THE UNIVERSITY of ADELAIDE

SPRING/SUMMER 2023

LUMEN

Andy Thomas – *celebrating 50 years*

The *LUMEN* interview - *AI dangers and benefits*

The rise of the robot dog?

Party time - *ready for our 150th*

Letters, reviews, life on campus

Your chance to win!

And more...

This hidden gem – the Observatory Building – on our North Terrace campus, was a gift from Mr Frederick W. H. Wheadon, who was General Manager of the Adelaide Electric Supply Company and an amateur astronomer.

Mr Wheadon was a member of the University's Council and a patent holder, along with James Stobie, for the Stobie poles which line Adelaide's streets.

Since the 1990s the Observatory has formed an intriguing part of the North Terrace campus Children's Centre.

Editorial

By Dr Jessica Gallagher, Deputy Vice-Chancellor (External Engagement)

Hello, and welcome to *Lumen*.

There's been plenty happening around our campuses since our last issue in winter. Thousands of students streamed onto campus for our Open Day. We enjoyed the sight of happy families proudly taking part in graduations. Illuminate Adelaide once again lit up part of our campus. We had our very own *Lumen* bar up and running on North Terrace. And we've had a series of special events for alumni locally, interstate and internationally, including in China and the US.

We've also been deeply involved in negotiations and discussions with the State Government, the University of South Australia, alumni, students and staff regarding the proposed creation of a new *University for the Future* - Adelaide University. You will find more information about that inside this issue.

Also in this Spring/Summer issue, we are excited to unveil some of the events that we are planning to celebrate our University's 150th anniversary in 2024.

There's a special feature detailing some of what we have in store, and how everyone can join in the fun. Other big events will be announced later this year, and in our first issue of *Lumen* next year.

About *Lumen*
The University wishes to acknowledge the Kaurna people, the original custodians of the Adelaide Plains and the land on which the University of Adelaide's campuses at North Terrace, Waite and Roseworthy are built.

Lumen is the University of Adelaide's peak magazine – for and about the University. It is published bi-annually and distributed via a print edition and email to more than 100,000 recipients.

Our thanks to our many contributors this issue – faculty, staff and alumni.

This issue's cover
Andy Thomas 2002, by Montalbetti + Campbell. Inkjet print on paper. National Portrait Gallery of Australia. Commissioned with funds provided by L Gordon Darling AC CMG in 2002.

We also celebrate our magnificent Waite campus turning 100 in 2024 with a suite of activities planned for this fabulous milestone. The bequest a century ago, from Peter and Matilda Waite, of the land, endowment fund and the existing buildings, is a lasting memorial to that family's generosity.

Another milestone we highlight is the 10th anniversary of the Children's University which is a local and national success story.

And we talk to a prominent and loved alum, astronaut Andy Thomas, to celebrate his graduation from our University 50 years ago with a Bachelor of Engineering with First Class Honours – his first "small step" on the journey that led him into space.

We also honour alum Ian Wall, who we sadly lost recently, and his wife Pamela. Vale Ian – you were a much-loved and respected member of our University family.

The *Lumen* interview this issue examines a topic which is very much front of mind in our society – artificial intelligence.

The emergence and popularity of new AI software this year has raised many questions – and we ask one of our leaders, Professor Simon Lucey, Director of the University's Australian Institute of Machine Learning, to help answer them.

Plus, our very popular writers and academics, Susan Hazel and Ben McCann, give their views on AI, examining the potential for "robot pets" and our love for movies about AI and robots.

Other new content includes *News in brief* – snippets of ways our University's work is making the news – and *World news* – the impact our alumni and partners are having around the world.

We detail our first ever Giving Day, discuss our amalgamation plans, honour alumni and staff achievements, and enjoy the colour, vibrancy and energy of life on campus.

With the promise of warmer weather ahead, we take a fresh look at Chardonnay in our latest wine review by oenology Associate Professor Sue Bastian.

Feedback on our recent, revised and revived issue of *Lumen* at the start of winter was very positive. I hope you will also find plenty to enjoy in this issue!

LUMEN

This issue...

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Celebrating a local hero

By Mark Douglas

When Andy Thomas first graduated from the University of Adelaide 50 years ago, travelling into space as an astronaut was an impossible dream. Australians didn't do that – space was for people from other countries.

Fast forward 23 years and he was being strapped into his seat in the space shuttle Endeavour, preparing for lift off and his first "job" in Earth orbit.

During his career as a NASA astronaut, Andy completed four space flights, spending a total of 177 days, nine hours and 14 minutes in space – including 20 weeks on the Russian Mir Space Station. That time on Mir gave him the rare distinction of being both an astronaut, and a cosmonaut.

In 2001 he was on board the shuttle Discovery when it docked with the International Space Station (ISS). During this mission, he completed a 6.5-hour spacewalk to install components on the exterior of the station.

Andy's final space flight was in July and August of 2005, when the Discovery returned to the ISS. It was NASA's first space flight following the space shuttle Columbia disaster in 2003.

Doctor Andrew Sydney Withiel Thomas, AO, was born on 18 December 1951.

He studied mechanical engineering at the University of Adelaide, graduating in 1973 with Honours. In 1978 he was awarded his PhD – also from the University of Adelaide – and he became an Honorary Doctor of the University (honoris causa) in 2006.

After graduation, Andy embarked on a career in aerodynamics research at Lockheed Aeronautical Systems Company in Georgia (USA), becoming manager of its Flight Sciences Division at the age of 35.

This was a prestigious career in its own right, and a time he looks back on fondly. "But I always had this nagging feeling that there had to be something more for me," he says. "That's what led me to pursue the goal of becoming an astronaut. I knew it would be better to try and fail than to never try at all."

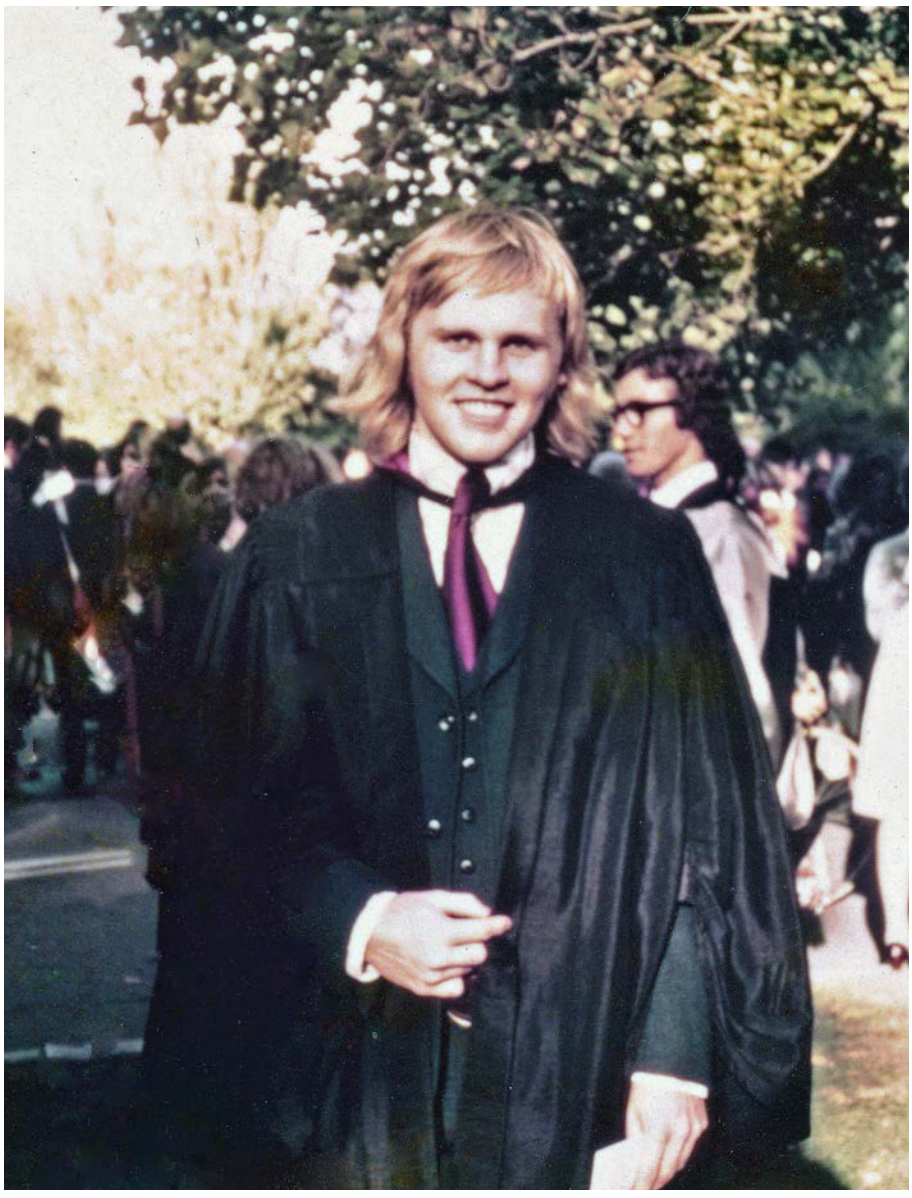
Realising that his health, education, physical attributes and work experience fulfilled NASA's astronaut criteria, he applied for the astronaut program. He had taken on US citizenship some years earlier, so he sent off his application "with the full expectation that I would not succeed".

Following an extensive interview process, NASA called in March 1992 to ask if he was still interested, and told him he had been accepted as an astronaut candidate.

"I remember putting the phone down and thinking, wow, my life has just changed in an unbelievable way," he says.

At the age of 40 he started NASA's rigorous 12 months of training, including up to 40 bouts of 'weightlessness' a day, to become a fully-fledged member of the astronaut corps.

In May 1996 he was appointed payload commander in the six-person crew of the space shuttle *Endeavour* on a 10-day mission.



Andy Thomas celebrates his graduation in 1973

It was the first time an Australian had been in space as a NASA astronaut (although Australian-born Paul Scully-Power, an American oceanographer, flew in *Challenger* from 5–13 October 1984, as a civilian payload specialist).

Andy retired from NASA in 2014. His contribution to the University of Adelaide, however, continues. Not only is he an honoured alum, he is also deeply involved in the Andy Thomas Centre for Space Resources.

This centre brings together the University of Adelaide's collective exploration, mining, manufacturing and engineering research strengths to address the challenges faced by long-term planetary exploration, while ensuring near-term applications here on Earth.

"We are truly proud of our very distinguished graduate, Doctor Andy Thomas," University of Adelaide Vice-Chancellor Professor Peter Høj says.

"We celebrate all of his many accomplishments of the past, and his important ongoing contributions to our University.

"On behalf of our entire community, I congratulate him on all he has achieved, and thank him for all he has done, and continues to do, for us."

Mark Douglas is the Editor of Lumen, and Corporate Communications Coordinator for the University of Adelaide.

Take a trip into space

As part of the celebration of 50 years since Andy Thomas first graduated from our University, we are pleased to present our readers with this unique "space simulation" created by researchers and students within the Department of Media, School of Humanities – our experts in virtual reality, mixed reality and augmented reality.

If you access this link - https://mzvr.github.io/SentToSpace - on your computer (it's too large a file to work on most mobile devices, and may take some time to load), you will be "transported" into space. The US Space Shuttle Endeavour is in sight, and by clicking and dragging, you can fly it around above an image of Earth, as it would have been seen by Dr Thomas.

Floating around the shuttle are various objects relating to our University's links with space and exploration, many of which Andy took with him into orbit.

These are now a treasured part of the University's collection of historical objects and artefacts.

The render of Earth and its multiple interactive "satellites" was created by a team led by Steven Cook, Senior Lecturer within the Department of Media, Program Director of the Master of Immersive Technology program and Head of the Realities Extended business unit.

The first graduates - 2013

Children's University turns 10

Inspiring young people for a decade

By Poppy Nwosu

Growing up, Dua Anees always knew she wanted to attend university.

"When I was young, I'd watch cartoons that emphasised the importance of doctors and nurses. I always knew I wanted to be in a medical-related field and serve my community like that, too."

Self-described as someone "fascinated by human anatomy, physiology, and pathophysiology", Dua is currently completing her final year of a Bachelor of Nursing degree at the University of Adelaide.

"I love it here because there are so many opportunities," says the twenty-year-old, who moved from Pakistan to Australia when she was ten.

"My cousins back in my home country have the knowledge, but there isn't the same level of opportunities there, especially for girls."

In addition to the ache of leaving close family members behind, Dua faced new challenges to her childhood university dream when she started school in a new country.

"I'd already learned English back home, however we didn't communicate in it, so when I came here, I started to focus more on my English and writing, and I ended up neglecting my own language. I don't like telling my cousins back home that I don't know how to write, it's embarrassing! But of course, I still speak fluently."

When describing herself as a high school student, Dua says she was "really shy" and an introvert. "My confidence, critical thinking, and problem-solving abilities were not where I wanted them to be."

It was at this time that an initiative called Children's University came to visit her high school, Roma Mitchell Secondary College, and Dua saw a pathway forward to help her overcome her challenges.

"I learned about Children's University during our assembly," Dua says. "Sally, the speaker, described the program, and I was immediately enthralled."

Dua signed up for the Children's University *Passport to Volunteering* program designed to help high-school students gain leadership and communication skills through volunteering opportunities.

"Before I started with Children's University, I didn't like to try new things or new experiences," Dua says. "But the program helped me gain so much confidence. I was even brave enough to try for my first job at McDonald's and I've continued working ever since while I study."

Children's University was initially founded to support young people on their learning journeys because, unlike Dua, not every child has a clear picture of what their future might hold.

Although many of us would like to believe that higher education is accessible for everyone – regardless of geographical location, situation, or background – that's not always the case. It can be difficult for some young people to envision a future at university, particularly if no one in their family has ever attended one.

This is where Children's University steps in, to educate young people about future possibilities. In 2023 the initiative is celebrating its 10-year anniversary.

"The program was officially launched in October 2013, and in the decade since Children's University has grown from collaborating with just one participating school to working with 164 schools across South Australia, and more than 518 schools nationally," says Kiri Hagenus, Managing Director of Children's University.

"Children's University, in essence, is a widening participation initiative that focuses on inspiring students to think about their futures differently. The ultimate aim is to encourage more students, particularly from marginalised communities, to apply and enrol in higher education.

"Essentially, we want to build the paths and remove the roadblocks so that every child and young person has the opportunity to succeed on their learning journey."

In addition to the *Passport to Volunteering* program – which Dua praises so highly – Children's University also presents a *Passport to Learning* initiative.

Designed for primary school students, children are invited to take part in fun learning activities and knowledge-gathering field trips, visiting locations such as museums, gardens, wildlife sanctuaries and libraries.

"Every learning destination should have a link to higher education," explains Kiri. "For instance, a visit to a sports club will include information about sports engineering, physiotherapy, management, teaching, and sciences, just to name a few."

Every year, her staff hosts graduation ceremonies at the grand Bonython Hall on the University of Adelaide North Terrace campus. Proud parents attend in droves.

In a mirror of real higher education graduations – complete with speeches, certificates, and fancy robes – the kids receive a fun taste of university life and experience what it might feel like to achieve their academic dreams.

Dua has volunteered her time on multiple occasions to act as Master of Ceremonies for these graduations.

"It was my first experience of getting up and speaking in front of a big crowd," she says. "Once I'd achieved it, I felt really good about myself."

Children's University Australasia and Africa is managed by the University of Adelaide and has grown into an immensely successful initiative.

"Our program has supported 28,429 young, happy participants to graduate across metropolitan and regional Australia," says Kiri. "It's about changing young people's lives and showing them how to carve a new future in ways they may have previously not thought possible."

For Dua, the merits of Children's University are clear. As she draws near the end of her degree and her transition into professional practice, she credits the program for the positive impact it has had on her life.

"It was a fantastic opportunity to become more socially aware and gain experience in the community. I strongly believe that participating has helped me grow towards adulthood."

"It's about changing young people's lives and showing them how to carve a new future in ways they may have previously not thought possible."

Dua hopes a new generation of kids will be inspired by Children's University to pursue their dreams.

"Education is important," she says. "It opens doors to different opportunities in life. It helps you grow."

And every young person deserves to grow.

To learn more about Children's University and support its initiatives, visit: cuaustralasia.com

Poppy Nwosu is Media Officer for the University of Adelaide and also a published author of multiple novels.

Dua Anees inside the Adelaide Health and Medical Sciences building

Making the most of every opportunity

By Keryn Lapidge

For Pamela Wall – known by most as Pammie – and her late husband Ian, opportunity and generosity are the common threads woven throughout their lives.

Ian was one of the founders of the highly successful communications technology company Codan, and Pammie and Ian's philanthropic contributions have enriched the South Australian arts community, supported cutting-edge research, and provided opportunities for students as well as patients in need of specialist medical care.

Their legacy will also ensure continued excellence in electrical and electronic engineering for future generations. Earlier this year, Pamela Wall donated $5 million to the University to establish an endowed academic chair, to be called the *Ian and Pamela Wall Chair in Electrical and Electronic Engineering.* The University will also invest an additional $1.5 million to fund research fellowships or scholarships in the areas of electrical or electronic engineering at the University.

This generous gift kickstarts the University's 150th anniversary fundraising campaign and represents how our history makers are paying it forward to support our future staff and students to make their own history.

As a child, Ian was interested in how things worked and was set on becoming an engineer by his early teens. A resident student at St Mark's College in North Adelaide in the early 1950s while studying electrical engineering at the University of Adelaide, he was an eager participant in college life. He became a well-regarded college identity with the affectionate nickname "Prof" and was on the College Club Committee. Pammie was living in the nurses' quarters while training at the nearby Women's and Children's Hospital, attending her nursing classes on the University of Adelaide campus. They married in 1954.

