professor Campbell will officially be named a Fellow at an event at the Royal Aeronautical Society's headquarters in September.



Engineers Australia makes Professor John Argue made an Honorary Fellow

Professor John Argue from the School of Natural and Built Environments has been awarded a prestigious Honorary Fellowship Award by [Engineers Australia](#).

Honorary Fellow awardees are distinguished persons who have rendered conspicuous service to the profession of engineering and are eminent in the field of engineering or an allied science.

At the same ceremony held earlier this year, engineering student Chelsea Matthews was awarded the 2016 Keith Johninke University medal in recognition of her academic excellence, character and leadership.



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(L) Professor John Argue (R) UniSA graduate and 2016 Keith Jokinke Medal recipient Chelsea Matthews with Engineers Australia South Australia division president Niki Robinson at the recent Sir Eric Neal Address.

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**University of
South Australia**

Could biosolids contribute to zero carbon emissions?

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by Georgia Aish



SCIENCE AND TECHNOLOGY

Biosolids from Bolivar Wastewater Treatment Plant.

The use of biosolids from sewage on farms could help Australia reduce carbon emissions – but only if environmental policies are updated to encourage more research and development into the area, according to the work of a UniSA PhD student.

Norman (Chin How) Goh is in the final stages of completing his PhD working on biosolids and its possible application to offsetting carbon emissions.

When sewage is treated in wastewater treatment plants, it is separated into solids and liquids so the safe, usable resources like recycled wastewater and biosolids can be used for agriculture.

Biosolids are organic matter recycled from sewage, similar to manure and rich in nutrients suitable for plant growth.

Norman says biosolids are unique as they contain high levels of stable organic carbon.

“Scientists theorise that when biosolids are used in agriculture, some of the organic carbon begins to accumulate over time and with repeated applications over the years, the carbon becomes stored as part of the soil,” he says.

“This therefore has the potential to lock-up biosolid carbon and may help us in combat climate change.”

Norman has analysed the numbers behind the science to see if in real-world situations, using biosolids in agriculture can actually result in soil carbon sequestration (effectively locking the carbon in the soil), enough to be economically and environmentally viable.

“Unfortunately the answer is not with the current rates of application and within the current economic climate,” he

says.

Norman says that Australia's carbon credit policy needs to catch up with the research, so that the benefits of using biosolids are fully recognised. In addition, biosolids need to be used continuously, and potentially on a much bigger scale, to make a difference.

"This is an over simplistic explanation but essentially, the policy and science behind carbon crediting from biosolids soil carbon sequestration is still limited. We can get there but we need a bit more scientific research and stronger environmental policies to get us over the line."

With strong support from the water industry in offsetting carbon emissions, biosolids may be the key as the use in agriculture does offset carbon emissions, in the form of nutrients.

"Instead of using traditional chemical fertilisers produced with high energy requirements, biosolids can be a good organic substitute. In fact, it is already happening but we are still a few years away from biosolids being seen as a true commodity and being valued as a means of offsetting our emissions.

"My research is unique as it has shown what areas we need to work on to make this viable. It is a controversial subject and confusing for policy makers, industry and the general public but my work hopefully clears some of that up."

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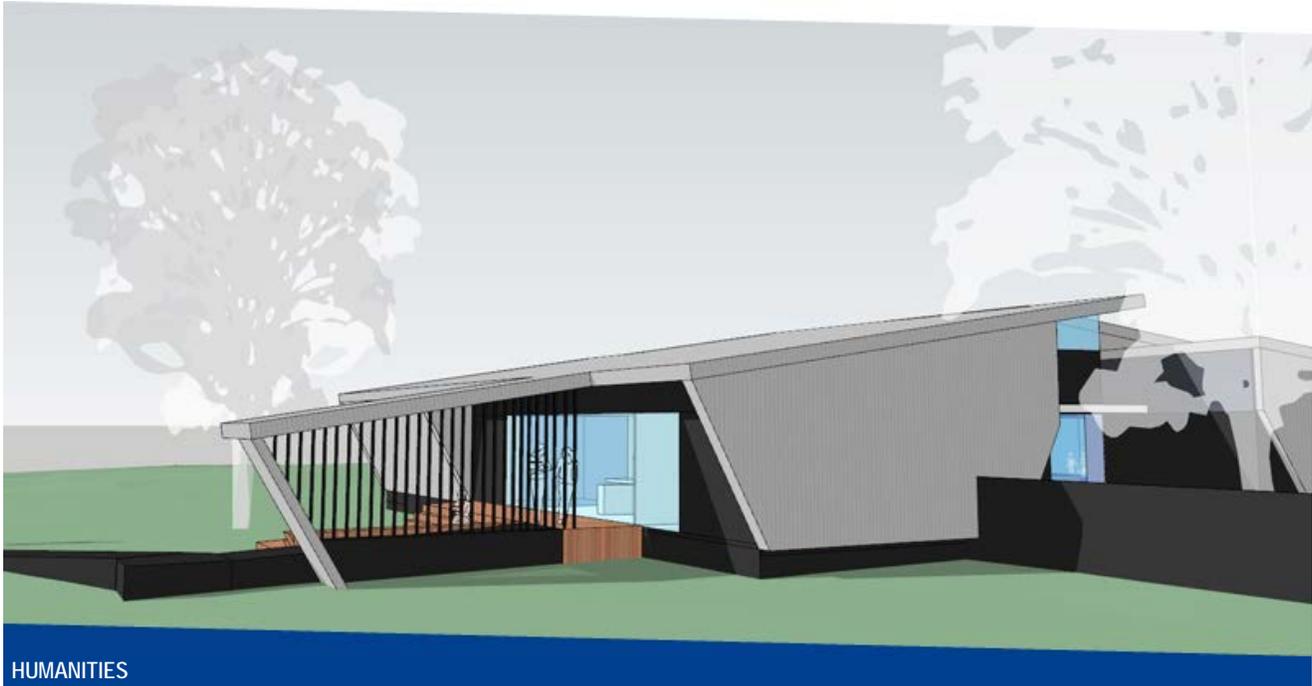
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'SMART school' opening on Magill campus

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by Michèle Nardelli



HUMANITIES

Artist's impression of the new SMARTSchool.

