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AUT is remarkable for the great graduates it produces, its research impact and the contribution it makes to New Zealand's society and economy.

I have studied and worked at two of the great universities in the world, the University of Oxford and the University of Michigan, but I have never been as proud to be part of a community as I am to be a part of AUT.

AUT has been the pacesetter in New Zealand education, and we are on a journey as one of the world's great young universities.

In 2022, our central mission as New Zealand's university for everyone with academic potential could not be more relevant or important. Each of us here believes powerfully, in our hearts and our minds, in the radical power of education and that teaching and knowledge changes the world, one student and teacher, and one whānau at a time.

COVID has amplified and deepened social and economic inequalities. The evidence shows that education in New Zealand has become an amplifier of inequality and unfairness, rather than an equaliser. The key predictor of educational success is not your intellect, however we might measure it, your talent, your commitment, or your hard work: rather, the best single predictor of how well you will achieve in education is how much your parents earn.

Alongside further meeting AUT's Te Tiriti o Waitangi commitments, advancing the environmental sustainability of our university, and continuing to increase our research quality, one of my top priorities as Vice-Chancellor is advancing

our work to ensure that the transformative and liberating power of an AUT education is accessible, inclusive, is of high quality and available to diverse communities of students.

Embedded in AUT's wairua, or spirit, has always been a firm commitment to inclusive education, a mission to provide a place of accessible, relevant learning.

Some may see our mission at odds with quality and achievement, but the record shows otherwise. AUT is in the top three universities in New Zealand, retaining its number one place in New Zealand for research impact and international outlook. We are ranked in the top 250 of the world's universities. We are also New Zealand's second largest university.

These ratings and the measures are proof that there is no binary opposition between being inclusive or being great. It is a false dichotomy between equity (and access) or excellence. We do not have to, and we cannot, choose one or the other. We are already both, and we will always strive to do better at both.

The most important measure remains students trusting us with their lives. We are already a beacon to many, the first-choice university for a growing proportion, and a university that best understands our changing world.

We are New Zealand's technology university, in a world where the application of knowledge is what matters in the best universities in the world. We have and will

continue to provide an education that meets the needs of the market. employers, and industry; our proximity to our communities; our social contribution; our emphasis on teaching and learning; our diversity and openness: these are attributes valued now more than ever.

We are the only New Zealand university with a truly diverse student body in terms of socioeconomic background, age, and whakapapa (a person's genealogy), in a world that hungers for people who can work, support, and thrive in diverse contexts.

Since I was announced as Vice-Chancellor, I have had time to reflect on AUT's place in the world and its contribution: the difference our alumni make through their contributions to business and industry, the difference our staff make with our students, and the contributions to knowledge through their research. I have seen just how much our nation and our city runs on AUT.

Every morning as I head up to my office, I walk past a giant picture of my brother Jordan on the wall of our employability hub. He has been there for years literally an AUT poster boy. When I look at it. I'm reminded of the difference AUT has made in my life, and that of my whanau. Because of AUT, my brother - a mature student - is the lead physio for the New Zealand Olympic team, a successful businessman and contributes deeply to our community.

I've come into this role with an open heart, open ears, and an open mind: but also, I have open eyes, and I am aware I have a leadership job to safeguard and enhance the sustainability and contribution of AUT for future generations. Amongst New Zealand's eight universities there is no question that we are the most distinctive. Extending and building on what we've already achieved means embracing this. I will work hard to support us to be the best version of ourselves and make the most of our distinctiveness. Alongside our students and alumni, we as a university will always continue striving to find our greatness. Professor Damon Salesa PROFESSOR DAMON SALESA VICE-CHANCELLOR. AUCKLAND UNIVERSITY OF TECHNOLOGY We have and will continue to provide an education that meets the needs of the market, employers, and industry; our proximity to our communities; our social contribution; our emphasis on teaching and learning; our diversity

and openness: these are attributes

valued now more than ever.

AUT continues to rise through global rankings

AUT has climbed yet again up the global university rankings, now joining the top 250 and further improving its place in the top group of world universities.

This is according to the prestigious Times Higher Education World University Rankings released in the United Kingdom.

AUT now ranks alongside the University of Otago in the 201–250 band and further cements its place in the top three universities in New Zealand. It has also retained number one place in New Zealand in terms of research impact and international outlook.