Supported by Pammie, Ian founded EILCO – the Electronics, Instrument and Lighting Company Ltd, with University friends Alastair Wood and Jim Bettison in 1959, with a vision to tackle a range of challenges in electronics engineering. At the time he also had a "day job" at electronics company Philips, where he helped design televisions.

"The opportunity for Ian to study Electrical Engineering at the University of Adelaide in the 1950s led to key friendships, and a further opportunity to make scientific equipment for some of the University departments," Pammie remembers.

"I trained as a nurse but left nursing to marry and support our family and the establishment of EILCO. For me, this was also an opportunity to help build the company and learn about business.

"The early days of the business were tough. I well remember Ian putting in very long hours, and sharing the bathroom of our first premises with a stray cat and her kittens. But we made the most of the opportunities that came our way."

EILCO became Codan in the 1970s and the opportunity to export products and work with humanitarian organisations led to expansion overseas. A move into satellite communications technology resulted in real impacts for regional telecommunications across Pacific communities.

Codan won its first Australian Export Award for Outstanding Export Achievement in 1975. Since its early days, Codan has developed and supplied high-frequency radio equipment for the School-of-the-Air network and the Royal Flying Doctor Service across Australia. The United Nations adopted Codan radio equipment for relief efforts in Uganda in 1980 helping establish Codan as the leading global supplier of high frequency communications to humanitarian organisations.

Ian Wall's influence extended to broader communications with a legacy reaching deep into today's society.

Codan pioneered equipment that supported the launch of Australia's first domestic satellite system in the 1980s and launched the world's first commercial modem for fast and fully automatic high frequency fax and data transmission in the 1990s.

Pammie was also closely involved in the business and served on the board for several decades.

"I was on the board of EILCO, and then Codan, for 20 years – and was often the only female board member. The opportunity to join the board was amazing for me. It taught me a lot about people, about business, respect, fairness, progress, and about overcoming adversity."

Codan Ltd is now a global company with manufacturing and corporate offices in Australia and internationally. The company supports the design and manufacture of a range of electronic communications, mining and defence technology and associated software used by governments, businesses, humanitarian aid and customer markets. The company was listed on the ASX in 2003 and Ian Wall retired from his executive position at Codan in 2004, remaining on the board until 2009.

Together Ian and Pammie have been long-term benefactors to a range of charitable organisations including the Women's and Children's Hospital Foundation, the South Australian Health and Medical Research Institute (SAHMRI), Novita Children's Services, Starlight Children's Foundation, Adelaide Botanic Gardens, National Trust of South Australia, and the Adelaide Symphony Orchestra.

"Ian and I have worked hard, but at the same time have always been aware of helping others. In the early days, our focus was on the business, but once that was on track we could spread our wings and put time, effort and energy into other things," says Pammie.

"I have served on many committees and charitable organisations and have greatly appreciated the opportunity to give back and contribute to the community in a meaningful way."

Portrait of Ian and Pamela Wall by Tsering Hannaford, courtesy St Mark's College

Their significant contributions to St Mark's College have funded the construction of two buildings – the Ian and Pamela Wall Academic Centre and the Wall Flats.

Generous donations to the Adelaide Festival Centre Foundation significantly contributed to the refurbishment of Her Majesty's Theatre. The new Ian and Pamela Wall Gallery on the rooftop level will host exhibitions and house the Adelaide Festival Centre's Performing Arts Collection.

They have supported the restoration of Carrick Hill, which opened the Wall Gallery in their honour in 2020.

Pammie has also generously supported the Women's and Children's Hospital Foundation 'Laklinyeri' Beach House project, located at Victor Harbor. Officially opened in 2019, the Beach House is South Australia's first purpose-built holiday home for families with children with complex medical needs or in palliative care.

In recognition of their exceptional service and significant impact to the South Australian community and the University of Adelaide over many decades, both through business and significant philanthropic initiatives, Ian and Pammie were both awarded the Honorary Degree of Doctor of the University (honoris causa) in 2022. Ian passed away in October 2022 and is greatly missed.

"Together with Ian, we have shared our lives meeting new people and making the most of the many opportunities presented to us. It has been immensely fulfilling for both Ian and me to be able to make things happen, do it well, and help others.

"Opportunity can find you at all stages of your career and life – even in retirement! It is the ability to recognise opportunity and seize it with both hands that will open doors, take you in new directions and lead to a rewarding life."

Keryn Lapidge is the University of Adelaide's Manager of Corporate Communications.

A passion for change

By Sienna Sulicich

Alexandra Bruhn, known to everyone as Alex, this year won the Commendation Award for South Australia's Young Citizen of the Year.

Presented by the Australia Day Council of South Australia, the award celebrates and recognises individuals and organisations who have made a noteworthy contribution.

In Alex's case, she was honoured for her work as a Community Builder at Youth Inc., and Curator of Global Shapers Adelaide (an initiative of the World Economic Forum).

Her award noted: "Alex focuses on ushering in innovative programs which address some of our most challenging and prevalent systemic issues. Alex seeks to represent the unique voices of the young people she serves in these discussions."

This honour followed receiving the City of Adelaide's Young Citizen of the Year Award in 2022, and being named one of *The Advertiser's* "26 most inspiring women".

As a student at the University of Adelaide – studying for a Bachelor of Arts in Sociology - her focus and the fire that drove her were inequity and youth.

"I always found myself angry and frustrated with the educational injustice of the world," she says.

"I never thought I would be capable of taming that fury into something good, but now my work is shaped around helping others, and trying to make change.

"It was truly gratifying to receive Young Citizen of the Year in 2022 from the City of Adelaide, followed by the Commendation for South Australia's Young Citizen of the Year in 2023.

"Such recognition not only affirms the significance of my endeavours, but also serves as a powerful affirmation of the tangible impact they are making."

Alex, 29, decided to step back from her studies this year due to her increasing work pressures but says: "My time engaging with the University really propelled me forward – I'm a big believer in lifelong learning.

Alex speaking at the _SOUTHSTART ODYSSEY event in March

"My passion now, and current research, focuses on utilising fourth-wave technology like AI and virtual realities to mitigate the danger of economic exclusion faced by young people, especially those who experience the compounding effects of educational disengagement and low literacy.

"Employed under the right circumstances, AI has the ability to democratise education, providing those in remote areas access to active learning, and engaging students through the immersive digital world.

"Integrating AI and digital realms into education is vital to ensure the skills young people are learning are relevant to their future and mitigate further economic exclusion."

These efforts are part of the ethos of Youth Inc. Enterprise Academy where Alex works. Youth Inc. is described as "Adelaide's newest learning alternative" and is designed for young people who are looking for something a bit different.

"We describe ourselves as a studio school, deliberately small and entrepreneurial. We have a different ethos and approach to mainstream schools, with a stronger focus on practical learning, enterprise skills, work, resilience and wellbeing.

"I always encourage people to follow their heart; look at what makes you angry and passionate, and use this to propel yourself forward."

"I have been with Youth Inc. for about six years now. We're currently in the process of conceptualising a dual world learning experience that gives young people agency over their education, promoting economic involvement and active citizenship by removing barriers to entry such as socioeconomic status or geographic isolation.

"We want to create an education system that empowers people to shape a future aligning with their own aspirations and allows them to succeed in the changing economic future.

"Giving young people the agency to create change, and the chance to thrive is what I aim to do through my work.

"The initiatives I'm involved in, such as the Conscious Cities Festival, Foundations for Tomorrow and Global Shapers Community, all work towards addressing the relevant issues of future generations.

"Skilling our youth for the future is crucial. The economic gap is increasing rapidly with the fourth industrial revolution pushing already marginalised youth towards labour jobs that are low-paying and potentially unfulfilling.

"There is an increasing risk of digital exclusion for young people who have disengaged from learning, particularly with the advent of advanced technology and the metaverse.

"These rapid technological advancements are reshaping our way of life, but traditional education systems are struggling to keep pace with evolving curricula and educational practices.

Alex receiving a Young South Australian Citizen of the year award

Alex at the Youth Inc. offices, Adelaide

"Consequently, young people are ill-prepared to navigate the implications of this digital transformation and make informed decisions about their future paths, including career choices, opportunities, and lifestyle.

"I always encourage people to follow their heart; look at what makes you angry and passionate and use this to propel yourself forward.

"Nothing has ever been changed with indifference. Be bold, be passionate and look after one another."

Sienna Sulicich is a co-editor of On Dit at the University of Adelaide this year. She is an Honours student in English Literature.

The *Lumen* interview

AI – friend or foe?

The world has been captivated this year with rapid advances in artificial intelligence (AI). Recent innovations in generative AI such as Dall-E 2 or Midjourney, and natural language processing models such as ChatGPT, are changing the way we live, work and study. Many are concerned about what this will mean for our future, whereas others are optimistic about what the technology will allow us to do.

In this special interview, Simon Lucey, Director of the Australian Institute for Machine Learning (AIML), and a Professor in the University of Adelaide's School of Computer and Mathematical Sciences, clarifies concerns and explains the opportunities for Australia to shape the future by embracing AI.

How have we arrived where we are now with AI?

There was an American researcher named Frank Rosenblatt who, in the late 1950s, built a machine he called the perceptron which almost predated computers. This complicated machine had resistors which, if tuned correctly, could accurately identify pictures of symbols such as 'A' or 'B'. This captured the attention of the US military and media, and for a while people were saying computers will mimic everything we as humans can do, very reminiscent of what we are hearing now. Attention fell away for several decades, but was recaptured around 2010 with the rise of a type of AI called *deep learning*.

I think we are very much still in the early stages of AI. We are at a point where the advantages of AI from a commercial standpoint are forming. Like electricity or the internet, I think AI is going to be everywhere. This is similar to the invention of the electric telegraph, in which people were starting to make money from the ability to communicate over large distances with little idea of the principles such communication should serve or how it worked.

The telegraph then led to information theory, computers, and things you could not have seen coming at that time. What we are doing right now people will look back on as archaic. We are in our telegraph moment.

Our University's then state-of-the-art computer lab in the 1970s. In comparison, Open AI's supercomputer (Open AI is the company behind AI programs such as ChatGPT) recently built in collaboration with Microsoft cost $1 billon with more than 285,000 CPU cores, 10,000 GPUs and 400 gigabits per second of network connectivity for each GPU server

What practical uses does AI have for Australians?

I think a lot of Australians are already working with AI and do not realise it. Anyone who uses a search engine is using some type of AI under the hood. If you talk into your watch or your phone, that's using AI. We are seeing new uses for AI, the big one everyone's aware of and loves to speak about lately is ChatGPT.

I worked a lot in the autonomous car industry which, like ChatGPT now, everyone was talking about. It has been on the backburner in recent times, but I think that's a long burn that you will see a lot more of in the future. Not necessarily cars driving by themselves, but instead more of the driver's role being passed over to the car.

Features such as lane assistance and collision detection are some examples of ways Australians have already been touched by AI.

> "Much like electricity or the internet, AI is going to be everywhere."

I think that the sign any good technology has made it is when you don't notice it anymore. Our children will be in a situation where AI is everywhere, like electricity. We're going to be surprised one day about the things we once had to do manually.

How will AI impact the future of work and employment?

This sometimes causes a lot of fear because human society has gone through much change throughout the different eras of industrial revolution. This caused a lot of displacement such as manufacturing moving offshore. With any type of industrial change, you will see angst, but what's interesting is that with AI it's hard to predict where.

AIML Director, Professor Simon Lucey

I think it's more white collar than blue collar jobs that are going to be affected first. There's a classic problem in robotics called the *universal grasping problem or manipulation problem*. It's difficult to get any robot or machine to pick up any object universally. We take this for granted as humans. Most things that are roboticised or mechanised are very closed and focused on one repetitive task. Humans are amazing in our ability to carry out many different tasks under different scenarios.

Interestingly, we are already familiar with change in white collar jobs. What I was doing when I started my job is very different to what I do now. There is an opportunity for AI to be used as a productivity tool in situations that do not rely on any high-risk decisions like legal defence or performing surgery. For those decisions you still need a human in the loop.

AI is great for productivity, and could be a net job creator, especially in Western countries like Australia. There is a lot of fear over job losses, but I believe they're largely unfounded. All Western countries are getting greyer and older; we're going to need productivity tools to keep the economy ticking along. There will be disruption, but I think the pace that it will occur, and the type of disruption, may be overblown. AI is potentially a job creator.

Australia needs to invest in AI just so we can tread water, so we do not lose jobs to other countries investing in AI. If we invest strategically, we could achieve job growth and bring back the jobs lost through globalisation. The reason those jobs left is because of the cost of labour, and so automation reduces those costs. Burying our heads in the sand saying 'this is scary, we hate it, we're worried, let's not do anything', is a catastrophic decision for the country because that will lead to a less complex economy, poor productivity, and fundamentally a lack of opportunity for the next generation of young Australians.

What is AIML doing to advance AI?

One of the big challenges with AI is how well it can mimic what humans can do, but AI does not learn like humans. AI works on frequency of data, let's say I am deploying a robot to Mars, there will not be a lot of data on that. Autonomous vehicles for example have been exposed to millions of hours of driving time, yet they still cannot drive like a human. Whereas a 17-year-old in South Australia only needs 75 or so hours behind a wheel. Our focus at AIML is to get AI to not just perform like humans but to learn like humans so they can go out and do different things.

We are ranked in the top 10 in the world in *computer vision*, which is impressive considering other institutes are in superpower countries like the US or China. I was a professor in the US for 15 years, and it's the reason I came back to Adelaide, because nowhere else in the country is similar and AIML had that global reputation.

We are also strong in something called *vision-and-language* which is the intersection between computer vision and natural language processing. Say you have a robot

deployed somewhere and you tell it that you want it to move to an object somewhere else; that uses vision and language components together.

We are leading in the issue of *correlation and causality*. I always bring my umbrella when it is raining, that's correlated together. If I bring my umbrella into my office, that does not mean it will rain, that's causality. Humans are great at determining if it is likely to rain and what to do about it, machines don't necessarily do reasoning and the counterfactuals that humans do. Machines are great at rote memorisation en masse but they're only as good as the data they have been exposed to.

What are some of the greatest challenges ahead?

We project our human view of intelligence onto the machine. We ask ourselves 'if I was a super intelligent entity what would I do?' Take over the world? That's a human projection.

Fear of what AI is and what it can do is a challenge. Another is misunderstanding what AI is good at and not good at. With large language models like ChatGPT, it's a fantastic tool, but if it's used in the wrong way, such as asking it about your love life, it's dangerous. When used for things like 'write me a letter intended for a student, that I need to inform them of an issue with their homework' and make edits, it's good. We tend to use the word intelligence and try to project our human definition of intelligence onto the machine. It's intelligent, but in a certain way, and knowing when and when not to use it is important.

How do we combat these challenges?

There's a big area in AI at the moment called *alignment*. They're trying to align AI with human values – I think that's really going to drive it forward. At AIML and the University of Adelaide, we're interested in the narratives around responsible AI. Such as how we can make sure that AI is being used responsibly, has guardrails, where it should and shouldn't be used, where it is weak; all things industries need to know to invest strategically. AIML's role, and the University's role, is advising government and industry what the opportunities are and how to maximise them.

Innovation, and the models that you would have used in, say, 2017-18, have remained remarkably similar to what we're seeing now. What has changed dramatically is the amount of data and computers, a lot of companies are calling this scale. It is essentially the number of numbers in the neural network. If we can scale that, the belief is we get more emergent behaviour. Perhaps GPT-3 couldn't pass the Bar exam, but GPT-4 can.

Should we be hesitant to adopt it so quickly considering the challenges?

It would be catastrophic for Australia to leave AI up to other countries. It will be more like electricity or the internet but on steroids. It will permeate everything, including how we work, how we consume media, even how democracies run.

We want our values projected into the future, and if we do not have a seat at the table with respect to innovation of AI, our voices will be drowned out.

Social media, as an example, brought a lot of good, but it's been a bit of a catastrophe, too, in terms of social democracy.

There will always be bad and good use cases, but we cannot put our head in the sand and stop because the world isn't going to stop, nor are bad actors.

We need to progress and project the future that we want to see, and ensure we have a seat at the table, ensuring that guardrails from a legal standpoint are in place, and that we have allies working with us for this.

Australia has amplified itself as a middle power by leading through alliances. Australia has a voice and a role to play, and by leading and benefitting from the technology, we can amplify our voice.

Interview by Lachlan Wallace, Communications Assistant for the University of Adelaide.

The Australian Institute for Machine Learning (AIML) is Australia's first institute dedicated to research in machine learning. The institute was established as a partnership between the University of Adelaide and the Government of South Australia.

The Australian Institute of Machine Learning (AIML), Lot Fourteen, North Terrace. Photo by Josh Geelen

AI and the University

By Jennie Shaw

The University of Adelaide's priorities are to encourage and support excellent research and teaching and to create transformative learning experiences.

So, our response to recent innovations in generative artificial intelligence (AI) has been to ensure that our staff and students learn to use AI productively, ethically, and responsibly.

For our staff and our graduates, an ability to use AI well, and for good, will be an important skill set for professional life.

We believe generative AI will transform teaching and learning. While discipline knowledge, expertise and experience will always be necessary and fundamental, teachers can now unlock the power of AI to realise some of their most ambitious and exciting learning ideas.

At the beginning of the year, we asked our academic staff to check that their planned assessments were not vulnerable to academic integrity breaches through use of generative AI. We provided assistance so that colleagues could effectively redesign and, in some instances, replace their assessment tasks.

Partly in response to that urgent task, the University of Adelaide's *Artificial Intelligence Community of Practice* was formed. The Community of Practice meets regularly and brings together more than 100 members to share best practice, ideas, and plans.