Australia's most technologically advanced teacher training facility is planned for UniSA's Magill campus and is expected to open its doors in time for the 2018 teaching year.

The high-tech Samsung SMARTSchool will support advanced teacher education and research from reception through to secondary school, with a focus on science, technology, engineering, and mathematics (STEM).

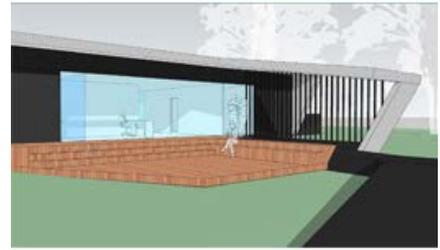
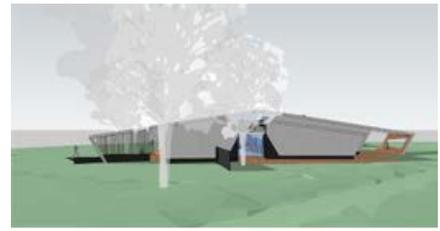
It's thanks to a new partnership between [Samsung Electronics Australia](#) and UniSA. Plans include a suite of Samsung technology such as visual display technology, smartphones, tablets, wearables and virtual reality headsets.

The initiative is part of the development of the education precinct at Magill – home to one of the largest cohorts of teaching students in South Australia.

UniSA Vice Chancellor Professor David Lloyd says the SMARTSchool will be a state-of-the-art, student-focused, learning facility; inspired by the award-winning Jeffrey Smart building at UniSA's City West campus.

“The SMARTSchool will help transform the way in which we educate teachers,” Prof Lloyd says.

“It will be a flexible and inclusive education space, designed to support our teaching students to become leaders in new technologies and enhance



their application in teaching and learning.

“We are delighted that this partnership with Samsung will deliver to South Australia one of the nation’s most advanced facilities for the development of best practice education, where technology not only enhances learning, but also informs the ‘what and how’ of what we teach.”

Samsung Australia Head of Corporate Social Responsibility Tess Ariotti says the school demonstrates co-creation at its finest; bringing together the best of Samsung digital technologies and the University’s innovative teacher training programs to enhance STEM practice and foster educators of the future.

“As Australia’s workforce continues to evolve, it is essential that educators are equipped with the tools and knowledge to support students develop the skills they will need to succeed,” Ariotti says.

“The SMARTSchool aims to be Australia’s most technologically advanced training facility; a significant milestone, not only for the education sector, but for our country’s progress in addressing Australia’s burgeoning STEM skills shortage.”

Visiting school students will be able to use the facilities for classes. Researchers will also be able to use the school for research projects designed to develop an evidence-base for teaching.

“Through the use and provision of technology, we hope to contribute to the professional development of teachers and advance creative and innovative learning opportunities for future generations,” Ariotti says.

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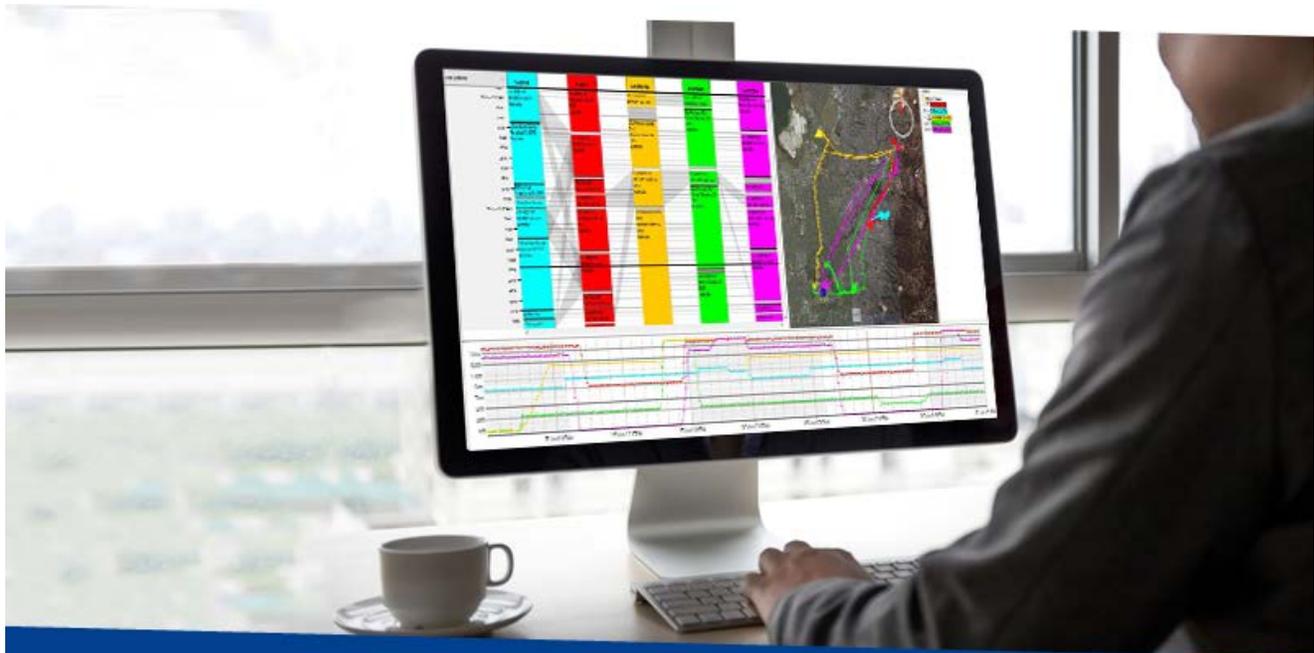