"AUT is a young, modern university and to have continuously moved up the global rankings to now sit second in New Zealand alongside the University of Otago is a significant achievement," said outgoing Vice-Chancellor Derek McCormack. "These results reflect the ongoing efforts of our teaching, research and administrative staff, and the performance of our students and graduates."

The Times Higher Education World University Rankings was founded in 2004 and provides a definitive list of the world's best universities using performance indicators on research, citations, industry incomes, teaching, and international outlook.

aut.ac.nz/about/rankings-and-accreditation

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RESEARCH AND INNOVATION HIGHLIGHTS



RespirAq, a company formed to commercialise innovative respiratory technology developed by AUT researchers, has secured a \$1.5m investment.
RespireAq technology is the first fundamentally new medical airway humidification technology in decades – an active heated humidifier removes the need for bulky water supply, tubing and sensors, making an elegant and compact solution for medical humidification.

The smart fabric at the core of the RespirAq active humidifier is the invention of Dr Sandra Grau Bartual, a trained chemical engineer originally from Spain whose PhD resulted in the development of the smart fabric at AUT in 2019, in collaboration with her supervisor Professor Ahmed

The investment by Outset Ventures, Icehouse Ventures and Cure Kids Ventures is the largest ever made into any AUT-developed technology and a major milestone for AUT Ventures, the University's

respiraq.com

Antiinflammatory, from Aotearoa oceans

New Zealand's indigenous Greenshell™ mussel (GSM) is valued by consumers around the world for its unique flavour and visual appeal, and increasingly for its antiinflammatory properties.

Researchers led by AUT are turning GSM into a new product supplemented with fucoidan, a unique compound found in the seaweed Undaria pinnatifida, the benefits of which may have strong anti-inflammatory and metabolic effects. Undaria pinnatifida is native to Japan and forms a core part of the Japanese diet but in New Zealand it is classified as an 'unwanted organism' under the Biosecurity Act 1993 due to its ability to grow invasively on any hard surface, including mussel lines.

With \$803,000 from the High-Value Nutrition National Science Challenge, AUT's Professor Jun Lu is leading a team including researchers from the University of Auckland and the National University of Singapore that aims to extract fucoidan from the seaweed, formulate a musselfucoidan prototype supplemented food product, and evaluate the product in a randomised controlled clinical trial in ethnic Chinese subjects with joint pain and prediabetes.

With high-value markets like China showing appetite for products with combined active ingredients associated with multiple health benefits, the study's industrial partner, Beyond Capital MedTech Management Ltd (BCM), is interested in developing a mussel + fucoidan supplemented food product with a distinctively New Zealand flavour that uses waste product (seaweed) from the mussel industry.

Brain retraining to manage chronic pain

The world's biggest clinical trial using electroencephalography (EEG) neurofeedback as a therapy to manage chronic pain has been launched in New Zealand.

The clinical trial, funded by New Zealand-based health tech company Exsurgo, is being led by researchers at AUT and Waitematā District Health Board.

The therapy is non-invasive and works by monitoring brain activity, using the data to help the patient 'retrain' how their brain responds to nerve signals from the body that typically result in pain.

More than 100 chronic pain sufferers will wear a custom Axon EEG headset developed by Exsurgo that sends real-time data to a mobile device. Through 30 minutes of exercises designed to reward and reinforce positive change in the brain's electrical activity over several weeks, the aim is for participants to learn to retrain how their brain perceives and produces pain.



The custom Axon EEG headset

Primary investigator Associate
Professor David Rice, Associate Head
of Research at the AUT School of
Clinical Sciences, says chronic pain
is common, complex, and hard to
treat. "Increasingly, we are finding
evidence that chronic pain is driven
by changes to pain pathways in the
brain and so this trial is seeking to
find whether the Axon headset can
target these changes to effectively
treat chronic pain."

Reimagining our own waste

A group of third-year industrial design students has been unlocking the value of waste materials created at AUT, to be reused on campus. Reimagining thousands of lightproof milk bottles normally shipped offsite, students have created reusable coffee cups, furniture, lamps, space dividers and more, to be put to good use around the University. Lecturer Anke Nienhuis says the milk bottles are a valuable resource, and the consistent source of bottles from the AUT cafés and staff rooms makes it plausible for this material to be turned into useful, appealing and innovative products.