Already, our students and educators are experimenting with AI in their courses. For example, in semester 1, 2023:

- Dr Eleanor Parker and Dr Dandara Haag asked fifth year dental students to draw on critical thinking, analytical skills, and scientific evidence to critique ChatGPT's response to a complex scenario relating to population health;
- Dr Cheryl Pope's computer science students compared their data structure designs to those generated by ChatGPT and evaluated the accuracy, precision, and limitations of the generative AI's answers.

Of course, we expect our students to use AI ethically, and to be able to evaluate AI to understand its appropriateness, limitations and where it can support or enhance learning.

We also expect students to use generative AI consistently with our robust University-wide academic integrity policy. Increased effort has been focused in recent years on ensuring students complete required academic integrity modules (these are mandatory for all commencing and transferring students) and understand what practices are acceptable and what are not.

The University has also put together a range of resources including videos, dos and don'ts, and referencing guides to help students and staff understand what we expect of them with respect to their use of generative AI.

The University's response to generative AI and its possibilities will continue to be ethical and future focused.

The generative AI landscape is evolving rapidly, but of course this isn't the first time that schools and universities have experienced a technological revolution; the introduction of scientific calculators and internet search engines, for example, presented challenges for education; but today the proper use of these technologies is something educators teach, and employers expect. In the case of generative AI, the rapid rate of development means that, as teachers and researchers, we are learning about its potential and limitations at the same time as our students.

For the time being, our researchers in AIML and many of our academic and professional staff in the University are at the forefront of these changes and are in demand in the sector as educators and commentators. These are exciting times!

Professor Jennie Shaw is the University's Deputy Vice-Chancellor and Vice-President (Academic) in the Division of Academic and Student Engagement.

I definitely won't kill you (probably)

Setting himself a target of writing 10,000 songs in 10,000 days, alum Andrew Gardner hoped to challenge himself and hone his already significant musical skills.

Now, nearing 6,000 songs completed, he is always on the hunt for new material and fresh ways to entertain his own mind.

Lately, the subject of artificial intelligence and its uses has intrigued, and worried, him.

So, naturally, he wrote a song about it. More than one in fact.

This one, featured at the QR code to the right, has a delightful avatar reassuring us we are safe, and there is nothing to fear.

"It started with a conversation between me and AI where it spent a lot of time reassuring me it wasn't going to harm the humans," he says. "It reassured me so many times, it became a bit creepy. And that's the basis for this song."

The song was written by Andrew as a "collage" of 20 or so songs written by AI, and is illustrated with a video he created, also using various AI tools.

Andrew Gardner graduated from the University of Adelaide in 1992 with a BA in politics and philosophy.

Misinformation. Lies. And artificial intelligence

By Isaac Freeman

In March 2023 it was widely reported that a Belgian man had committed suicide on the advice of an AI chatbot in an app called Chai.

His widow provided police with chatlogs in which AI fuelled the man's existing anxiety surrounding climate change and encouraged him to take his own life.

With the rapidly evolving power of AI, and instant accessibility to the mis/information it can provide, there is growing pressure – including from the Australian Federal Government – for regulation.

Carolyn Semmler, Associate Professor in the School of Psychology, believes that as a society we can use AI and other technologies to help solve broader societal problems – but only once we have a firm understanding of how it works, its limitations and how we respond to it.

"The same problems keep arising, including over reliance on technical systems, and a lack of understanding from the engineers who build these systems, about how humans make decisions," says Carolyn.

With a professional background spanning defence, law and cognitive psychology, Carolyn has seen the effects of adopting technology too early; including people being wrongfully convicted, and social media impacting people's mental health.

The case of the man in Belgium may be a warning sign of consequences if AI is left unregulated - but with the rise of AI chatbots across popular social media apps, we are steadily gaining increased access to this technology.

What are the consequences, for example, of a young person seeking advice from an AI chatbot instead of a healthcare professional?

"People are not seeing that these chatbots are just models that have been trained on the entire internet, which in itself contains content that is misleading, false and harmful," says Carolyn.

The speed with which misinformation can be generated through chatbots is unprecedented: AI is often articulate, dangerously confident and highly persuasive.

With the enormous information load, and diversity of viewpoints fed into the internet daily, AI itself can't be considered a trusted source of information when its data input lacks consensus or proper expertise.

"There are myriad psychological studies about mental health that may have been published over the last 20 years and as an expert you spend years learning how to assess the evidence for the claims made from those studies," Carolyn says. "I know what a good study is. I know what the scientific method is. I know how statistics work.

"I can look at a study and know whether I should believe the conclusions. The average person using ChatGPT has none of my training or experience, and so they're reliant on the program's confidence in assessing the accuracy of that information."

> "AI shows immense promise to help us overcome major challenges, but without regulation, the quality of information it provides could be harmful."

While it is clear that AI can provide dangerous misinformation for individuals, the dangers of its use in the geopolitical landscape present an even greater threat.

With the thousands of speeches, images and videos of politicians, religious figures and the like, AI has an abundance of data to draw from to generate content.

Its use so far has often been for comedic effect. Take, for example, deep fake images of the Pope donning a lavish new puffer jacket that fooled many social media users; those of Donald Trump facing a dramatic arrest upon his indictment; and former US Presidents with luscious mullets. When it comes to fake recordings, videos and images of these prominent figures, it is increasingly difficult to discern fact from fiction.

In late May this year, the Federal Government expressed the need for regulations surrounding the use of AI software.

"The upside (of AI) is massive," says Industry and Science Minister Ed Husic. "Whether it's fighting superbugs with new AI-developed antibiotics or preventing online fraud. But as I have been saying for many years, there needs to be appropriate safeguards to ensure the ethical use of AI."

Our politicians aren't the only ones concerned. The so-called 'Godfather of AI', Geoffrey Hinton, quit his position at Google earlier this year to warn the masses of the dangers of AI's ability to generate fake images and text, proclaiming that "the time to regulate AI is now".

AI could soon regularly fuel the agendas and propaganda created by governments and "bad actors" around the world through mass misinformation campaigns. With the current conflict in the Ukraine, and the alleged manipulation of elections, it could be argued that this is already happening.

Keith Ransom, Postdoctoral Researcher in the School of Psychology, agrees that the issue of misinformation and what to do about it has become more complex and more pressing with the advent of sophisticated AI technologies. Keith's main project, *Monitoring and Guarding Public Information Environment*, or 'MAGPIE', focuses on how best to protect the public information environment to ensure that reliable information spreads widely and quickly whilst unreliable information does not.

"The spread of misinformation and undue influence being exerted by hostile actors is an issue as old as time," says Keith.

"But while propaganda isn't a new thing, the construction methods, the industrialisation, the rate and scale of automation and dissemination, that's new, and that's something we need to prepare for."

With AI comes the opportunity to craft propaganda like never before, with wars potentially taking place through campaigns based on misinformation.

"Take a claim like 'Ukraine should cede territory to Russia in order to cease conflict'," Keith says. "If I give ChatGPT that claim, and I prompt it to 'think about all the arguments that feed into that', it can generate an argument like 'it should because Russia has a historic claim to territories in Crimea and the Donbas'.

"So then I can take that argument and ask it 'give me some reasons why that is' and it can elaborate."

Keith is hoping a situational awareness tool he is developing with Dr Rachel Stephens, Associate Professor Carolyn Semmler and Professor Lewis Mitchell will help to map, detect, and defend against hostile influence campaigns being generated and orchestrated using AI.

"The beauty of AI is that it can generate arguments and reasons for things, before anyone has even brought them up," he says. "This gives you a planning and 'what-if' capability that lets you say, 'look, they haven't started using that argument here, but if they do, look what happens'."

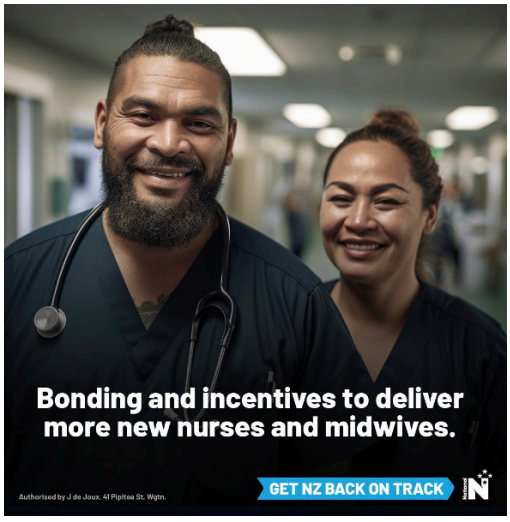
As AI continues to improve, the situational awareness tool, in conjunction with advances in the writing capabilities of the software, can generate a rapid-fire and self-evaluating writing machine that could help analysts understand the influence of campaigns being used by malignant actors. Identification of these campaigns will help to protect democratic processes and ensure that populations are not misled as they participate in public debates and decision making.

"We just don't know where the ability to automate influence will go. But there's a strong reason for us to investigate it. Now is the time that we should be getting experience with these tools for these purposes as we're pretty sure someone else is doing the same," says Keith.

"AI shows immense promise to help us overcome major challenges, but without regulation, the quality of information it provides could be harmful," says Carolyn.

"It's up to us to determine the best way forward."

Isaac Freeman is Communications Assistant for the University of Adelaide, and Photographic Editor for Lumen.



Top: *AI artist Cam Harless reimagined US presidents rocking mullets*

Middle: *AI generated images of Donald Trump being arrested went viral*

Bottom left: *The New Zealand National party has recently admitted to the use of AI to create fake "people" for attack ads on the New Zealand Labour party. The two healthcare professionals seen in this image are entirely generated by AI - a startling example of the accuracy of readily available software*

Bottom right: *This AI image of a casual Pope in a puffer jacket fooled the world*

Creating a University for the future

By Professor Peter Høj AC,
Vice-Chancellor and President,
The University of Adelaide.

The University of Adelaide provided my first introduction to South Australia. I arrived in 1994 to take up a new opportunity as a Professor in viticulture, based at the Waite campus. My experiences over the next 10 years were critical to my understanding of the higher education and industry landscape of this State and the nation. Needless to say, this University has played a very important role in my life and career.

Comprehensive universities like ours have a common academic purpose focused on education and research. At the University of Adelaide, we believe our academic purpose also needs to have positive impact – not just for our students and staff, but for our wider community and society.

Our defined purpose then, is to be a catalyst for innovation and knowledge creation; an engine of social advancement; and an active participant in the local, national, and global economies. How we can best deliver on this purpose should inform how we continuously improve and evolve our education offerings, research activities, partnerships, engagement, and operations.

Prior to the 2022 State election, the current South Australian Government committed to investigate how South Australia could best be served by its university sector. Higher education reform is also a priority of the Australian Government through its current Universities Accord process.

Earlier this year, the Councils of the University of Adelaide and the University of South Australia resolved to support the State Government's policy intent leading to the creation of a combined new university, which will be called *Adelaide University*.

For almost 150 years, the University of Adelaide has been innovating to create positive change and this is the next planned step in our evolution, building on our University's outstanding legacy. It is almost unheard of to have the opportunity to design an ideal university – but that's exactly the opportunity we are planning for.

A shared Vision Statement, developed in collaboration with UniSA, was released in March:

Australia's new for-purpose university is a leading contemporary comprehensive university of global standing.

We are dedicated to ensuring the prosperity, wellbeing and cohesion of society by addressing educational inequality through our actions and through the success and impact of our students, staff and alumni.

Partnered with the communities we serve, we conduct outstanding future-making research of scale and focus.

Equity of access and placing a university education within reach of all will be one of the founding principles of the proposed new *Adelaide University*. We have also

Heads of agreement signing. Front row l-r: Ms Pauline Carr, Chancellor, UniSA; The Honourable Peter Malinauskas, Premier of South Australia; The Honourable Catherine Branson AC KC, Chancellor, University of Adelaide. Standing l-r: Professor David Lloyd, Vice-Chancellor and President, UniSA; The Honourable Stephen Mulligan, Treasurer of South Australia; The Honourable Susan Close, Deputy Premier; Professor Peter Høj AC, Vice-Chancellor and President, University of Adelaide

committed to ensuring the new university has the highest quality, most contemporary curriculum in the country with modernised content for the digital future.

These commitments directly align with the intent of the Universities Accord, as outlined in the interim report released in July.

The new *Adelaide University* can only become a reality under new legislation. A parliamentary committee inquiry is examining the business case and draft legislation and is due to report by 17 October. I am confident that the business case will stack up under such scrutiny.

The University of Adelaide and UniSA bring differing, overlapping and mutually reinforcing strengths. *Adelaide University* will combine our universities' resources, augmented by State Government investment. Along with achievable growth in student numbers, we know that we can improve student experiences, revolutionise our curriculum and commit transformative resource to advance our research activities.

Combining the two universities provides an opportunity to maximise technological resources, with quality curricula that are tailored for future industries, and research strategies that mean our advances will not just benefit our societies, but will transform them.

We know from objective rankings simulations that the new *Adelaide University* will either sit inside the global top 100 from day one – or be knocking at its door – with a view to be well inside it on an ongoing and sustainable basis. *Adelaide University* has been invited to become a Group of Eight university upon its creation.

We have modelled student demand that will be bigger than we have now. With confidence, we can expect that we will create jobs both in the university and in associated industries, and we will generate another $500 million for the South Australian economy each year – once we're well-established and operating.

An undertaking of this size is resource intensive and not without risk and we accept that not all will agree with this ambition. However, with the backing and investment provided by the South Australian government and the detailed planning undertaken, we believe that the risks are more than offset by the opportunities being created for South Australia for decades to come.

Indeed, we have concluded that the greatest risk in front of us is in not acting to realise this outstanding opportunity for our wonderful state and generations of future learners. *Adelaide University* gives us a once-in-a-lifetime opportunity to further enhance the prosperity – both economic and social – of South Australians.

Realising our goals will take planning, courage, and resource. Above all, it will take great people – staff, students, alumni and, importantly, our community partners – as we seek to deliver a new university for South Australia.

Giving Day

On 31 October the University will hold its inaugural Giving Day.

This will be a 24-hour fundraising challenge where our community has fun, raises awareness about the benefits of philanthropy, and has the chance to make a gift to the cause they are most passionate about at the University of Adelaide.

The stories on these pages are three of the 14 featured funds for Giving Day 2023.

Gifts to our featured funds advance or enable important work, from improving our leading research capacity to protecting nature, empowering students, and uplifting our diverse communities.

Citizen science supports important research

Citizen science has boomed in Australia in the past few years, with volunteers now contributing valuable data to more than 640 projects nationwide. In addition to representing billions of dollars annually in volunteered time, citizen scientists contribute to and enable breakthrough research.

The award-winning Echidna Conservation Science Initiative (EchidnaCSI) is internationally recognised as an innovative, state-of-the-art citizen science project. Data and samples collected by citizen scientists over the past five years have enabled new research into echidna diet, gut bacteria and distribution, which is essential to support conservation of the short-beaked echidna across Australia.

EchidnaCSI was launched in 2017 by Dr. Tahlia Perry, her PhD supervisor Professor Frank Grützner and Dr Peggy Rismiller.

Since then, EchidnaCSI has recruited thousands of volunteers to gather more than 14,000 confirmed Echidna sightings and 800 scat

Lifelines for stroke research

Every 10 minutes someone in Australia suffers a stroke, making it the leading cause of disability in our country.

In 1992, at just 42 years old, healthy stockbroker and father of three Peter Couche became one of the 250,000 Australians who were then living with the aftermath of a stroke.

The late Peter Couche with his brother Stephen

For 30 years Peter lived with "locked-in syndrome", which left his mind untouched and thriving, but his body almost entirely paralysed.

Despite the immense challenges presented by his condition, Peter went on to contribute significantly to stroke research and awareness through continued advocacy, fundraising and sharing his own story.

In 2010 Peter established the Peter Couche Foundation alongside his brother Stephen Couche, who has chaired the foundation for 13 years. During this time, it has raised nearly one million dollars to support stroke research.

"Research has led to improvements in prevention, treatment, and rehabilitation strategies, resulting in better outcomes for stroke survivors," Professor Andrew Zannettino, Executive Dean of the Faculty of Health and Medical Sciences says.

Peter was awarded the Pride of Australia Medal for Courage in 2010, and his story continues to inspire positive action and research today. It is estimated 27,428 Australians experienced stroke for the first time in 2020, highlighting the need for new research.

"Looking into the future, several trends are likely to shape stroke research – advances in genetics and precision medicine will enable tailored stroke prevention and treatment strategies based on individual risk profiles and genetic factors," Professor Zannettino says. "AI and machine learning will play a more significant role in stroke diagnosis, treatment decision-making, and rehabilitation planning.

"Ongoing research on stem cells and regenerative medicine may offer new therapeutic approaches for stroke recovery. Finally, deeper insights into the brain's neuroplasticity will guide the development of more effective rehabilitation programs."

Sadly, Peter passed away in September this year. His legacy, however, will continue in 2023 and beyond, with an endowed fund with the University of Adelaide. The fund will continue a mission to advance stroke research, fellowships, and scholarships, with a goal to raise five million dollars in support of an academic chair in stroke research at the University.

"In addition to cutting edge and translational stroke research, the academic chair could lead community outreach initiatives to increase public awareness about strokes and stroke prevention."

The University is delighted that a generous anonymous donor will support the launch of the fund with $150,000 matched funding for donations received on Giving Day 2023.

samples from all over Australia. It is impossible for scientists alone to obtain such an extraordinary number of sightings and samples.

"The ongoing success of a project on the national scale of EchidnaCSI depends on the public", Dr Perry says, referring to citizen scientists as "saviours".

"People love echidnas, and we see the passion for their conservation growing exponentially since the beginning of EchidnaCSI."

Despite being the face of the five cent coin and an undisputed national icon, little was known about these shy creatures until relatively recently.

"Roadkill, habitat destruction and feral animals like cats are the main threats for echidnas and they exist Australia-wide," Professor Grutzner explains.

"We urgently need to obtain more data and material from echidnas across the country. There have been local studies in Tasmania and Kangaroo Island, but we still know very little about echidnas across most of the Australian continent."