**University of
South Australia**

Researchers help intelligence agencies make sense of complex data

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by Penny Starling



SCIENCE AND TECHNOLOGY

Law enforcement and defence agencies have access to more data than ever, with the ability to track suspicious activity using a range of technologies. But having access to reams of information is of little value unless you can extract something meaningful from it.

That's exactly what a team of UniSA researchers is helping the Attorney-General's Department and the Department of Defence to do – by making sense of complex data through visualisations.

Dr James Walsh, Professor Bruce Thomas and a team of UniSA researchers recently wrapped up work on the [Data to Decisions CRC project](#), the *Immersive Intelligence Pod*.

Whereas once it might have been enough to track a suspect's movements, intelligence agencies need to be able to follow multiple suspects and see their interactions with each other over time; or analyse multiple suspects' movement to see their behaviour in relation to particular locations.

By using data visualisations and immersive technology, investigators can switch between views showing time, space and individuals or objects to reveal patterns that might otherwise have been difficult or time consuming to find.

The team worked with the Attorney General's Department and the Australian Geospatial Organisation to design this new way of visualising complex data. The new method of displaying data, called Cooperative Visual Analysis, can answer the question of whether Suspect A and Suspect B met, and if so, where and when.

Prof Thomas says: "We started working with the Attorney-General's Department because they were interested in spatial temporal data, or rather, information that is on



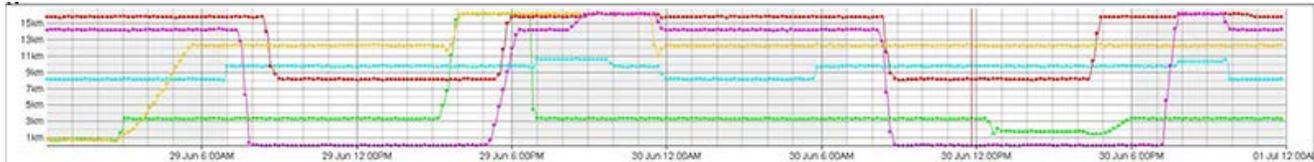
The 2D map view can be used to confirm whether two objects (which could be suspects, vehicles or other objects) were at the same location.

a map, but also has a time element.”

The visualisation works with space, time, and objects to reveal patterns.

The outcome of the project was the development of two novel visualisation tools - Braille Plot and Parallel Schedule View.

Lead researcher Dr James Walsh says the visualisation tools, together with a 2D map, allows entities to be analysed quickly and effectively.



The Braille Plot view shows the proximity of multiple objects (which could be, for example, suspects or vehicles) over time from a given location (or object). If those objects meet, their pots will appear to intertwine. It can also be used to identify where an object diverges from its usual movement between two locations.

“Using the Braille Plot, on a map you can select a location of interest, such as a workplace or business, and then be able to see how far away multiple people, vehicles, or objects are from that location at any time,” Dr Walsh says.

“The Parallel Schedule View displays the data in what looks like an outlook calendar. It shows how long any object that is being tracked is idle in a known location.

“When you combine these views it allows a comprehensive analysis of the data, and enables questions such as ‘did X and Y meet, and if so, where and when’ to be answers.”

The [Australian Geospatial Organisation](#) became involved with the project and pushed for its commercialisation.

The project has since been licensed to [Esri Australia](#) to further develop and implement at the Department of Defence.



The Parallel Schedule View represents a series of events, in keeping with a calendar-based application such as Microsoft Outlook.

“This is a win-win and exactly what we were hoping for,” Prof Thomas says.