Design student Kynan Robinson spun and then felted milk bottle plastic into a cloth-like material that absorbs sound to create a desk divider that shields students visually and acoustically in the AUT library. The frame of the divider is also made from the milk bottle plastic.



As Production Manager at titanium 3D printing company Zenith Tecnica, Kurt spends his days – and often his nights – making things better for people and the planet.

"The work we do is so critical that when customer orders come in, there's no slacking," he explains. "One delay from us could literally hold up a rocket from launching or cost someone their chance of walking again – there's a lot of pressure."

Working closely with global implant manufacturer OSSIS, Kurt and his team help craft complex implants for oncology patients with severe pelvic tumours.

"Nothing makes us more excited than hearing that the implants we helped manufacture have allowed someone who never thought they'd walk again to be on their feet within six weeks."

And when he's not turning revolutionary ideas into medical parts, you'll find him working on major space projects manufacturing components for satellites.

"Since 2016, we've worked with Maxar, one of the world's most advanced satellite manufacturers. We've provided over 260 titanium components which are being used on five different satellites currently in orbit, and we have more than 270 parts in production and assembly on eight other satellites. These satellites are used for everything from imaging and GPS to broadband connections, so our work really is helping the world become more connected."

Kurt, who is one of the alumni faces featured in AUT's Find Your Greatness campaign, is an integral part of the burgeoning additive manufacturing industry.

Offering a transformative approach to industrial production, he uses computer-controlled processes to create 3D objects by depositing layers of material in precise geometric shapes. Officially described as an additive manufacturing engineer, Kurt prefers to be thought of as "a 3D printing wizard or maybe just a guy that likes to solve problems". But whatever you call him, there's no doubt he's on a fast track to success in an extremely exciting field.

"I joined Zenith Tecnica when I was completing my master's. In my first month I was part of a structural satellite project, I helped manufacture multiple hip implants and processed some of the largest

titanium marine parts to ever be additive manufactured."

He's worked his way up fast and is among just a handful of people in Australasia to have completed GE Additive's EBM (Electron Beam Melting) Material Development Level 3 programme.

"With EBM we're literally pulling lightning out of a crystal in a vacuum greater than outer space and firing it into metal powder smaller than a human hair!"

Luckily his AUT studies – including a Bachelor of Engineering Technology in Mechanical Engineering and a Master of Engineering with Honours (First Class) – helped prepare him for the challenge.

"AUT's mechanical engineering programme has a strong focus on material science, advanced manufacturing and strength of materials, and teaches students how to implement these to solve real-world problems. This definitely got me job ready!"

Better still, thanks to the industry ties his professor had with Zenith Tecnica, Kurt got his foot in the door to his dream company. In his three years there, he hasn't looked back.

"Most of our projects involve collaborating with people all over the world, from many different specialised disciplines. There are so many considerations and technical details that go into a design. It's

amazing when all of the moving pieces come together and we're able to deliver exactly what we promised."

Now that he's firmly established at Zenith, Kurt has set his sights on helping double the company's size.

"What we do improves the lives of so many people so being able to help more customers would make me very happy."

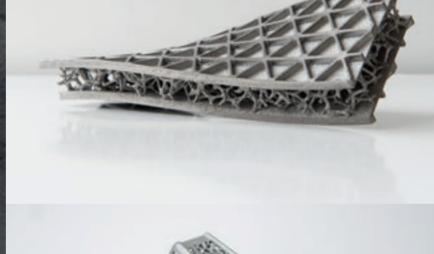
And while he hasn't thought beyond the next five years, it's pretty clear that whatever he does will have a positive impact.

"I like to leave things better than I found them. I grew up on Great Barrier Island, and spent years watching, learning and participating in improving our family's living conditions through implementing technology. The things I saw my dad make out of nothing continue to inspire me – he'd take absolute junk and repurpose it into water heaters, electricity generators and just about anything that was needed."

So is Kurt on a mission to make the world a better place?

"That sounds a little ambitious! I simply try to improve what's in front of me – and that currently happens to be satellite parts and medical implants."







Nothing makes us more excited than hearing that the implants we helped manufacture have allowed someone who never thought they'd walk again to be on their feet within six weeks.