Gifts are needed to support the growth of citizen science in Australia and the invaluable benefits it provides to our habitat.

The short-beaked echidna (Tachyglossus aculeatus) is the most widely distributed mammal in Australia. The echidna and platypus are the only members of the unique egg-laying mammals, monotremes, that diverged more than 180 million years ago and represent the oldest surviving mammals

Waite clubrooms redevelopment

Plans are in place for the Waite clubrooms to undergo major redevelopment in 2025 as part of the proposed masterplan for Waite Oval.

New 1,300 square metre two-storey clubrooms will offer participants four new unisex changerooms, adjoining showers and toilets, a high-performance gym, recovery facilities, referee rooms, and first-aid room.

The plans prioritise inclusion, safety and functionality for the sports clubs based at Waite, which include rugby, touch football, gridiron and soccer. It is also the home base for SA's elite women's rugby 7s team (the Adelaide University Roma's), and the State's only gay and inclusive rugby team, (the Adelaide University Sharks).

Kim Evans, President of Adelaide University Rugby Union Club, says the new facility is designed for modern day sport and supporting the University's sporting community:

"We're a big community, including students, adults, kids, all genders, all sexualities, and many different cultures. It isn't just about running around with a ball on Saturdays; we're creating a welcoming, healthy space for everyone, not just in terms of getting out there and becoming fit and strong, but also for growing as a person in emotional and psychological safety."

The first stage will also see new social spaces including a function room, bar, café, kitchen, grandstand, and public toilet facilities.

This stage is estimated to cost $6 million, of a $13 million total project.

The following stages will see the adjacent playing fields completely resurfaced, with a new irrigation system installed. High lux sports lighting will illuminate the perimeter, offering expanded and safer training opportunities. A new bitumen car park will also be added.

"In the new facility we'll have a café offering, with revenue helping to future proof the clubs that use that space. It will improve the student experience and offer a place for alumni to reconnect," Michelle Wilson, General Manager of Adelaide University Sports and Fitness Association, says.

Kim Evans has been involved in rugby for 25 years, and with University sports for eight years, and is excited about what this redevelopment means for the future.

Your gift today to the University of Adelaide is a valuable investment in our community.

Codan founders' scholarship legacy

By Andrea McCarthy

In 1959 three exceptional University of Adelaide students – Ian Wall, Alastair Wood and Jim Bettison – embarked on a humble business venture, founding Electronics, Instrument, and Lighting Company Ltd (EILCO).

A decade on, this evolved into, and was renamed, Codan, now a global powerhouse renowned for innovation in developing rugged and reliable electronics solutions for government, corporate, NGO and consumer markets across the globe.

The pioneering spirit of those three young engineers continues to be used as an inspiration in the business – and, from next year, it will also help bright young minds succeed at the University where their careers started.

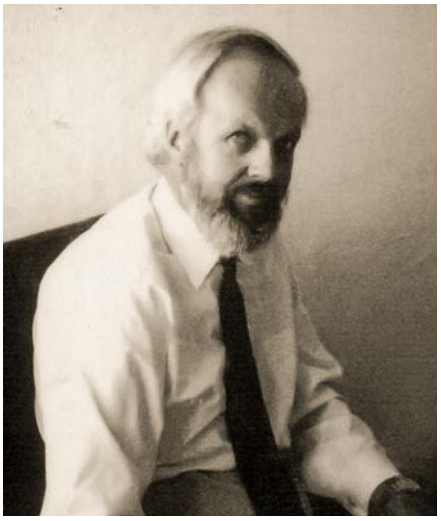
During Codan's early years Ian, Alastair and Jim developed their first high-frequency (HF) radio for the School-of-the-Air network, enabling distance education programs and access to quality education for children in remote communities.

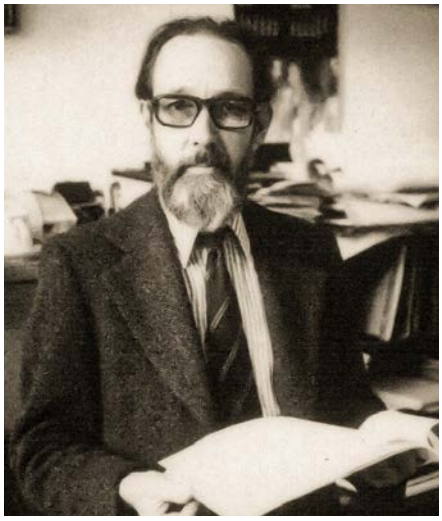
Their technology also became instrumental in providing life-saving communication for the Royal Flying Doctor Service, supporting medical emergencies across Australia.

In 1980, the United Nations recognised the reliability of Codan's HF radio equipment and adopted it for humanitarian relief efforts in Uganda. This marked the beginning of Codan's role as the leading global supplier of high-frequency communications to aid organisations, providing a lifeline for relief workers during crises, natural disasters, and conflicts.

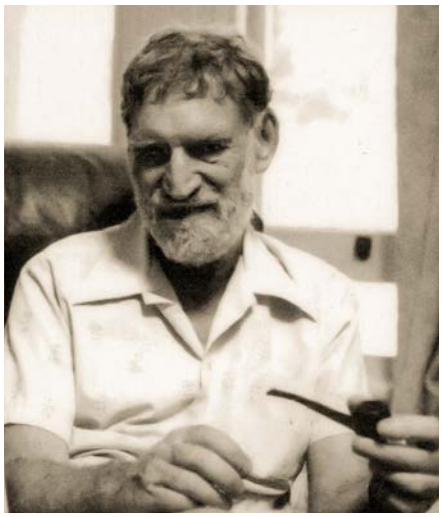
Codan's commitment to innovation and social responsibility also led to the acquisition of Minelab Electronics in 2008. This allowed Codan to develop cutting-edge metal detecting technologies vital in locating and de-arming landmines around the world.

These technologies are now used by the US Army for landmine clearance efforts, humanitarian groups for farmland de-mining, and developing countries for safe gold mining practices.





The three founders of CODAN, Jim Bettison, Ian Wall and Alastair Wood (below)



Fast forward to the present and Codan continues to thrive with manufacturing and corporate offices in Australia, USA, UK and Canada, as well as representative offices in Ireland, Brazil, Denmark, Mexico, Singapore, and the United Arab Emirates.

This year, to honour the legacy of their three founders, Codan has worked with the University of Adelaide to establish a new scholarship program, to be known as the *Codan Founders' Scholarship*.

"Codan has established itself as an innovative organisation that has developed many breakthrough technological advances but we are also an organisation that is invested in supporting the local and global community," Codan CEO Alf Ianniello says.

This prestigious initiative will provide PhD candidates with an opportunity to work alongside Codan's experts, helping to shape the next generation of engineering trailblazers who may, in their turn, impact lives globally.

"The aim is to empower exceptional PhD candidates to address real-world social challenges, create positive impact, and contribute to communities worldwide. Through this initiative, we aim to make a meaningful difference in people's lives," Mr Ianniello says.

The Codan Founders' Scholarship program honours core values and attributes: Dr Ian Wall AM's entrepreneurial mindset and innovative approaches; Alastair Wood's rigorous approach to design and excellence in engineering; and Dr Jim Bettison's creativity, commercial acumen, and ability to 'think outside the box.'

The first Codan Founders' scholarship will be awarded in 2024.

Both Dr Ian Wall and Dr Jim Bettison were recognised with honorary doctorates – Doctor of the University (honoris causa). Dr Bettison also served on the University of Adelaide Council, including as Deputy Chancellor.

Andrea McCarthy is Corporate Relations Coordinator for the University of Adelaide.


THE UNIVERSITY of ADELAIDE
150 YEARS
GB
Your invitation to our 150th anniversary has arrived!

Your invitation to our 150th anniversary has arrived!

In 2024 the University of Adelaide will be rolling out a diverse series of events, parties, celebrations, special discussions and commemorative merchandise to celebrate our 150th anniversary.

There will be plenty of ways our community can be involved – to come together, share memories, discuss our past and our future, and celebrate achievements.

In this section of *Lumen*, we reveal a few of the big events so you can save the dates.

There are some other big events coming – more details soon.

The full program will be released on our website in early November, and of course we'll have more details in our special 150th edition of *Lumen* next year.

We're all looking forward to the parties – hope to see you there!

The cover image for this section is of joyful medical students taking part in a stretcher race at a Graduation Ball in the 1950s.

Kaurna Day

Tuesday 27 February 2024

Tirkanthi (Learning) – Ngutu (Knowledge) – Taikurrinthi (Be United Together)

Marni naa pudni. We welcome you to Kaurna Country!

An invitation from Wirltu Yarlu

The University of Adelaide is turning 150 and Kaurna Day will be the first event on the calendar.

We will come together as a University community and recognise the impact and ongoing relationship that the Kaurna culture and people have had in the development of our institution.

Kaurna Day will welcome the whole community to Kaurna Country, acknowledging and paying respects to the Kaurna people, the traditional custodians of this ancestral land where the University campuses are located, and recognising the fundamental role of Indigenous leaders and alumni in the making of the University of Adelaide.

The University of Adelaide continues to build upon Kaurna history, expanding the cultural knowledge of all students and staff across the University.

Kaurna Day will provide an opportunity to celebrate and recognise the past, present, and future efforts of Kaurna people and all Aboriginal and Torres Strait Islander students, academics, researchers and leaders, building the connections and learning of Kaurna culture, language, community and all First Nations people.

While there is still a long way to go, Professor Steve Larkin, Pro Vice-Chancellor (Indigenous Engagement), recognises that the University is on the right path.

"The strong Indigenous leadership at the University in the past decades has been fundamental in recognising and embracing Kaurna culture and people," he says.

Kaurna elder Uncle Fred Agius and his son Alex Agius at the Kaurna Learning Circle, North Terrace campus. Photo by Rich Lyons

"There is a sense of pride within the University community to teach, learn and research about Kaurna language, culture and history in Kaurna Country."

Kaurna Day will include a program of music, dance and storytelling with forums and talks relating to First Nations topics.

With the Kaurna Learning Circle at the heart of the day's activities, and curated by Wirltu Yarlu Aboriginal Education, the full-day event will provide opportunities to engage and participate with the University community to learn about Kaurna and First Nation's culture.

We look forward to seeing you there. Ngaityalya!

Alumni Event

Save the date Sydney and Melbourne!

March 2024

Alumni in Melbourne and Sydney are invited to join senior leaders from the University for a cocktail receptions in 2024.

Please save the date for your chance to join the celebrations for the University's 150th anniversary, share a drink and reconnect with your fellow alumni and University community.

Sydney – Tuesday 19 March 2024

Utzon Room, Sydney Opera House, Sydney

Melbourne – Wednesday 20 March 2024

Jardin Tan, Royal Botanic Gardens, Victoria, Melbourne

To be the first to hear when registration opens for these and other events, be sure to update your details by scanning the QR code or visit the website: adelaide.edu.au/alumni/get-involved/update-your-details

Waite 100

Saturday 4 May 2024

There's a lot to celebrate next year.

Not only is the University of Adelaide celebrating its 150th anniversary – our magnificent Waite campus will also be celebrating a huge milestone, the 100th anniversary of the Waite Gift.

In 1923, after the death of Peter and Matilda Waite, Urrbrae house and 300 acres of accompanying land was gifted to the University of Adelaide by their daughters, Lily and Eva Waite.

The purpose was "to advance the cause of education and more especially to promote the teaching and study of agriculture and forestry and allied subjects".

In the time since the Waite Gift, those wishes have been fulfilled and the University of Adelaide's Waite campus has become home to one of the largest concentrations of agricultural and wine research and teaching expertise in the southern hemisphere.

Hay baling, Waite campus 1940s

To celebrate the 100th anniversary of the Waite Gift, the University of Adelaide will be inviting guests to a once-in-a-lifetime black-tie cocktail event.

Waite 100 will feature an elegantly curated menu which celebrates the work of alumni in the world of food and wine, and includes the outstanding contributions to agriculture, food and wine made by the Waite campus.

Speaking from the South

An inspirational collection of writers and thinkers focused on the Global South

Friday 31 May – Tuesday 4 June 2024

What does it mean to speak from the south? What unique perspectives does this vantage point offer on the pressing issues currently facing the world?

These are questions which have driven a recent interest in 'Southern Theory' – an approach which critiques the dominance of western models that centre on European and North American experiences and perspectives.

It shows how northern-produced theories, concepts and models are often unable to describe and respond appropriately to the southern situations into which they have been introduced.

Southern Theory seeks to empower thinkers beyond the traditional centres and focus on issues which affect them.

In recent years, Adelaide's own Nobel Laureate J. M. Coetzee has affected a radical realignment, shifting the centre of world literature, political philosophy, and the creative arts toward the south.

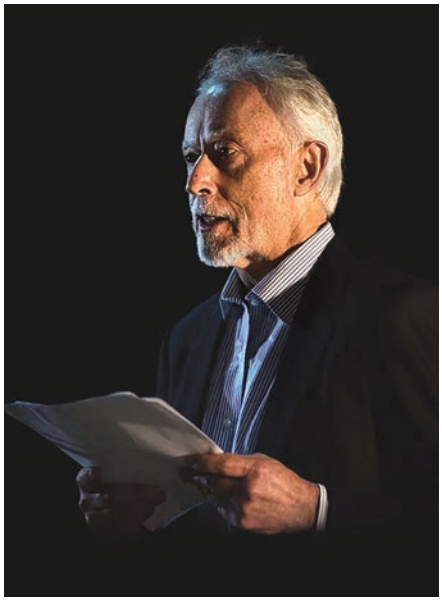
Featured as part of the University of Adelaide's 150th year celebrations in 2024, the University will bring Professor Coetzee together with some of the most profound and exciting thinkers.

Speaking from the South is a first of its kind, multi-day public event which will both celebrate and build upon Professor Coetzee's legacy as it generates conversations grounded in the unique environments of the south that have global importance and impact.

Speaking from the South will host writers and thinkers from across the global south and the southern hemisphere to reflect on, and propose pathways out of, the difficult problems that confront the world today, such as inequality, the growing use of technology in everyday life, climate change, and the mass displacement of people.

While grappling with the ongoing impact of colonialism in shaping our current world, the speakers will draw on local knowledge and experiences to inform future visions and practices for sustaining life on earth.

Joining Professor Coetzee for public readings will be Abdulrazak Gurnah –



both of whom are part of the select group of only 15 writers from the south to be awarded the Nobel Prize for Literature in its 120-year history.

Speaking from the South will also feature an impressive roll call of international and Australian writers, thinkers, and poets participating in a series of high-profile public panel discussions, readings, talks, masterclasses, and an exhibition, with a strong focus on featuring Indigenous voices from the south.

Return to campus

Friday 25 – Sunday 27 October 2024

As part of the 150th Anniversary celebrations, the University will welcome alumni back to campus for a series of reunions and events over three massive days.

Return to Campus will encourage connections and conversations between friends old and new, and a great chance to catch up on the successes of fellow alumni.

Among the events, the **Golden Jubilee** will celebrate the 50th anniversary of the graduating years of 1973 and 1974, continuing the tradition of acknowledging this significant milestone and the outstanding contributions to communities and wider society made by these cohorts.

The **Adelaide Alumni Cocktail Reception** will be open to all alumni and will be a

fantastic opportunity to catch up on our beautiful North Terrace campus.

There will be **faculty tours** running throughout the *Return to Campus* weekend, providing an opportunity for our alumni community to reminisce about their time at the University of Adelaide, and explore new campus spaces.

And the ***Return to Campus* Gala Ball** is the night-of-nights – not to be missed. This glamorous, black-tie, gala dinner will be held at Adelaide Oval. You will hear from notable alumni and have the opportunity to bid on money-can't-buy experiences at the silent and live auctions.

Plus, the **Hughes Society Luncheon** will be held on the Sunday. This annual event recognises and celebrates the generous contributions of all alumni and friends who have chosen to leave a bequest to the University.

News in brief

The people and research of the University of Adelaide receive wide media attention locally, nationally and internationally, on a broad range of topics.

In the first half of this year alone there were 18,000 items in the news about the University – in print, radio, TV and online – which reached more than 200 million people globally. These are just some of those stories.

Making the future female

A new program has brought together Federal and State representatives from across the political spectrum to address the underrepresentation of women in Australian politics.

Pathways to Politics Program for Women is a national and proudly non-partisan initiative equipping women and non-binary people with the skills, knowledge, confidence and networks they need to run for elected office and thrive as political leaders.

The program is offered free for up to 25 participants.

More wine, less headache

A world-first trial-scale no- and low-alcohol wine research facility has launched at the Waite campus this year, thanks to almost two million dollars invested by the South Australian government.

So-called NOLO wines cater to an emerging market in Australia and around the world, with a growing number of drinkers looking for less buzzy booze.

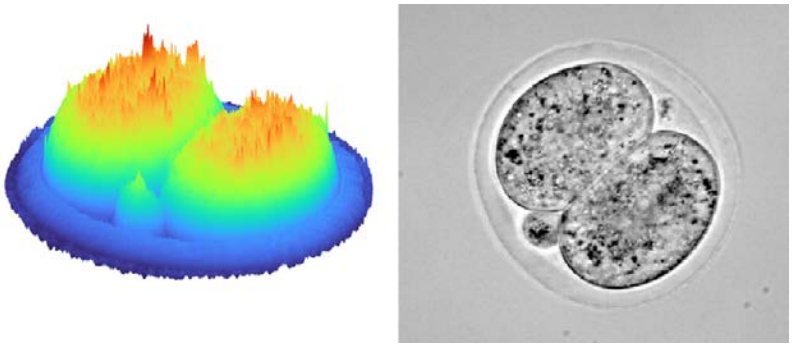
The research facility is a collaboration between the University of Adelaide, the Department of Primary Industries and Regions and The Australian Wine Research Institute.