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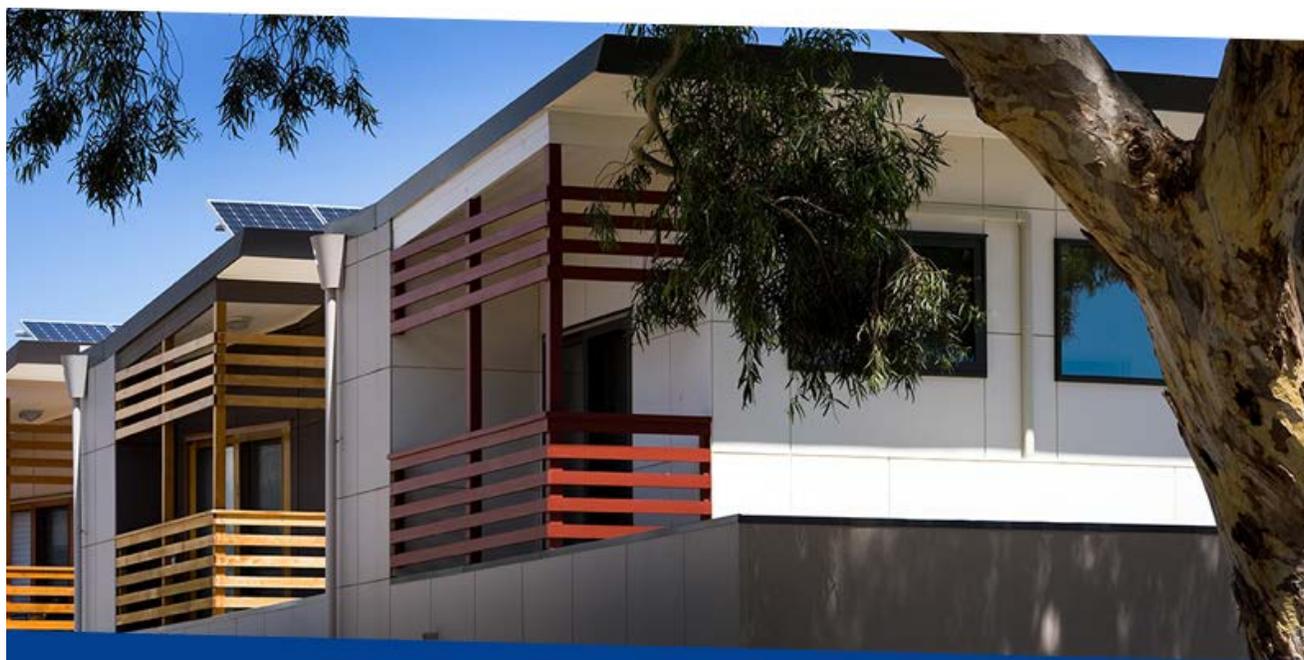


University of
South Australia

Low-energy homes don't just save money, they improve lives

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by Stephen Berry, Research Fellow, UniSA, David Michael Whaley, Research Fellow in Sustainable Energy and Electrical Engineering, UniSA and Trivess Moore, Research Fellow, RMIT University



SCIENCE AND TECHNOLOGY

Lochiel Park is one of the world's most valuable living laboratories of near zero energy homes.

Household energy use is a significant contributor to global carbon emissions. International policy is firmly moving towards technology-rich, low- and near-zero-energy homes. That is, buildings designed to reduce the need for additional heating, cooling and lighting. They use efficient or renewable energy technology to reduce the remaining energy use.

But what about the experiences of people who live in homes of this standard? Are these homes comfortable, easy to operate, and affordable? Do people feel confident using so-called smart energy technology designed for low energy use? What support systems do we need to help people live in low-energy, low-carbon houses?

We worked with other Australian and UK researchers to understand what it's like to live in purpose-built low-energy housing. As part of this project, researchers from Sheffield Hallam University and the University of Salford in the UK visited South Australia to collect data from [Lochiel Park Green Village](#), one of the world's most valuable living laboratories of near-zero energy homes.



Dr David Whaley took Year 7 and 8 students on a tour of Lochiel Park in July as part of the [STEM Explorer program](#).

Displays show households their energy use in real-time

Lochiel Park's 103 homes were built in the mid-2000s to achieve a minimum of 7.5 [energy efficiency stars](#). They're purpose-built to be a comfortable temperature year-round, and are packed with a solar photovoltaic

system, solar hot water, a live feedback display to show households their energy use, plus a range of water- and energy-efficient appliances and equipment. Combined, these systems reduce both annual and peak energy demand, and supply much of that energy at a net zero-carbon impact.

To reciprocate, we spent several weeks investigating similar examples of niche low-energy housing developments in the Midlands and the North of England. We listened to the stories of people living in low energy homes, who experience the difference on a daily basis, and from season to season. They help us look beyond the dollars saved or percentage of emissions reduced; for them the impact of low-energy homes is personal.

This research provides new insights into the relationship between people, energy technologies and low-carbon buildings. For example, one elderly householder told us that moving into a dry and warm low-energy home allowed their grandchildren to come and stay, completely changing their life, and the life of their family.

Low-energy home prompts resident to quit smoking

Low-energy homes create a wide range of physical and mental changes. Several households spoke about health improvements from higher indoor air quality. Even the idea of living in a healthier and more environmentally sustainable home can prompt lifestyle changes – one woman in her mid-50s told us she gave up smoking after moving into her low-energy house because she felt her behaviour should match the building's environmental design. She also shortened the length of her showers, reduced her food wastage, and lowered her transport use by visiting the supermarket less often.

Purpose-built low-energy homes also give economic empowerment to low-income households. One household told us that savings on energy bills let them afford annual family holidays, even overseas. This economic benefit matches our findings in [other Australian examples](#).

As researchers, we might dismiss this as a macro-economic rebound effect, voiding many of the energy and environmental benefits. But to that household the result was a closer and stronger family unit, able to make the types of choices available to others in their community.

The benefits in mental and physical wellbeing are real, and more important to that family than net carbon emission reductions.

Although international policy is firmly moving towards technology-rich, low-energy homes, our research shows that not all technology is user-friendly or easy to understand. For example, some households were frustrated by not knowing if their solar hot water system was efficiently using free solar energy, or just relying on gas or electric boosting. Design improvements with better user feedback will be critically important if we are to meet people's real needs.