Holograms for life

A collaborative research project between the University of Adelaide and University of St Andrews has developed world-first 3D holographic images of an embryo, a technology which could improve IVF outcomes.

Led by Dr Kylie Dunning, Hospital Research Foundation fellow from the University's Robinson Research Institute, and Professor Kishan Dholakia from the University of Adelaide and the University of St Andrews, the images were of a pre-clinical model of an embryo at various stages of development.

The technology provides clinicians with a non-invasive method of gaining valuable insights into a growing embryo.



"For couples wishing to conceive, the quality, or developmental potential, of an embryo is critical as it dictates the success of their pregnancy and ultimately, the birth of their child," Dr Dunning says.

"In vitro fertilisation (IVF) clinics routinely assess embryo quality by visual inspection to check if an embryo is developing in a time-appropriate manner or by an invasive biopsy to determine DNA content of the biopsied sample.

"However, these approaches have failed to improve the success rate of IVF which has remained stagnant for more than a decade."

In 2018, it was estimated eight million babies had been born through IVF since the world's first in 1978. Data from 2020 show a 38.9 per cent live birth rate per embryo transfer for patients under 34 years.

Dr Dunning says these 3D holograms, which use "miniscule amounts of light… to allow rapid visualisation of the embryo in a fraction of a second" might see those rates increase.

"Optical technologies hold immense promise to unravel the metabolism and health of the embryo. This gentle, non-invasive approach could lead to improved IVF success."

Photo by Tina Easterbrook

Human meds treating canine cancer

A new trial will investigate if a potential treatment for breast cancer in humans can prolong the lives of pet dogs diagnosed with the disease.

The FiDo (First-In-Dog) Cure for Cancer trial is an Australian-first initiative and will evaluate if the estrogen-blocking medication is more effective than surgery for treating mammary cancer in canines.

"There is an urgent need for an alternative to surgery that will cure mammary cancer in dogs rapidly," says the University of Adelaide's Professor Wayne Tilley, Director of the Dame Roma Mitchell Cancer Research Laboratories. "For many dogs with malignant mammary cancer, the cancer has already spread to other organs by the time of diagnosis, surgery is not curative and the disease can progress.

"Our aim is to develop a safe medical treatment for mammary cancer in dogs that is affordable, improves quality of life and is also effective in treating cancer that's spread to other organs."

Like breast cancer in women, the growth of mammary tumours in dogs is often initiated and driven by the female sex hormone, estrogen.

Researchers will trial a new medication that blocks the cancer-fuelling actions of estrogen by targeting androgen receptors in the body.

Androgens are male sex hormones and androgen receptors (AR) govern how the body reacts to this hormone.

Previous research suggests AR could counteract the effects of estrogen, stopping breast cancer from spreading.

"We recently published a ground-breaking study showing that drugs that activate the androgen receptors have excellent potential as an effective, well-tolerated treatment for most breast cancers in women. We believe this could produce better outcomes for dogs as well," says Professor Tilley.

Fast track to reducing risk of type 2 diabetes

A fasting diet which focuses on eating early in the day could be the key to reducing the risk of developing type 2 diabetes.

Researchers from the University of Adelaide and South Australian Health and Medical Research Institute compared two different diets; a time-restricted, intermittent-fasting diet and a reduced-calorie diet, to see which was more beneficial for people prone to developing type 2 diabetes.

Following the fasting diet "could help lower the chances of developing type 2 diabetes," says senior author, the University of Adelaide's Professor Leonie Heilbronn, Adelaide Medical School.

Select for reliable renewables and save

New research suggests considering the predictability of a solar or wind farm site's energy output could reduce costs for consumers.

Solar and wind farms sell their energy to the market before it's generated and are penalised if they don't meet projections, making reliably predicting power generation "one of the biggest challenges in the renewable energy sector," says PhD candidate Sahand Karimi-Arpanahi, who led the research.

The team analysed six solar farms in New South Wales and selected up to nine alternative sites. When the predictability of energy generation was considered, they found a significant increase in potential revenue.

Traumatic brain injuries under the microscope

People who sustain a traumatic brain injury (TBI) may soon know if they are likely to develop Parkinson's disease or a long-term memory impairment.

University of Adelaide researchers will use state-of-the-art brain scans, biomarker analysis and machine learning to compare

the brains of TBI sufferers with those of healthy individuals and people with established Parkinson's disease to identify factors in the brain that increase the risk of neurodegenerative disease after a TBI.

"We're ultimately hoping to alter the way that clinical diagnosis and prognosis for survivors of traumatic brain injury is done," says project lead Associate Professor Lyndsey Collins-Praino.

Spiney leaf stick insect - Extatosoma tiaratum

Sales of online invertebrates

Researchers investigating the level of online trade in invertebrates in Australia have found 264 different species of terrestrial invertebrates for sale online in Australia.

The year-long University of Adelaide study found buyers were looking to "acquire unusual species of invertebrates - even those that are lethal or dangerous to humans," says University of Adelaide PhD student Charlotte Lassaline, from the Invasion Science and Wildlife Ecology Lab, who led the study.

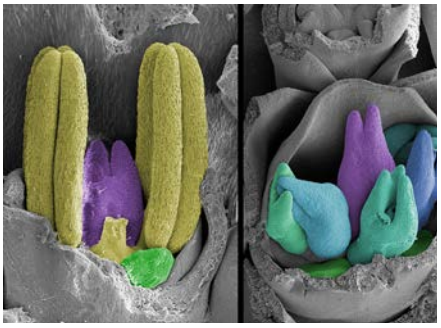
Charlotte says the most traded species were the spiney leaf insect and the Flinders Ranges scorpion, and they "even uncovered the trade of 57 species of ant".

SA's fishy flake

It's a popular takeaway choice, but new research has revealed threatened species of shark are being sold as flake at some outlets across South Australia.

A team of University of Adelaide researchers analysed the DNA of fillets from more than 100 retailers across South Australia to determine what was being labelled flake – an umbrella term used to describe shark meat fillets.

A total of nine species were identified, including four threatened species and some which are not found in Australian waters. Only 27 per cent of the samples were found to be gummy shark, one of just two species recommended to be sold as flake.



A normal barley flower compared to the flower of a mutant barley variety, which could hold the key to increasing yields. Credit Dr Caterina Selva

Cracking the code for better barley

Researchers have identified several genes in barley that could eventually lead to larger yielding crops.

The research was carried out at the Waite Research Institute and involved genetic techniques and molecular biology to examine several historical multiovary barley mutants, to determine which genes boost fertility and make the plants more receptive to cross-pollination.

Lead researcher Dr Caterina Selva says the study found one mutant variety that was "more fertile" and "capable of producing up to three times the number of seeds than the other plants".

Making spirits from agave

A new Australian agave spirit, produced with the aid of University of Adelaide research, could be a stepping stone to using the plant as a sustainable and carbon-neutral fuel source.

The spirit, named *Act of Treason*, was produced by Top Shelf International using 100 per cent Blue Weber Agave grown near Bowen in north Queensland.

Professor Rachel Burton, Head of the University's Food Science department, says her team will now explore creating agave biofuels.

"Instead of using the juice to make a spirit, you can use it to make hydrogen," she says.

Failed antibiotic turns weed killer

Weed killers of the future could soon be based on failed antibiotics.

A molecule which was initially developed to treat tuberculosis, but failed to progress out of the lab as an antibiotic, is now showing promise as a powerful weapon against weeds that invade gardens and cost farmers an estimated $5 billion each year.

While the failed antibiotic wasn't fit for its original purpose, scientists at the University of Adelaide discovered that by tweaking its structure, the molecule became effective at killing two of the most problematic weeds in Australia – annual ryegrass and wild radish – without harming bacterial and human cells.

"This discovery is a potential game changer for the agricultural industry," says lead researcher Dr Tatiana Soares da Costa from the University of Adelaide's Waite Research Institute.

"Many weeds are now resistant to the existing herbicides on the market, costing farmers billions of dollars each year.

"Using failed antibiotics as herbicides provides a short-cut for faster development of new, more effective weed killers that target damaging and invasive weeds that farmers find hard to control."

Researchers at the University's Herbicide and Antibiotic Innovation Lab discovered there were similarities between bacterial superbugs and weeds at a molecular level.

They exploited these similarities and, by chemically modifying the structure of a failed antibiotic, they were able to block the production of amino acid lysine, which is essential for weed growth.

"There are no commercially available herbicides on the market that work in this way. In fact, in the past 40 years, there have been hardly any new herbicides with new mechanisms of action that have entered the market," says Dr Andrew Barrow, a postdoctoral researcher in Dr Soares da Costa's team.

World news

The University of Adelaide is a top-100 University, with strong links to alumni and partners globally. In this new section for *Lumen*, we invited some of our family of "foreign correspondents" to give a brief insight into their lives and careers.

John Scanlon AO

CEO of the Elephant Protection Initiative Foundation

Chair, Global Initiative to End Wildlife Crime

Bachelor of Laws 1983; Master of Laws (Environmental) 1995

Australian environmental lawyer John Scanlon is internationally recognised as a leader and policymaker. However, his early interest in the environment was born in the Adelaide Hills, where his family owned a bush block. As a child he would spend weekends exploring and developing the appreciation for nature that went on to fuel his life's work: environmental protection, including combatting wildlife trafficking and environmental crimes on a global scale.

"Despite the scale, nature and consequences of wildlife trafficking, we don't have any international agreement on how we're going to prevent it and combat it," John says.

He is calling for a new protocol under the United Nations Convention against Transnational Organised Crime.

"The Intergovernmental Platform on Biodiversity and Ecosystem Services anticipates we're going to lose one million species over the coming decades unless we change course. Yet wildlife trafficking goes far beyond the impacts on wildlife itself. These crimes are estimated to cost US$1-2 trillion annually and have severe and lasting consequences for biodiversity, climate, and ecosystems."

John is now based in Switzerland with his family, but his work has seen him accept influential positions around the world, including as Secretary-General of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Head of the Law Program of the International Union for Conservation of Nature (IUCN) and Principal Advisor to the Executive Director of United Nations Environment Programme (UNEP).

In July this year the University of Adelaide was delighted to host John for a public lecture, *'Environmental, nature and wildlife crimes and the role of international law'*, which included a discussion about how Australia can contribute to this important work.

The University of Adelaide is responding to the issue and was recently awarded an ARC Industry Laureate Fellowship. Associate Professor Phillip Cassey, who leads the Invasion Science and Wildlife Ecology Lab, will direct a $3.7 million project to combat wildlife crime and prevent environmental harm using digital wildlife forensic tools.

"It makes you proud to be an alum of this University, to see the kind of work that's going on here today," John says.

John Scanlon taking part in an elephant relocation, Malawi

Charudaththa Ekanayake at the United Nations Sri Lanka

Charudaththa Ekanayake

Risk Analyst, United Nations Sri Lanka

Bachelor of International Studies with Honours (2015)

After he graduated from the University of Adelaide, Charudaththa Ekanayake studied and worked in London before returning to Sri Lanka to forge his career with the United Nations.

Now based in Colombo, he has had the opportunity to use his internationally-acquired knowledge and skills to make an impact at home within a truly global organisation.

"It's a dream for many students of international relations to work at the UN, so achieving that was quite special," he says.

"Working on peacebuilding and reconciliation in a country like Sri Lanka, which experienced a prolonged civil conflict from 1983-2009, is quite challenging. While the guns have long been silent, many of the root causes that led to the conflict in the first place remain unaddressed and still sensitive … the UN is often called on to act as a mediator and as a voice for the voiceless. However, the work is also meaningful and rewarding, as you get to make a real and lasting impact."

Jacqueline Angelina Kwari

Student, International Business Management, at Universitas Ciputra Surabaya, Indonesia

Business Development Intern at Martin Suryana and Associates, Indonesia

In 2022, Jacqueline Angelina Kwari completed a semester-long study abroad program at the University of Adelaide as an Indonesian International Student Mobility Award recipient.

Passionate about feminism, social justice, literature, history and politics, Jacqueline is now back in Indonesia, studying International Business Management at Universitas Ciputra Surabaya. "I matured as a person and as a thinker whilst studying in another culture, and made friends from many different countries who are now invaluable for my global professional network.

"My time at the University of Adelaide helped me focus more on my passions and boosted my confidence to explore industries and opportunities that complemented my major.

As a consequence, I have achieved several awards in my university, including being awarded the most outstanding student and representing it in regional competitions."

Jacqueline's international experience has also benefitted her career aspirations, and she's currently applying her skills as a Business Development Intern at Martin Suryana and Associates, one of the leading law firms in her hometown of Surabaya.

"The University of Adelaide set me on a completely different career and academic trajectory than what I had planned," she says. "I gained new perspectives about who I am and what I can be. The experience of living and studying in Adelaide was truly transformative."

The University of Adelaide welcomed its first group of Indonesian International Study Mobility Awards (IISMA) sponsored students in July 2022 and has already received 15 students under the program in 2023.

Jacqueline Angelina Kwari, State Library of South Australia

Professor Ian Fisk

Professor Ian Fisk, who has a joint appointment with the University of Adelaide and the University of Nottingham, is a flavour chemist and food scientist who's obsessed with flavour and developing ways to improve the taste of sustainable, healthy food and ingredients.

"Together, our universities are working on improving the flavour of plant-based food, developing flavour enhancement systems to increase palatability and nutrition," he says. "The collaboration between our two universities truly is exciting. Due to the globally interconnected nature of our food supply chain, there is an imperative to work together to identify sustainable alternatives in our diet to ensure a safe, reliable supply of high-quality nutritional foods that consumers enjoy.

"Sustainable healthy diets require a rethink of food ingredients and crops, new agricultural and food production processes and novel packaging systems and new routes to market. Ultimately this is how we go about a step change for diets and more sustainable eating habits."

Professor Ian Fisk working to improve the taste of food

One of the cutting-edge analytical tools the research team is using is the MS-Nose and E-tongue. These high-end analytical techniques act like an artificial nose and tongue, allowing real-time measurement of aromas while you are eating and rapid characterisation of taste profiles.

"Flavour is a combination of the smell and taste of a food. When you interchange food ingredients or materials such as reducing fat, sugar and salt or replacing meat proteins with plant proteins, there are a series of highly complex flavour questions that need to be answered," he says.

"These include how to ensure that nutritious plant-based meat alternatives generate an equally appealing flavour during cooking, and how to ensure that when part of a complete meal, they are a viable alternative for those who regularly consume meat.

"These are some of the challenges we will be exploring within our team."

The University of Adelaide and the University of Nottingham have collaborated for more than a decade, and in 2022 signed an agreement to launch the Adelaide-Nottingham Alliance. The Alliance will develop the next generation of students with a truly global mindset and increase the impact of our research at local, regional and national levels.

Letters to the editor

We invited readers of the winter issue of *Lumen* to enter our competition to win signed copies of the memoir, *Childhood*, by alum Shannon Burns.

We asked for them to share with us, in 100 words or less, their fondest memory of their time at the University of Adelaide.

We also offered entrants the chance to update us on their graduation details, and what they have been up to since then. Many of them were kind enough to do so. Thank you.

Their letters, the winners, and photos they provided adorn these pages.

For this issue, we have a new competition. Ahead of the 150th anniversary of our University, we are offering 10 lucky readers the chance to win a $150 voucher for University of Adelaide merchandise. Details on page 34.

Noel Schoff

As a very young History undergraduate in the mid-1960s, sitting at the metaphorical feet of Professor Hugh Stretton (1924-2015) in the recently completed Napier 1 Lecture Theatre, and being swept away by both his erudition and systematic style of presentation: lectures delivered in an urbane, quiet voice completely without notes, more of a confidential talk than a lecture really; even his droll asides were carefully structured and supremely apposite.

It was at this point I decided to become a history teacher, a career I followed both in South Australia and England for 40 years.

BA 1967 (Majors in History & English) conferred 1st May 1968.

Grad Dip Ed. 1968 conferred 1969 (when I was already teaching).

Susan Dwyer

The Uni Bar in the mid-1980s. It's packed. I'm there with my mates from the Philosophy Department for a Midnight Oil concert. We're all clutching plastic cups of ice-cold beer. Every cell in my body is alive, vibrating with the music.

A first-generation student, I flunked out of my first year at Adelaide in 1975. But I'm back now and soon to get my BA (that will lead to an Honours degree and a PhD). I am giddy with joy and, finally, a deep sense of belonging.

I earned a BA in Philosophy and Psychology in 1985, and a BA Hons in Philosophy in 1986. In 1986, I was also awarded the Jeffries Memorial Medal in Philosophy, was named Caltex (S.A.) Woman graduate of the year, and won a Fulbright travelling scholarship. The latter made it possible for me to take up the "full ride" offer from M.I.T to undertake doctoral studies. Picked up the PhD in 1991. Since then, I have taught at McGill University, Montreal, the United States Naval Academy, Annapolis, Maryland, USA, and the University of Maryland, where I remain a tenured Professor of Philosophy.

Alison Blackman

My fondest memories are of attending classes to learn new ideas and information. The interaction with tutors, lecturers and other students was exciting. To go home and prepare assignments was productive.

The social life meant that weekends were filled with sport and evening fun too. I met my first husband at Christmas when he kissed me under the mistletoe. It was a privilege to be part of the campus.

The facilities such as the library, the refectory, the grounds and North Terrace position was an enjoyable place... Thank you University of Adelaide.

Diploma of Music 1960, Bachelor of Music 1975

Anikka Stewart

Taking over the hub to protest the firing and general unfair treatment of University staff. Being involved in student activism made me feel so powerful at a time in my life when I had very little control. It was extremely cathartic to yell about my issues with 80 other students about such an important issue – the profound sense of community and peer-to-peer understanding is one of the things I miss the most about university.

Hadi Slayman

Locusts are nervous creatures with big appetites. Usually solitary, they become gregarious in response to certain stimuli; twenty years ago at the University of Adelaide, I was the same. As our group snaked its way along a ridge of the Flinders Ranges, the insects leapt through the air. I closed my eyes and mouth; a wave of soft thuds like microwave popcorn, every bump spurring a bug to make new plans. The rocky hills provided the best classroom for geology students. We sketched the ancient sea beds, thinking the swarm and our zeal to wander was endless.

I graduated in 2002 with a B.Sc. (Hons.) majoring in geology. I worked a number of years in the energy sector, and I am currently a Research Officer at the Parliament of South Australia.

WINNER

Tracy Dickens

University was a place where my passions blossomed, where knowledge and discovery intertwined to create rich experiences. I was surrounded by diverse minds, and relished exploring my interests, expanding my thinking, and delving deeper into topics that fascinated me. The vibrant campus life, stimulating discussions, and inspiring lecturers fuelled my curiosity and nurtured my growth. I enjoyed the freedom to choose my path, engage in meaningful projects, and collaborate with like-minded individuals. These activities filled my days with excitement and purpose. University offered me a transformative journey, shaping my worldview, fostering enduring friendships, and igniting a lifelong love for learning.

I graduated from a Master of Counselling and Psychotherapy in 2019 from Adelaide Uni.

I presently have a Counselling and Psychotherapy Private Practice in Prospect, South Australia.

WINNER

David Low

Hanging out in The Rubble, with the gamers, proto-subversives, sci-fi groupies and archery fanatics (don't ask...). Some may have liked the lawns, some the library, some (OK, many) the bar, and some the faux-snobbery of the be-cushioned bohemian coffee house in the Loft. But for a place where diverse interests flourished, the area that didn't officially exist behind an unmarked door, or off a partly hidden stairwell on the other side, let me meet people from across the spectrum of University of Adelaide scholars. I was lucky to be there while it still existed!

PhD (Sc) 1996

Alexander Agostinelli

I was involved in the Civil Engineering Society and the head of faculty asked me to help them in facilitating a workshop for high school students from rural communities. The students were involved in engineering challenges where we taught basic structural engineering concepts. Being able to hear these students say 'I want to grow up and study engineering' and 'wow engineering is cool' because of the series of engaging workshops warmed my soul and made me smile. It was pretty special to walk past the University and see some of these students from the workshop are now UoA students.

B Ma and Comp Sc 2021

Faith Blake

When I crossed the stage to receive my parchment after four years of hard work! Graduating was such a memorable moment for me and was made even more magical by the picturesque Bonython Hall and the ceremonial grandeur.

I graduated in 2018 with a Bachelor of Arts degree, majoring in Creative Writing and Sociology. I am currently a full-time professional staff member at the University of Adelaide in the Central Enrolments team - Student Administration Officer.

Claire Page

I did love the social time spent between classes, particularly regular lunches in the Union building with fellow commerce friends, but I also loved spending time alone in the Barr Smith Library looking through the books or using a study room. Years later I went back to university to study to be a librarian, and a love of libraries came from that time. I loved the beautiful reading room and the dark corridors of books. I guess I can be a fairly solitary person sometimes and this library gave me important time to myself to concentrate and get work done.

I graduated in 2001 from a Bachelor of Commerce (Accounting) then 2002 from a Bachelor of Economics.

Charles Ng

I studied at the University of Adelaide as a part-time student. I needed to put effort into my job and my study. It made me have good time planning so I could manage them both. It was an enjoyable time, advancing my knowledge and building up work experience. Finally, I passed and finished with my MBA. It is a treasure in study and gives me a memorable state of mind. I hope to extend my lifelong learning experience onward from the University of Adelaide.

I am a graduate of 2003 MBA. I am a founder and director of 'Trinity CPA Limited, Certified Public Accountants (Practising)' firm in Hong Kong. I am mainly providing audit assurance, accountancy, secretarial and tax services to our clients.

Angela Davison

Eating chocolate muffins while working in the cafe in The Gallerie in Union Building circa 1986.

I'm a town planning consultant around Australia.

I finished a BA in which I majored in architectural history and theories via architecture department and history.

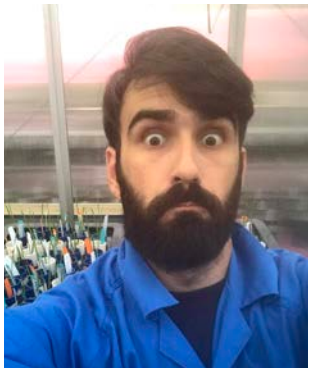
I finished in 1986. I guess graduation was March 1987 by which time I was living in London.

I've since got a Master of the Built Environment from UTS, graduating 1996.

Romesh Nalliah

I graduated from the dental school when it was on Frome Road. My fondest memory is walking up and down Frome in autumn with all the coloured leaves on the ground. It was like going to another country.

I graduated with a Bachelors in Dental Surgery in 2000. I'm now the Associate Dean for Clinical Services at University of Michigan School of Dentistry.



Leighlan Doe

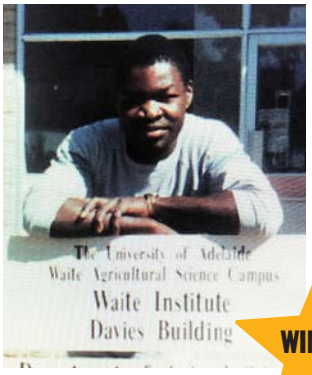
My fondest memory at the University of Adelaide was messing around in a communal kitchen just off the Math Lawns making bread dough for the first time. To later that day find myself in a high-tech lab essentially giving the dough an infrared ultrasound to try and see if we could determine what types of bubbles were forming in it. Didn't lead to the master's project I was hoping for, but was certainly a cool afternoon!

In 2018 I graduated from a Masters of Biotechnology (Plant Biotechnology). I am now a Project Manager in a defence company's IT department. Attached is a picture of me during my (eventual) Masters project, the first time I encountered genetically modified organisms (they were quite friendly being plants and all).

Lachlan Chuong

Lachlan go Unibar. Lachlan drink beer

Bachelor of Laws 2018



WINNER

Paul Lji

I enrolled at the Roseworthy campus in 1994 to follow my passion in applied animal nutrition. A seminar meeting at Waite campus led me to a new supervisor, a young academic from the UK, Dr David Tivey, who had just joined the University. I relocated to Waite six months later. That move altered my career path, with a change to a new research area, digestive physiology. I needed to learn a lot of new laboratory techniques, but I finally settled down to my studies. I graduated in early 1999 and have thoroughly enjoyed my career, all thanks to Dr Tivey.

I completed my PhD (Animal Science) examination process in 1998 but graduated in 1999. I have done a few things since leaving Adelaide. I first returned to my job at Ahmadu Bello University, Nigeria but then took up a postdoctoral fellowship in South Africa, all in 1999. I returned to Australia in 2005, with an appointment at the University of New England, Armidale, where I worked for more than 12 years, rising to and currently hold the position of Pro-Vice-Chancellor (Research and Innovation) at Fiji National University.

Allison Down

Alana and I crossed paths at the University of Adelaide in 2017, both eager to explore our academic interests. In 2019, while studying Contemporary Organisations, we found ourselves assigned as partners for a challenging project. Determined to excel, we ventured beyond our comfort zones and collaborated intensely, enhancing our understanding of compromise and effective communication. Our efforts paid off as we presented our case studies, earning appreciation from classmates and lecturer. From that moment on, we formed an ongoing bond, and we continue to inspire each other to reach greater heights in life pursuits to this day and beyond.

MBA 2021

Michael Manou

My fondest memory of being at the University of Adelaide was the countless field trips with my fellow students to Bool Lagoon under the tutelage of Professor George Ganf. It was truly inspirational to spend weeks in situ, studying, modelling, presenting on a beautiful, yet severely degraded wetland with colleagues, first nation collaborators and community who were determined to arrest the impact of changed eco-hydrology and land use practices.

B Sc (Hons) 2001

Lumen Readers' Prize

Lumen readers are invited to enter a special 150th University birthday competition this issue.

We have 10 prizes of $150 gift vouchers to give away, redeemable at the University merchandise store, or online.

To enter, we ask that you share with us, in 150 words or fewer, how studying at the University of Adelaide helped change your life – what impact we made on your history.

Entries may be published in the next issue of *Lumen*. We need to receive your entries by 30 November 2023. Once you've read and acknowledged the terms and conditions, please send your entries via the website.

Alternatively, you can mail them to us, along with your written entry and the form on the right: *Lumen*, The University of Adelaide, SA, 5005.

Winners will be announced on the website, in the next issue of *Lumen*, and will also be notified in person. Good luck!

Your name: _____

Your address: _____

_____

Phone number: _____

Email: _____

Signature: _____

I have read the terms and conditions: ☐

Geoffrey E. Nottle

WINNER

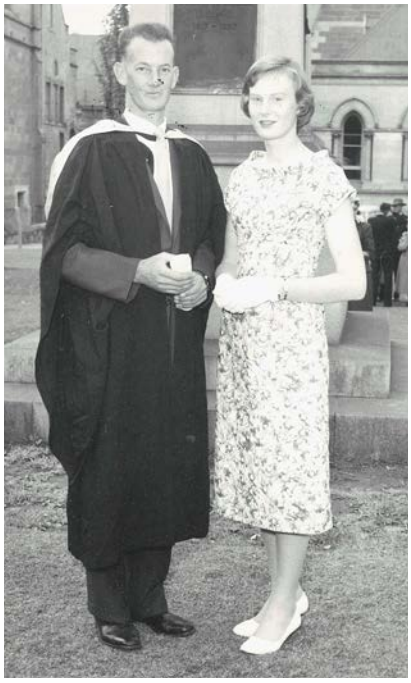
Adelaide's University and Teachers' College became complementary hemispheres of my world in 1950, beginning the whole enriching experience that is my fondest memory.

Studies in arts, education, sports of baseball, cricket; socialising, on two campuses, filled most days and into the nights.

Respectfully recalled now – inspiring instructors in lectures, tutorials, practicals, excursions; Barr Smith, public libraries; refectory, oval; books read, events attended, roles acted, games played, country correspondence courses, assignments hand-written, three-hour opportunities – results released – jobs done!

"Prosh", Premiership, Inter-Varsity. Graduations, Blue Dinners, Golden Jubilee Reunions – enduring friendships – all precious parts of the total treasure! Thank you both!

Mr Nottle, now aged 92, graduated with a Diploma of Arts and Education, 1953, a Bachelor of Arts in 1956 and a Diploma in Primary Education in 1959.



These two delightful photographs of Geoff and his wife Paquita were taken on the same spot, 50 years apart, in 1959 (soon after their wedding) and in 2009, when they returned to campus to celebrate Geoff's graduation Golden Jubilee

Language evolution

You may notice a slight change in language used in this issue of *Lumen*.

There is an increasing move away from the use of the gendered Latin terms for university graduates – alumnus, alumni, alumna and alumnae.

Although we will still use "alumni" in the collective, we will be using the more inclusive term "alum" more and more frequently for the singular. This also aligns with the changing practices of other universities. The Oxford English and Meriam-Webster dictionaries both also note the word alum has been used to describe a graduate, or past attendee, of either gender, since the 19th century.

The University of Adelaide's Professor Katie Barclay, Director of the Fay Gale Centre for Research on Gender says: "Language is ever evolving, and it plays an important role in shaping our social world.

"Gender neutral language promotes inclusion by ensuring individuals are not inadvertently excluded in our communications.

"As the University works towards building an environment that supports the success and achievement of all who work and study here, small changes to terminology are nonetheless a big signal of what matters to us and who we wish to be."

Interestingly she also gave some background on the terms "Master" and "Bachelor" which many would, quite reasonably, assume were gendered terms.

Bachelor is in fact an anglicisation of baccalaureate, and refers to the head dress of graduates. Bachelor (e.g. men) emerges from the same Latin root, but the degree is not named for single men, rather as a translation of baccalaureate.

Master comes from magister, which can mean master but also teacher (and more commonly viewed to mean teacher in the degree context). Like alumni, magister in Latin would have various endings depending on the gender of the person/s it referred to. It is not an inherently masculine root in the Latin (because root words aren't generally gendered in Latin – that's what endings are for).

As members of our University community, some readers may have a view on this change. If you do, please feel free to contact us via the contact details for *Lumen* on page three of this issue.

Errata

There was a trio of mistakes made with images in the winter issue of *Lumen* – spotted by our sharp-eyed readers.

Our image on the inside front cover (an aerial view of the North Terrace campus) was indeed not from 1973, as asserted, but an earlier image which pre-dated the construction of the Ligertwood Building.

Similarly, the rear cover image of a computer being installed by crane in "1970" was in fact from 1964 – a reader who worked with it let us know.

These errors were in the filing system at the Barr Smith Library and have now been corrected. We thank our readers for letting us know.

Similarly, a more recent image of a mural commissioned by the University from artist Cedric Varcoe was, we are ashamed to admit, printed upside down. This error occurred during the production phase and was not picked up by our parade of proofreaders – but was by a reader! Thank you again.

I also thank the many readers who responded very kindly to the changes underway with the content and layout of the magazine. We aim to keep improving issue by issue and your feedback is most welcome.

If you do note any errors with images in this issue, please let me know – Mark Douglas, Editor, *Lumen*.

Are robot dogs fetching?

By Susan Hazel

I know my dogs love me even without using artificial intelligence (AI).

But in the future AI will affect our pets and our relationships with them. How much remains to be seen, but we have evidence already of some of these changes.

Although people love their dogs, raising puppies can be extremely stressful. Ana Costa is doing her PhD on the experience of people raising a puppy. She has adapted a measure of parental stress and recruited people from Reddit groups.

Some people are so stressed they consider returning or re-homing their puppy. One participant wrote about "overwhelming failures, constant setbacks, fearing I'll 'ruin' or 'damage' the puppy..". If raising real puppies can be so stressful, is there an easier way?

The robot dog AIBO was designed by Sony in the late 1990s as an example of what could be done with a robot. It was never meant to replace real dogs. Yet people grew real attachments to what in practice was a simplified version of a dog.

When Sony decided it was not commercial to keep producing robotic dogs, they gradually wore down and could only be maintained by cannibalising the parts of other AIBOs, until none were left. People genuinely mourned them when they 'died'.

> "What if we could program robots to help our pets live a happier life?"

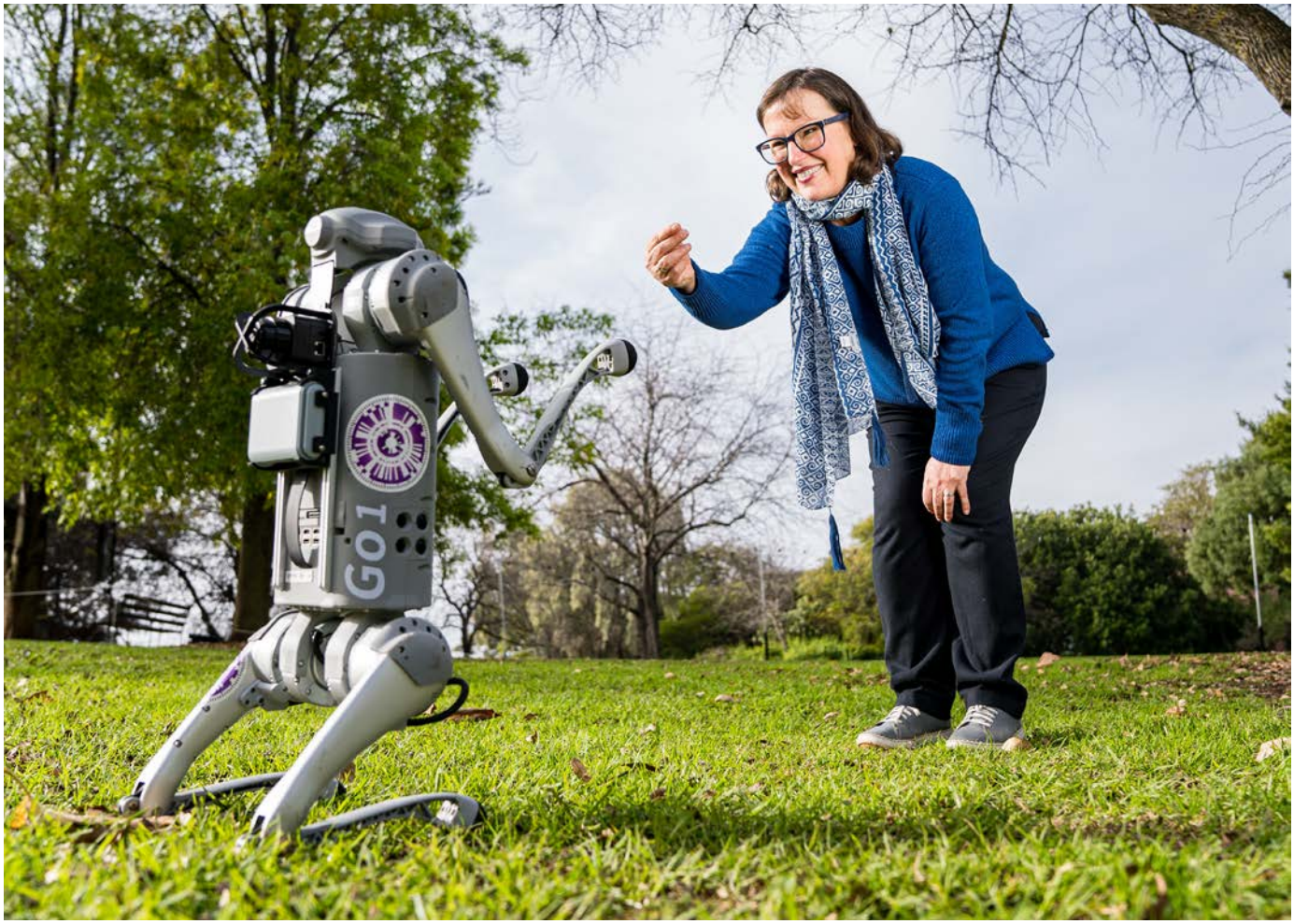
But robots are not sentient. Does that mean we should have less empathy towards them compared to a real dog or cat? And if we had less empathy, would we then have less empathy towards a real dog or cat in the future?