This research highlights the importance, in the transition to low-energy and low-carbon homes, of not forgetting the people themselves. Improving real quality of life should be the central focus of carbon-reducing housing policies.

This article was originally published on [The Conversation](#).

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French and Chinese choose Adelaide as 'top drop' for wine marketing

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by Georgia Aish



BUSINESS AND LAW

French and Chinese students at Bird in Hand winery.

France boasts thousands of years of wine making and some of the finest wines in the world, but French (and Chinese) students come to Adelaide to learn about wine and spirits marketing.

This is the seventh year that Professor Herve Remaud, from [KEDGE Business School](#) in Bordeaux, has accompanied students from its Global MBA program to Adelaide to learn from the [Ehrenberg-Bass Institute for Marketing Science](#) at UniSA, and visit South Australia's famous wine regions.

Prof Remaud says Bordeaux in France makes almost as much wine as all of Australia

"This includes Bordeaux's [cru classé \(classed growths\)](#) such as Chateau Lafite Rothschild – currently a mere \$2390 a bottle at Dan Murphy's for the 2010 vintage," Prof Remaud says.

"If a great part of this success is due to history and quality, sustaining a vibrant wine and tourist industry is a different story and we have to learn modern marketing techniques, which is why we come to Australia.

"Because of the Ehrenberg-Bass Institute's knowledge of brands and consumer behaviour, our group learned things that we cannot access elsewhere."

On the final day of the course, students travelled through the Adelaide Hills to visit wineries and critically review the challenges wine brands face in order to grow sales and brand reputation.

Students toured several wineries and one distillery including Shaw & Smith, Bird In Hand, Applewood and Paracombe.

Among the students was Lucas Leclerc, technical director and winemaker at Chateau Lafon Rochet, a Bordeaux

classed growth founded in the 17th Century.

"Wine marketing is nothing if we don't see it on the spot," Leclerc says. "Visiting all the wineries, we have understood how difficult or easy it is to implement a good marketing strategy."

The Ehrenberg-Bass Institute is a long-term partner of KEDGE Business School's Global MBA program, welcoming MBA students from its Bordeaux, Marseille and Shanghai campuses to UniSA since 2001. Recently the wine marketing course opened up enrolment to UniSA postgraduate students and industry professionals.

Dr Armando Corsi, a senior researcher at the Ehrenberg-Bass Institute for Marketing Science who runs the course, sees great benefits for Australian students.

"The UniSA postgrad students and industry professionals benefit from mixing with wine marketing students from France and China learning consumer purchasing behaviour for wine and spirits; how to build online presence; and the fundamental of negotiation with channel partners."

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PhD students bound for France after winning national challenge

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by Adam Joyce



INSIDE UNISA

Australian-French Entrepreneurship Challenge winning team Re.Mind, including UniSA PhD student Nia Lewis (far left).

Forty-eight PhD students from across the nation spent 36 hours without sleep, locked up with a group of people they'd only just met, with a deadline to devise an innovative and profitable start-up concept.

The [Australian-French Entrepreneurship Challenge](#) is based on its hugely-popular sister event in France "[24 heures chrono de l'entrepreneuriat](#)".

Participants work in project teams for a straight 24-hour period (that's 36 hours awake once the judging is included), with support from seasoned mentors, experiencing the process of setting up a company, from an idea to creating a business plan.

UniSA PhD student Nia Lewis was part of the winning team. The team developed a holographic and tactile brain training device for the elderly which helped them improve their balance and reduce the risks of falls.

Nia says falls among the elderly are a significant issue, with more deaths in over 75s from falls each year, than the combined road death toll in Australia.

"If no changes are made to the current treatment model, the cost of related injuries will grow three-fold to \$1.38 billion by 2051," she says.

Her team's proposal used holographic technology to provide a gamified, virtual experience with tactile feedback, and generated a personalised exercise plan for users.



UniSA PhD students Nia Lewis and Imogen Ramsey at the end of the 36-hour lock-in.

Nia, whose PhD is focused on social entrepreneurship in the creative industries, says the experience was challenging and rewarding.

“The tight timeframe really pushed you to your limits,” she says. “Initially, being the only social scientist among six amazing neuroscientists was quite intimidating and isolating.

“We worked well as a team and were able to tap into our diverse experiences and expertise to create our company Re.Mind.”

Nia says the challenge attracted a large number of students from science and engineering, with only five or so from the humanities, arts and social sciences.

“I really believe that the key to social innovation lies within bringing together people with a diverse set of experiences and expertise, so we are able to collectively and creatively co-create solutions to the complex challenges which we face today,” she says.

“I would love to see more people from the division of [Education, Arts and Social Sciences](#) apply to take part next year.

“The challenge really shows what can be achieved when people from different disciplines come together to tackle some of the world’s most pressing challenges.”

Nia, along with the rest of the winning team, have won a trip to France later this year, where they’ll tour the country’s main universities, incubators and research institutions to get a first-hand look at France’s innovation system.

“The prize means the world to me,” she says. “To be able to receive industry-level mentoring so early into my PhD journey is priceless. The networking opportunities presented by the challenge have also been invaluable and I have already made connections which will significantly aid and add value to my research.”

The ideas of each group were pitched to a panel of professional judges who selected two projects to advance to the final, before deciding the winning team. The jury included UniSA Ventures CEO Stephen Rodda and Ehrenberg-Bass Institute researcher Magdalena Nencyz-Thiel. Professor David Paterson from UniSA’s Business School took part as a coach.

The other team which made the final, Tea For Two, included and was based on the research of UniSA student Nina Wilson.