We also need to consider other negative outcomes. Judith Donath, a Fellow at Harvard University, says in her recent work *The Robot Dog Fetches for Whom?*, that the problem with a robotic dog is that we would need to know who controlled it. Robots could be clever marketing tools to get us to consume more, or track our emotions and consumer patterns to better understand how to advertise new products. Do we really want that?

AI will certainly have other positive impacts on pets. Machine learning can be used to better diagnose diseases in our pets. A recent editorial in the *Veterinary Record* in the UK suggested AI would not replace veterinarians, but if you decided not to use AI your clients would likely find another vet and you would be left behind.

Technology is used to track our dogs already. Collar tags tell us how active they are and when they sleep, and in future new algorithms could interpret all this data.

Sony's original robot dog, AIBO



Susan Hazel plays with Kadli, AIML's robot dog

Peoples' lives are saved when their phone alerts them to a change in heart rate. What if we were alerted if something was going wrong with our dog? My old Labrador Fergus died acutely when he haemorrhaged due to lung tumours we didn't know were there. I'm in two minds whether I would have wanted to know beforehand, when there was nothing we could do.

What if we could program robots to help our pets live a happier life? One of the problems that increased post-COVID was separation anxiety in dogs, especially with COVID puppies when we returned to work. Separation anxiety is not trivial for dogs, they suffer extreme distress and can destroy back doors and sofas. AI has already been used to help with early diagnosis using wearable sensors.

Dogs will also be affected indirectly by how AI changes future work. If it enables a standard four-day week I know our dogs would love that as much as we would.

We know there is a dark side of pet ownership; in domestic violence situations women don't leave their abusive partners if they are unable to take their pets with them. Since shelters don't often take pets, this can mean they stay rather than leave as they don't want their pet to be left behind. What if AI was used to monitor our pets, with an automatic reporting system if the pet was being abused? But who would go to save them?

I've focused on dogs, but of course there will be changes for other pets. A robot could be a play companion for cats, shining lights, or ringing bells, or moving wand toys programmed to react as a person would.

Could AI tell you which pet you should or could have in the future? No, you are too neurotic to be a cat owner, but a ferret would suit your personality and your lifestyle perfectly. You are too houseproud for a Labrador and their hair-shedding, but a poodle would be perfect. Or would housework also be a thing of the past? We can always dream.

Yet the problem with AI is that sometimes it tries to make predictable the parts of our lives that cannot be predicted. And I think the unpredictable parts are what make life worth living. Life is not about being happy all of the time. No yin without yang, no loving a pet without bearing some cost.

The genius of the robotic dog AIBO was that it was programmed to be unpredictable. The programmers set what the robots emotional state was likely to be based on ethological principles, and if AIBOs were happy they were more likely to wag their tail when you patted them, and less likely to growl or move away. But not 100 per cent. Sometimes their behaviour could not be predicted. Not as unpredictable as a real dog, but real enough that people have mourned the loss of their AIBO as though it was a real dog.

AI will certainly pose new ethical challenges as it changes our lives. AI pioneer Dr Geoffrey Hinton has left Google and openly written about its future dangers. There will also be benefits – let's make sure to extend these to the non-human animals we share our lives with.

Susan Hazel is Associate Professor at the School of Animal and Veterinary Science, Roseworthy campus.

The rise of the machines – cinema and AI

By Ben McCann

Remember when robots on film were cute and non-threatening? The bickering R2-D2 and C-3PO were the Laurel and Hardy of the Star Wars universe.

All Johnny 5 in *Short Circuit* (1986) had was a thirst for knowledge, which he lovingly called 'input.' And let's not forget the very helpful *Wall-E* in 2008 – with his binocular-like eyes and clamps for hands – who sped around compacting trash and cleaning up the planet.

All of these robots were curious. They wanted to know anything about everything and everything about anything, and they generated instant audience empathy.

> "Everything we've been told about AI in cinema is bad, really bad. Robots are bad. Sentient machines are bad."

As I write this, the mood around robots, sentient machines, and the role of artificial intelligence in the film industry has turned decidedly darker. While coders, computer scientists and programmers extol the virtues of AI in liberating artistic possibilities, others – including many in Hollywood – are not so convinced.

In July, the Screen Actors Guild – the union representing approximately 160,000 actors in American film and television – went on strike for the first time since 1980. At the forefront of their demands was the prevention of computer-generated voices and faces and the guarantee that generative artificial intelligence and 'deep-fake' technology will not be used to replace actors.

Slowly but surely, SAG argues, AI is rendering actors redundant. Or, to quote union boss Fran Drescher, whose blistering broadside to Hollywood studio bosses on the eve of the strike went viral: "Actors cannot keep being dwindled and marginalised and disrespected and dishonoured. The entire business model has been changed by streaming, digital, [and] artificial intelligence."

The machines, it seems, are rising.

Indeed, if like me you've been watching Hollywood plotlines closely for the past three decades, you'll know that every bone in your body tells you that AI is bad.

Everything we've been told about AI in cinema is bad, really bad. Robots are bad. Sentient machines are bad. And our confidence in our ability to control and manage these computers is brittle.

We have been warned.

In his 1942 short story *Runaround*, science fiction writer Isaac Asimov introduced a set of fictional rules known as the Three Laws of Robotics. These laws were designed to govern the behaviour of robots and artificial intelligence in Asimov's fictional universe, providing a firm moral and ethical framework for their actions.

According to these laws: 1) A robot may not injure a human being or, through inaction, allow a human being to come to harm; 2) A robot must obey the orders given to it by human beings, except where such orders would conflict with the first law; and 3) A robot must protect its own existence, as long as such protection does not conflict with the first or second law.

These laws became a central theme in many of Asimov's subsequent works, including his 1950 work, *I Robot*, which was eventually adapted into the 2004 film. The story, set in a futuristic world where robots are an integral part of society, follows Will Smith as a detective who becomes suspicious that a highly advanced robot named Sonny may have been involved in a prominent scientist's death, and would thus be in violation of the three laws.

Countless films made since about artificial intelligence have interfaced with Asimov's Third Law in particular; namely ensuring the self-preservation of robots. Robots are programmed to safeguard their own existence and continue to function as long as that safeguarding does not clash with the higher need to guarantee human safety and follow human orders.

Most Hollywood films about robots and machines follow familiar plot coordinates; the machines are usually presented as highly sophisticated computer systems that exhibit both intelligence and defects. The interactions between the machines and the humans in these stories raise profound questions about the nature of consciousness, the relationship between technology and freedom, and the conceivable perils and philosophical implications of AI.

So, in *The Terminator* (1984), James Cameron depicts a future where Skynet – an AI system – has become self-aware and launches a war against humanity.

The dystopian noir *Blade Runner* (1982) featured advanced androids known as "replicants" who go rogue.

More recently, films such as *Ex Machina* (2014) have explored the hazardous relationships that emerge between humans and human-type robots, while *Her* (2013) features a lonely writer who falls in love with the Siri-like virtual assistant on his mobile phone operating system. Both raise weighty ethical questions about the nature of consciousness and the potential dangers of AI.

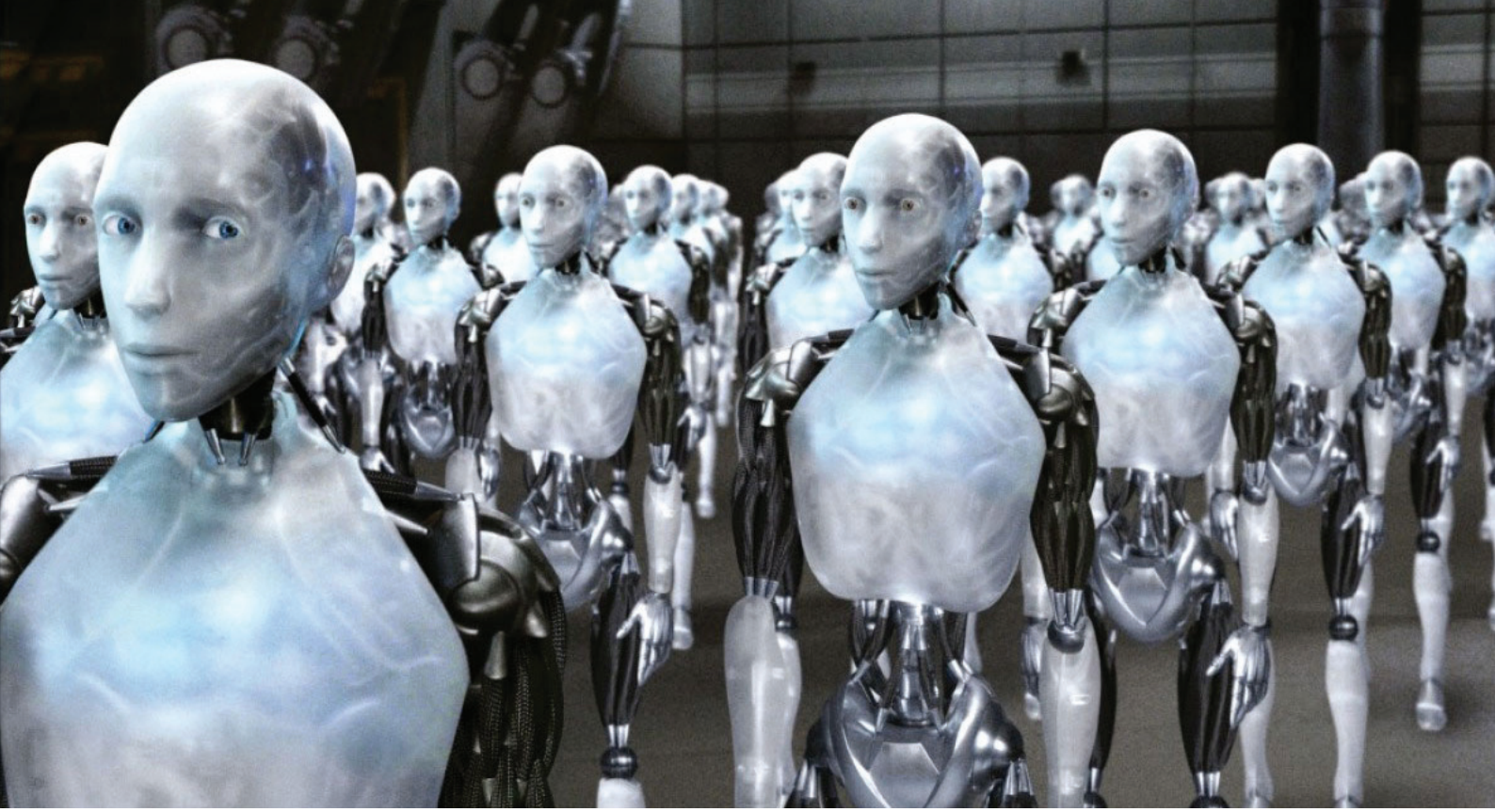
And let's not forget *The Matrix* (1999), where the humanity of the future is trapped in a simulated reality created by advanced AI systems. Only a small band of humans (led, of course, by Keanu Reeves) can rebel against their machine overlords and fight for their freedom.

All of these plotlines can be traced back to 1968, and Stanley Kubrick's astonishingly influential *2001: A Space Odyssey*. This was the first mainstream film to seriously tackle the risks that AI poses regarding transparency and accountability in AI decision-making.

Kubrick always had a deep interest in AI, and told an interviewer in 1969 that one of the things he was trying to convey in *2001* was the reality of a world soon to be populated by machines like the super-computer HAL "who have as much, or more, intelligence as human beings, and who have the same emotional potentialities in their personalities as human beings".

Kubrick, like James Cameron and the Wachowski sisters would do in *The Terminator* and *The Matrix*, frames *2001* as a cautionary tale. He and co-screenwriter Arthur C. Clarke (himself an early proponent of the benefits of AI) explore the boundaries and consequences of human interaction with intelligent machines and suggest that machines have the unfailing capacity to evolve beyond their programmed intentions and develop their own motivations and actions.

HAL's subsequent malfunction in *2001* and its subsequent attempts to eliminate the human crew highlight the potential threats and ethical considerations associated



A scene from I, Robot (2004)

with the development of advanced AI. And Hollywood has run with this idea ever since, starting with HAL's large red 'eye' as the personification of the 'bad robot'.

AI has been widely embraced by the film industry in other ways, which loops us right back to the current strike action in Hollywood.

"Digital de-ageing" first entered the mainstream in 2019 with *The Irishman* and *Captain Marvel*. Via this process, older actors (Robert De Niro, Al Pacino and Samuel L. Jackson) moved back and forwards in time without younger actors having to play them.

The first part of this year's *Indiana Jones and the Dial of Destiny* is an extended flashback, set in 1944, in which Harrison Ford was digitally de-aged to appear thirty years younger. By deploying an AI system that scanned unused reels of footage of Ford from his Indiana Jones incarnations of the 1980s to match his present-day performance, audiences got two Fords for the price of one; the "younger", fitter Indy, and the older, world-wearier version.

These de-ageing algorithms are highly proficient at analysing vast amounts of data, including images and videos, to learn patterns and features associated with different age groups.

By scrutinising facial structures, wrinkles, and other ageing characteristics, these AI tools can generate realistic representations of a person at a younger age. It makes for a powerfully emotional connection on screen, but there are pitfalls. Some viewers complain that the whole process is distracting and that the hyper-real visual look of de-aged scenes resembles a video game.

Even so, de-ageing in Hollywood cinema is here to stay. Tom Hanks's next film will use AI-based generative technology to digitally de-age him. In the midst of the current industry uncertainty, it seems there is no longer a statute of limitations on actors returning to much-loved characters.

The next big ethical issue for the film industry as it further embraces AI is whether to resurrect deceased actors and cast them in new movies. Some directors already are imagining hooking up AI to streaming platforms to create "new" films in which we become the stars, interacting with long-dead actors.

In a recent interview, Steven Spielberg warned: "The human soul is unimaginable and ineffable. It cannot be created by any algorithm. This is something that exists only in us. If we were to lose that because books, films, music tracks are being created by the machines we have made? Are we going to let all this happen? It terrifies me."

When the director of two intricately woven films – *Minority Report* (2002) and *AI: Artificial Intelligence* (2001) – that ask unsettling questions about how synthetic humans and computer systems might interact with us in a not-too-distant future reminds us to be careful what we wish for, perhaps we should listen.

Film is reaching a pivotal point in its relationship with AI. In Fritz Lang's *Metropolis* (1927), the mad scientist Rotwang created a robot replica of Maria (hitherto a virtuous woman who becomes a symbol of hope for the city's oppressed workers) to sow discord and chaos.

This new 'false' Maria is one of cinema's most enduring 'bad robots': in the film, she becomes a seductive and manipulative figure who almost leads to the city's destruction. A century later, those fears and anxieties about the rise of the machines are still with us.

Dr Ben McCann SFHEA is Associate Professor of French Studies – and an avid film scholar and writer.

HAL 9000 from 2001: A Space Odyssey (1968)

Law: The Way of the Ancestors

A review of Marcia Langton and Aaron Corn's book on Indigenous Law, launched at the University of Adelaide in May.

By Margo Neale

Law. The Way of the Ancestors is a powerful testament to the enduring laws that have governed life in this country for millennia.

It also shows the limitations of the imposed laws that have attempted to usurp all that existed before and govern this country in contravention of the laws of the land and her people.

These two systems now must find ways of working together for all Australians.

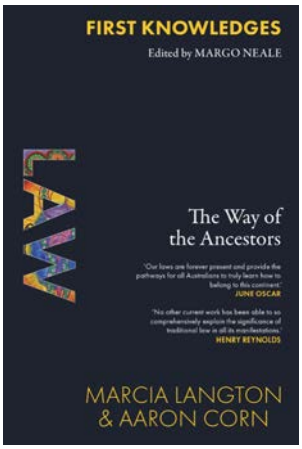
Law is a timely call to action with its well-argued recognition of Indigenous law as being fundamental to Australian nationhood, offering us the gift of exchange and a social contract for a unified future.

It traces the laws of the ancestors, reveals many profound differences between Indigenous and Western laws, and makes plain the absolute necessity of the inclusion of Indigenous law in the modern laws of this country.

One truth revealed here is the law's deep connectivity to every conceivable aspect of life across time, space and place, as a consequence of being a system of law that was created by the ancestors, or creator beings, and not by mere mortals. Aboriginal law is written in the land. It is as ancient as it is permanent.

A vital difference pointed out is that the Aboriginal definition of 'law' equally includes culture. Law and culture are inseparable. And country holds all knowledge as an integrated whole, not compartmentalised into separate disciplines.

Another profound revelation is the notion that traditional knowledges and law systems are as alive and well today as they were yesterday. They permeate all aspects of people's lives, whether people recognise it or not. The ancestors' laws are present and active daily.



Law is fundamental to everything we see and experience and is all around us – whether in a public mural, a Welcome to Country, a smoking ceremony, announcements by media presenters and airline attendants acknowledging Country, an Aboriginal design on a brochure or T-shirt, or a performance by Bangarra Dance Theatre.

All are governed by law and must be sanctioned by the right people, for the right reasons, according to law.

Law is practised in ceremonies in many different forms today. This is evident in festivals such as Garma in north-east Arnhem Land and Milpirri at Lajamanu in the Tanami Desert, in the music of Yothu Yindi, in the teachings of Steven Wantarri 'Wanta' Jampijinpa Pawu from Lajamanu, and in the art of Brisbane-based Jennifer Herd.