The other competing UniSA students were Laura Hodgson, Azam Mehboob, Imogen Ramsey, Roya Rudd, Sam Rudd and Zhonghui Wu.

UniSA co-sponsored the event with the other South Australian universities, the French Embassy and the Office of the French Strategy. It’s the first time the event has been held in South Australia.



The Re.Mind team working on their concept during the lock-in. Photo courtesy Twitter: Hayley Teasdale.

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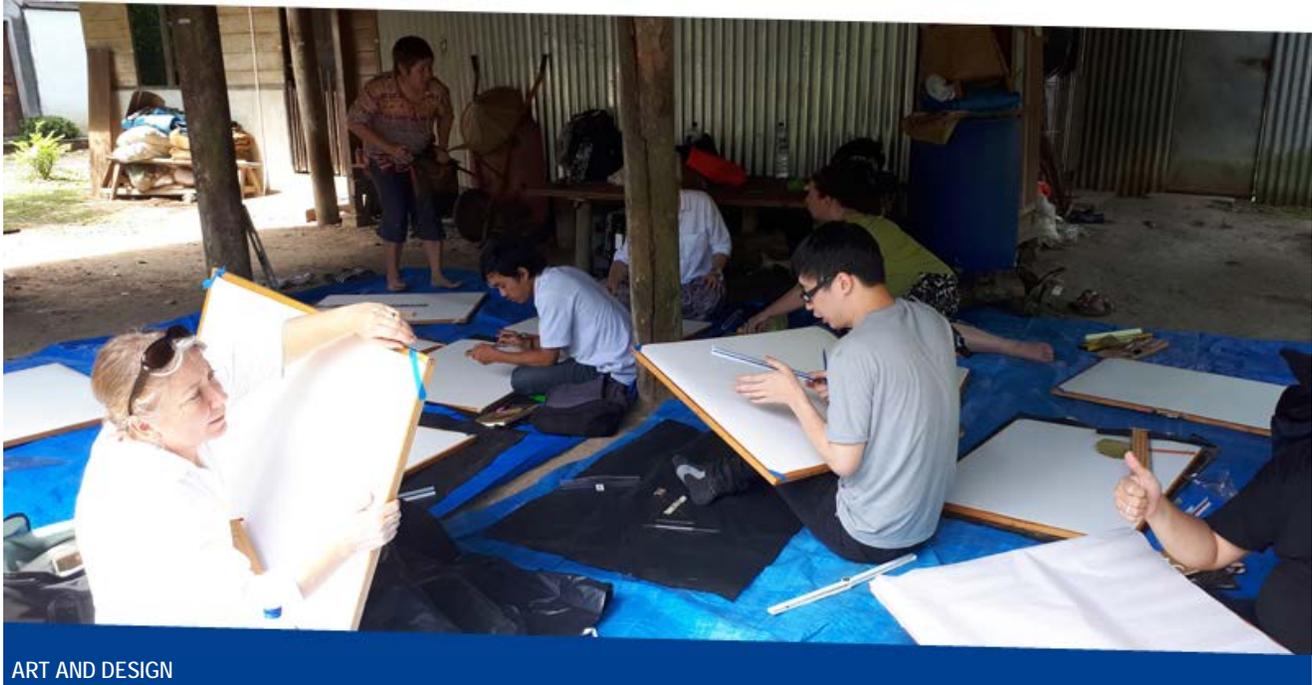


**University of
South Australia**

Students help preserve Indonesia's architectural heritage

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by Georgia Aish



ART AND DESIGN

Students and volunteers from UniSA, the Association of Siamese Architects (ASA) VERNADOC, the University of Syiah Kuala, and the University of Indonesia, working under the instruction of Finnish VERNADOC expert Tuomas Klaus to document Nursyah's house for five days onsite in Lambunot Village.

Thirteen years ago, Banda Aceh made international headlines when it was devastated by a tsunami on Boxing Day.

In the years since, a multibillion-dollar reconstruction effort has seen many structures rebuilt, but few in keeping with what stood before.

Traditional coastal houses were destroyed, and along with them the records of those buildings. Very few of the people who survived had knowledge of local construction techniques.

Given this, UniSA is leading a project to capture Banda Aceh's surviving inland built architectural sites, ensuring they are permanently preserved in a digital form.

Under the guidance of lead researcher Dr Julie Nichols, 25 UniSA students travelled to Banda Aceh in July to study various building techniques and the associated experiences, customs and traditions of local people. From this, they produced high quality, measured drawings – in a methodology known VERNADOC (vernacular documentation).

“There are no remaining local records of the way the traditional coastal houses were built except by Europeans living elsewhere,” Dr Nichols says.

“Different structures were rebuilt for the community which changed the way people lived – because new houses were on the ground rather than



Students on tour in Banda Aceh.

elevated, they could not live under their houses in the heat of the day as they previously did.

“Our role is to capture the buildings, intrinsic knowledge and the socio-cultural conditions of people’s everyday lives in inland villages to record some of their built cultural heritage in case of future natural disasters. These records may be used to rebuild in traditional ways but probably using modern materials”

Dr Nichols was awarded funding for the trip through the [New Colombo Plan Mobility Program](#), and learned the VERNADOC method while in Thailand.

She says the students had a great time while throwing themselves into a different culture, and had to acclimatise to hot and humid conditions at Lambunot Village whilst endearing themselves to the local community.

“The quality of the hand-crafted and measured pencil and ink drawings of local houses and streetscapes are a testament to the students’ dedication to the recording of this vernacular environment for Aceh’s heritage,” Dr Nichols says.

“It was an exceptional effort on their part, and very rewarding to personally facilitate and participate in the process.”

Student Isobel Pryor says she thoroughly enjoyed her experience, which had a big impact on her personally and professionally.

“It was incredibly valuable to be part of an exercise that is much larger than what we have experienced in previous university subjects,” Isobel says.

“We learnt, rather than being taught, through discussions with peers, observation or through diagrammatic sketches when language became a barrier, and have refined our skills in methodical thinking, accurate detailing, and communication.”

Indonesian universities, Thai colleagues, local and international architects and educators were involved in the documentation work.

Student Ayse Siva Seyhun says it was much more than a study tour, but more a life experience with the opportunity to meet and develop connections with students and graduates of architecture from various cultures.

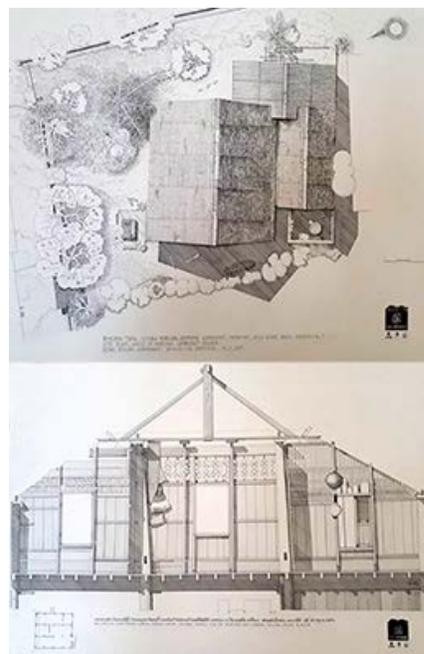
“It’s difficult to pinpoint what I enjoyed the most, as the entire experience was so incredible, though if I had to choose one aspect, I would say that I enjoyed the ‘inking’ time that we all spent in the studio,” Ayse says.

“This period of the process is where our work began to take shape and where I learnt the most from working alongside the experts of Vernadoc. I am really looking forward to my next Vernadoc experience.”

Dr Nichols also launched the [Vernacular Knowledge Research Group](#) (VKRG) in Jakarta, Indonesia on 7 July.

The VKRG is an interdisciplinary team, based at UniSA, who will work together on projects to look at how vernacular knowledge can be recorded, redesigned, rethought and reused for space and objects designed in future.

Six main partners are involved in the initiative including UniSA, Universitas Indonesia, Universitas Syiah Kuala, Universitas Udayana, the Association of Oral Traditions and the Association of Siamese Architects under Royal Patronage.



Julie Nichols' ink drawings of local houses and streetscapes.

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UniSA and international partners sign a memorandum of understanding.



Vernacular Knowledge Research Group stakeholders with UniSA VERNADOC study tour participants.

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Data-driven hackathon challenges innovative minds

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by Annabel Mansfield



COMMUNITY

From apps to help people find their closest dog-friendly park to programs to rehome refugees, a hackathon has generated more than 45 ideas for making data more accessible to the public in meaningful ways.

More than 200 creative minds converged at UniSA's City West campus last month for the annual [GovHack](#) challenge, hacking their way through hundreds newly available government data sets to try and find the ideal mix of innovation and utility.

[GovHack SA](#) is the South Australian component of an international competition that showcases technical and creative capacity to deliver innovation. The overarching aim is to develop original applications from the data that add value to the community.

South Australia's 2017 GovHack Director Hasan Anjum, a former competitor, says GovHack provides a unique forum for aspiring entrepreneurs to develop and test their ideas.

"It brings together a diverse mix of competitors – from savvy school students to seasoned business people – each contributing individual experiences and ideas to find solutions for various community problems," Anjum says.



GovHack SA 2017. Image courtesy GovHack Australia.

"This year we had 204 competitors, 52 observers and 34 mentors participate – an increase of around 40 per cent from last year – which is fantastic as it shows a growing interest in innovation and technology, key factors that are needed to help build South Australia's economy.

"Our mentors are especially valuable. Generally, they're data, technology, and innovation experts, giving their

time to coach, guide and encourage participants.

“They’re here to help identify and support the next generation of entrepreneurs, which is lucky for us as they bring significant experience and insight to the process.”

GovHack South Australia generated 45 new ideas, from a walking trail app that encourages kids to be more active, to a digital concierge service to navigate the labyrinth of public government services.

“There were so many amazing ideas,” Anjum says.

“From initiatives that connect and support local talent start-ups, proactive recycling schemes, or re-homing refugees, to apps that can find your closest dog-friendly park, the best-fit retirement village, or even guide you around Adelaide, this year’s GovHack has really delivered incredible innovations.”

Libby Vojin’s [Bizkit](#) team took out the *Spirit of GovHack* award, and the *Best at UniSA* Prize, sponsored by the [Innovation and Collaboration Centre \(ICC\)](#). The team was awarded three months of “incubation support” at the ICC.

“The Bizkit team created an intuitive tool to help new and existing South Australian businesses flourish in an ever-changing business environment,” Anjum says.

By aggregating and translating key business data into useful information, the team created an app that provides insights to help businesses overcome everyday challenges. Including planning information, such as customer segmentation and future trends, as well as local data like road resurfacing, the app shares information that can immediately affect a business.