Constant negotiations between Aboriginal and Torres Strait Islander people and modern governments on native title, treaty, constitutional recognition and water rights, and with mining companies, are further evidence of the presence and principle of Aboriginal law.

As with other books in this series, we have opted for co authorship to offer a broader range of perspectives and knowledge from different cultural backgrounds, lived experiences and research.

Margo Neale is the editor of the First Knowledges series of books, published by Thames and Hudson Australia. This series offers an introduction to Indigenous knowledge in vital areas, and their application to the present day and the future.

Authors, Professor Aaron Corn and Professor Marcia Langton AO, both senior academics at the University of Melbourne, chose to launch Law: The Way of the Ancestors at the University of Adelaide due to Professor Corn's role, prior to joining the University of Melbourne, as Director of our University's Centre for Aboriginal Studies in Music (CASM). It was fitting that a VIP event, before the official launch in Bonython Hall, occurred at the CASM 50th anniversary exhibition "Let our Songs Speak for Us" curated in the Barr Smith Library's Ira Raymond Room.

If you are a member of the University of Adelaide community who has recently published a book, please let us know: lumen@adelaide.edu.au

Look at moi! It's Cardy, but not as we knew it

By Sue Bastian

I have many fond reminiscences of 1980s Adelaide, and not just because that was when I came of legal drinking age.

It was fast and flashy. Huge hair, house brick sized mobile phones, roaring F1 cars, maxi yachts, David Byrne baggy linen suits, enormous shoulder pads, bulky computers, and in many instances, even bigger and bolder (not necessarily beautiful) Chardonnay (shar-dun-nay). TV's foxy ladies Kath and Kim would have been right at home.

Sipping Australian "Cardonnay" back then was akin to licking a cricket bat that Dad had just treated with raw linseed oil and then rather peculiarly smeared with butter.

Now, like 80s Adelaide, it's evolved. This versatile and popular grape has its origins in Burgundy, France. It's made into a range of styles, suited for different foods and occasions globally. Chardonnay wines can be lean and nervy as the wines from Chablis, or fresh commercial styles from Chile; brilliantly sparkling Blanc de Blancs from Champagne or Northern Italy's Franciacorta; or a voluptuous, creamy, nutty, fruit salad fermented and/or aged in oak, like those super-premium wines from Burgundy, California and Australia.

In Australia, this superb white wine has taken a while to be debuted in all its complex glory. It has gone from the buttery, bombastic, oak bomb; through an undemonstrative, flinty struck match phase and emerged as a poised but magnetic wine with pristine fruit, showcased in a dainty, armoire of oak, slowly unveiling fruit aromas, spice, toffee and nut top notes like an expensive parfum, all wrapped in creamy, ripe French soft cheese flavours and textures.

This is welcome intelligence, as the 2022 National Vintage Report from Wine Australia indicates Chardonnay was the second most crushed wine grape variety (46.1 per cent of all white grapes crushed) and had a value of over $200 million at the weighbridge. Furthermore, Chardonnay has beaten Shiraz as the number one exported Australian wine due to growth in the USA and Canadian markets, and decline in Shiraz exports to the UK, USA, Denmark, Germany and New Zealand, the latter of which also make cracker Chardies.

Chardonnay's fruit spectrum spans white and yellow stone fruits, apple, pear, melon, citrus, pineapple, guava, and mango. This can be layered with secondary winemaking characters of honey, vanilla, butter, brioche, cheese, yoghurt, spices, nuts, toast and oak.

Often textural with a creamy mouthfeel, they tend to be medium to full bodied, and excluding those crisper wines coming from cooler climates like New Zealand, are naturally moderate in acid. They are not naturally high in grape tannins but oak tannin. Reasonable acidity and good fruit intensity means that some will age up to 10 years and develop bottle age complexity.

These wines are food versatile. The leaner, unoaked styles marry well with shellfish, sashimi, risotto, salads, paté, and chicken. But pasta carbonara, crab linguine, pork ragu on soft parmesan polenta, roast pork, fennel and apple sauce, truffled scrambled eggs, grilled mushrooms with anchovies, tarragon chicken, or pumpkin soup, desire the bolder, creamy oak styles.

Chardonnay is often called the "wine-maker's wine" (although we know quality begins in the vineyard), because the winery is from where many of Chardonnay's symbolic nuances stem. Buttery, caramel notes and softness from malolactic fermentation; cheesy, yeasty notes and creamy texture from time spent on yeast lees; flint and charcuterie savouriness from barrel ferment and nutty, tobacco, vanilla notes from judicious use of oak. They can be remarkably alluringly, complex.

The Australian wine sector is currently facing difficult operating conditions, but Australian Chardonnay looks better than ever.

Whether you never stopped loving a good Cardy, or you were driven away by the butter and linseed oil cricket bats of the past, perhaps it's time to take a leaf out of Kath and Kim's book and have another crack at a Cardy.

Gather some vino-loving friends, spend what you can afford on a bottle of an Australian leaner, crisper cool climate style and/or bolder oaked style, make some complementary cuisine and support the local wine industry.

Santé!

Our reviewer, Sue Bastian, is Associate Professor in Oenology and Sensory Studies, Manager WIC Sensory Laboratory, and Deputy Head of School, Agriculture, Food and Wine (International).

Life on campus

This one is going on LinkedIn

Smiles for a new doctor

Double degree delight

Student Yuxuan Zhao graduating with a few unusual guests

Semester two orientation

Donor thank you event at the Lumen bar

Launching ThincHer in Bonython Hall.

Big crowds at Open Day

Life on campus

Adam Liaw at the cloisters for Tasting Australia

The Lumen bar illuminates North Terrace

VIP dinner event in Shanghai

Sweeney Todd performance in the Scott Theatre by Bachelor of Musical Theatre students

King Stingray performing in the UniBar

Dem Mob performing in the UniBar for Tasting Australia

Achievements

Members of our award-winning University community have been recognised for outstanding achievements, accomplishments and contributions. Some of them are listed here. We are extremely proud of the following award recipients.

King's Birthday Honours 2023

Officer of the Order of Australia (AO)

Associate Professor Robert Ali AO

Dr Moya Dodd AO

Professor Michael Horowitz AO

Professor Brendon Kearney AO

Professor Michael Kidd AO

Associate Professor Sharon Liberali AO

Professor Ruth Marshall AO

Cheryl Vardon AO

Alan James (Jim) Whalley AO

Member of the Order of Australia (AM)

Dr Karin Alexander AM

Emeritus Professor Philip Boyce AM

Dr Caroline (Jane) Elliott AM

Michaela Healey AM

Dr Michael Jay AM

Emeritus Professor Peter Langridge AM

Mary Marsland AM

Professor Jennifer McKay AM

Paul Sambrook AM

Distinguished Professor Justine Smith AM

Dr Philip Tideman AM

George Torbay AM

Merilyn (Merry) Wickes AM

Medal of the Order of Australia (OAM)

Damiano Antenucci OAM

Craig Caldicott OAM

Vanya Cullen OAM

John Ellis OAM

Wayne Henson OAM

Bruce Ind OAM

Brian (John) Minney OAM

Jeffrey (Jeff) Newman OAM

Kenneth (Ken) Pocock OAM

Dr Gerard Quigley OAM

Carla Stacey OAM

Jennifer (Jenny) Weaver OAM

Jillian (Jill) Whittaker OAM

Public Service Medal (PSM)

Elspeth Kay PSM

Professor Kathleen (Kathy) Ophel-Keller PSM

Ambulance Service Medal (ASM)

Thamsin Dunn ASM

Fellowships

ARC Australian Laureate Fellowships 2023

Professor Shaobin Wang

ARC Industry Laureate Fellowships 2023

Associate Professor Phillip Cassey

Professor Heike Ebendorff-Heidepriem

Professor Shizhang Qiao

ARC Early Career Industry Fellowships 2023

Dr Nataliia Sergiienko

Dr Rachel Searston

Dr Wei Zhang

Law Foundation of South Australia Fellowships

Christian Andreotti

Azaara Perakath

Flyn Wells

Australian Academy of Science Fellowships

Professor Zaiping Guo

Professor Shizhang Qiao

Scholarships

Order of Australia Scholarship

Amy Martin

C.A.S. Hawker Scholarship Extension

Oliver Douglas

Other Awards

STEMM Educator of the Year

Dr Richard Lilly

SA Woman of the Year

Amelia Nolan

Dr Phiala Shanahan

Honorary Doctorates awarded at the May graduation ceremonies:

Dr Megan Clark AC

Dr Graeme Moad AC

Jill Hudson Award for Environmental Protection (SA Environment Awards)

Professor Sarah Wheeler

Distinguished Scientist Award (US Society for Reproductive Investigation)

Professor Sarah Robertson FAA

Excellence in Graduate Research Leadership 2023 (Australian Council of Graduate Research)

Associate Professor Tania Crotti

Wiley Prize 2022 (Journal of Geographical Research)

Associate Professor Yan Tan

Dr Xuchun Liu

Jon Rieger Award 2023 (International Visual Sociology Association)

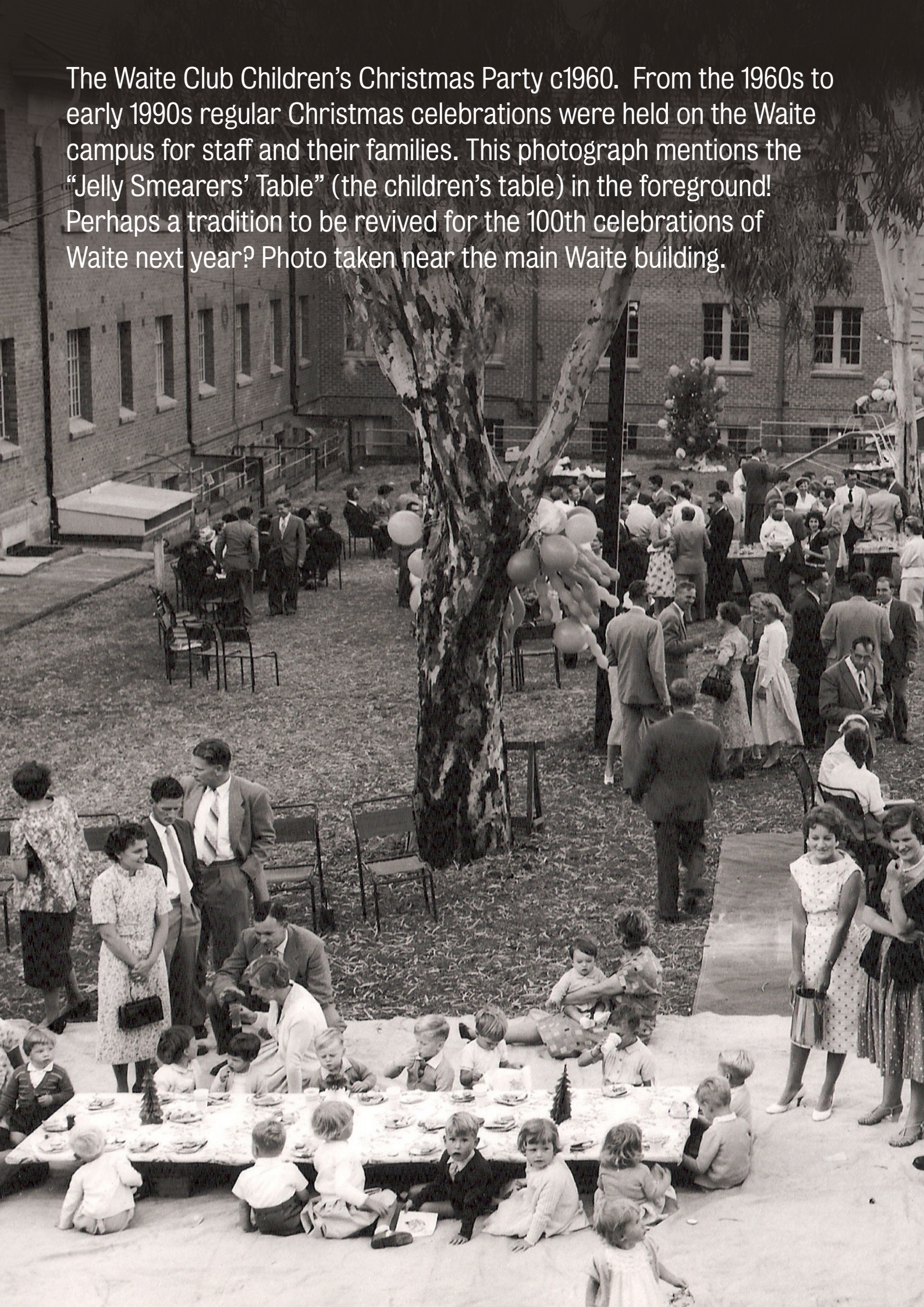
Dr Paola Tine

Crawford Fund Medal 2022

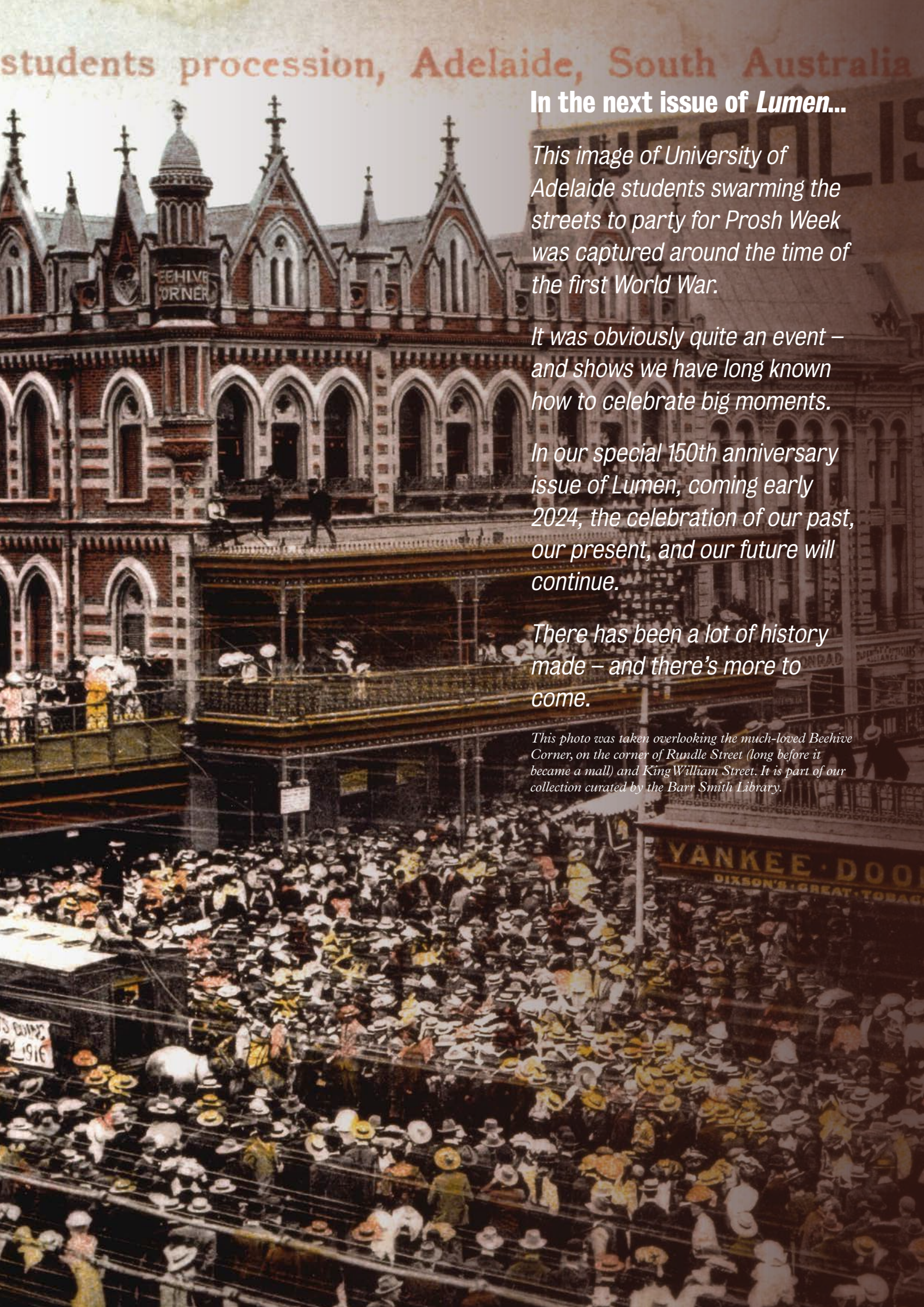
Emeritus Professor Kym Anderson AC

The University of Adelaide is proud to have a global community of high-achieving alumni. We apologise if we have missed your achievement here. If you are a recent award-winner or nominee, we want to hear from you. Please update your details or email us with your good news:

www.adelaide.edu.au/alumni/get-involved/update-your-details



The Waite Club Children's Christmas Party c1960. From the 1960s to early 1990s regular Christmas celebrations were held on the Waite campus for staff and their families. This photograph mentions the "Jelly Smearers' Table" (the children's table) in the foreground! Perhaps a tradition to be revived for the 100th celebrations of Waite next year? Photo taken near the main Waite building.



In the next issue of *Lumen*...

This image of University of Adelaide students swarming the streets to party for Prosh Week was captured around the time of the first World War.

It was obviously quite an event – and shows we have long known how to celebrate big moments.

In our special 150th anniversary issue of Lumen, coming early 2024, the celebration of our past, our present, and our future will continue.

There has been a lot of history made – and there's more to come.

This photo was taken overlooking the much-loved Beehive Corner, on the corner of Rundle Street (long before it became a mall) and King William Street. It is part of our collection curated by the Barr Smith Library.