After a concept is developed, competitors must create a project page, proof of concept and a video that tells the story of how government data can be reused. From there, finalists are selected, with state winners announced at the end of September and national winners by mid-October.

Anjum says that while innovative community outcomes were the goal for GovHack SA 2017, what resulted was far more than that.

“Camaraderie and a mutual sense of appreciation and respect was felt by all participating teams,” he says.

“In today’s fast-paced technological environment, being able to foster friendships in business is still so valuable.

“And as we encourage entrepreneurship, let’s hope these are still skills we continue to value. In my experience, they really can make a difference to business success.”

GovHack SA 2017 was hosted by the Innovation and Collaboration Centre – a strategic partnership between UniSA, the [South Australian Government](#) and [DXC Technology](#) (DXC) – and held on UniSA’s City West campus.

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New Book

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Vulnerability Analysis for Transportation Networks

At 5.45am on Tuesday 17 January 1995, Kobe, Japan experienced one of its deadliest and costliest earthquakes. Lasting 20 seconds, it registered 7.3 on the Richter scale, paralysing the commercial hub, and leaving death, destruction and chaos. The major infrastructure networks of the region were left in ruins.

It was the colossal impact of this event that has since shaped the study of network vulnerability, and in particular, the study of transportation network reliability. This forms the foundation for a new book by UniSA Emeritus Professor of Transport Planning Michael Taylor.

Prof Taylor is a pioneer in the development of concepts, theory and application of transportation network vulnerability analysis.

In *Vulnerability Analysis for Transportation Networks*, he presents the most current, complete and integrated account of transport network vulnerability analysis. Considering transport systems performance of degraded transport networks, from system failures, to disaster situations, he seeks to understand the socio-economic and environmental impacts on the affected areas.

“Network failures, whether due to natural or man-made events, are of great significance to communities,” Prof Taylor says.

“The effects of such failures may last for long or short periods of time, depending on the cause, but in either scenario, there is always large social and economic impacts.

“Transportation agencies need well-defined concepts and validated models and tools to test networks for their robustness and resilience to failure at different locations.

“This is an essential and integral part of network design and incident management planning, and indeed planning for emergencies.”

The new book reviews the range of existing approaches to network vulnerability and identifies the application of each approach, illustrating them with case studies from around the world.

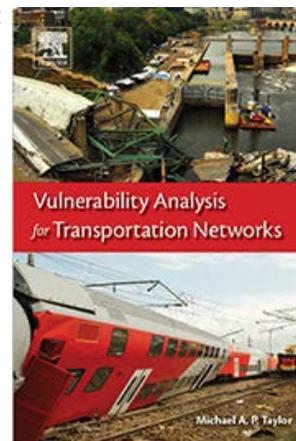
It covers the dimensions of time (hours, days, weeks, months and years), spatial coverage (national networks, regional areas, metropolitan and urbanised areas) and modes (road, urban public transport and national railway systems), depicting how frameworks can indicate the most suitable accessibility tools and metrics for a particular application.

Vulnerability Analysis for Transportation Networks is a useful resource for academics and researchers in transportation networks, and for practising professionals involved in the planning and management of transportation networks and services.

The book is now available [online](#).

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Highlights from the Media Centre

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From the potential of crowdfunding as a way into the property market, to research into the benefits of child protection, police, and child and family advocates and therapists working together in response to allegations of child abuse, here are some of the top stories from UniSA's [Media Centre](#):

[Crowdfunding opens the door to Australia's property market](#)

In an Australian first, innovative research from UniSA reveals that strength in numbers could hold the key for people wanting to enter Australia's property market, with crowdfunding leading the way as an alternative option for new investors.

Lead researcher, UniSA's Dr Braam Lowies, says the ground-breaking study assesses individual investor motivation and appetite for crowdfunding and its potential as an alternative investment vehicle for entering Australia's tenuous property market.

"There's a lot of debate about the current state of Australia's housing market and its inaccessibility, especially first-time homebuyers, who lack foundation capital get their first home," Dr Lowies says.



[Collaboration proves vital for children in crisis](#)

Understanding the benefits of child protection, police, and child and family advocates and therapists working together in local communities to respond to allegations of sexual and other severe child abuse has been the focus of recent research led by UniSA's Australian Centre for Child Protection (ACCP).

The research comprised an evaluation of the pilot Multiagency Investigation and Response Team (MIST) program, established as an innovative partnership between government and non-government agencies in Perth in 2015.

The approach aims to provide a victim-centred and holistic response to allegations of severe child abuse. This includes bringing professional multidisciplinary teams together in local communities in a more timely and effective way, and early connection of children and their families to support services.

The research findings showed co-location of specialist child abuse detectives, interviewers, child protection officers alongside child advocates and therapeutic services in a purpose-built child friendly setting had significant benefits for children, families and the response teams.



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O-Week

Orientation week (O-Week) was held at UniSA's city and regional campuses in July to celebrate the beginning of a new semester. Students were treated to free lunches, stalls, music, and Welcome to Country performances.





Open Day at Mount Gambier

More than 130 prospective students visited UniSA's Mount Gambier campus earlier this month for their Open Day, held on Wednesday 9 August from 4pm to 7pm.

Visitors were able to explore the campus's state-of-the-art Learning Centre and speak to staff and current students about the range of study options available.

Those interested in studying nursing were able to see Mount Gambier's treatment rooms, which are modelled on the new Royal Adelaide Hospital and Mount Gambier Hospital facilities to prepare students for the workplace.







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