Three years into her career as a family lawyer and criminal litigator and loving it, Khylee (who is Te Roroa, Ngāpuhi and Ngāti Porou) was asked a favour. There were very few Māori academics in law schools at the time and only two at the University of Auckland, she says. "One of them, my teacher, asked me to come back to help her out.

"I went out of a very strong sense of obligation to my teacher and the minute I took my first lecture I absolutely loved it."

It was 80s TV that had ignited her ambitions. "I was obsessed with LA Law, from a really early age I was interested in law. Legal processes, what lawyers did – particularly courtroom work - looked really exciting to me."

With no lawyers in her whānau or extended community, her dad called the Law Society and organised for 11-yearold Khylee to meet a young female lawyer. She recalls meeting that same lawyer again more recently. She couldn't recall meeting Khylee.

That second encounter provided another important insight to apply to her teaching.

"The reason I often think about that is because it happens to me a lot - I have a pretty good memory for names and faces and students, you won't remember all of them but they will all remember you.

"People will remember the way you treat them, so it's really important to me to treat people with that in mind."

Khylee is well lined up with the values and kaupapa of the School of Law and AUT.

She says AUT's conversion from a polytechnic to a university more than two decades ago allowed it to take some of the really good parts of a polytechnic - "the whakapapa or DNA" – and transport that into a university. "Having more of an industry and employment focus, having less of an 'elitist' focus."

What do we want our law graduates to be like and what sort of capabilities do we want them to have? "Social justice is a key one for me. I really believe in the values in AUT's strategic plan. It grinds my gears when organisations put out strategic plans that aren't living documents, that mean nothing in the what, how and why of your teaching and learning."

And what she likes best are the values: Tāwhaitia te ara o te tika, te pono me te aroha, kia piki ki te taumata tiketike; Follow the path of integrity, respect, and compassion; scale the heights of achievement.

It's these values Khylee wants woven into every graduate – "Tika – means to be correct and proper, and then pono – ethics – is to be just and appropriate. Just because you can,

66 At AUT we have a much more diverse cohort in terms of age, school success, personality, ethnicity, cultural communication style – they can all be successful. That's part of our goal of accessible legal education. 99

> vou have to have the ethic filter and ask, 'well, should I?'"

> Probably the most important value, she says, is aroha – "Love, compassion: that's the social justice and emotional aspect.

"Law is often presented as unemotive, but to conflate professionalism with being unemotive is entirely incorrect. The real meaning of aroha is 'to turn your attention and dedication to a particular thing'. So it's not to love it, necessarily - the ha is your breath, aro is direction – so 'to turn your breath' is to literally turn your attention and all of your focus on the person or the problem in front of you."

Khylee delights in the "incredible diversity" of her student population. In ethnicity: "About 28% of our cohort is Indian or other

subcontinent ethnicities, then the next highest is Pasifika at 22%. then Pakeha and Māori." By age: "Over 40% of our cohort are not school leavers, or they're retraining. changing careers. We have a high percentage of middle-aged Māori and Pasifika mums.

"That doesn't look like any other law school in the country, it's pretty special."

But that's not the full story. "Diversity gets you so far, it will get you to the dance but it won't allow you win the competition. It might change the look of the dance, but the skills and attributes to be a successful lawyer are the same.

"It's important, at the same time that we're pumping out the diversity and inclusion message that we are not watering down the excellence

> message. We have a really high percentage of high performing students."

To demonstrate the quality of the school's graduates, she points to alumni working for Crown Solicitors, all top commercial

firms, community law practices, in government and clerking in the

An alumnus from the school, Justice Layne Harvey, was last year sworn in as a Judge of Te Kōti Matua - the High Court in the first bilingual High Court swearing-in ceremony in Aotearoa.

"The school is really young, and in the past five to seven years, we're in the position where we've got graduates in all the important spaces."

To provide Aotearoa with a quality legal profession that truly represents the communities it serves, Khylee believes in a dual focus on equity and excellence.

It's important to keep finding ways to make law accessible. Getting into schools early through partnership is important, she says. "You're

not asking people to make the decision at 11 like I did – you're asking 'do you like these kinds of things?', and being able to influence subject choice to keep the door open."

Making universities open community spaces is another one. "AUT does that really well. South Campus in particular – my friend and colleague (Assistant Vice-Chancellor Pacific Advancement and South Campus) Walter Fraser has this vision and practice of creating what he calls a 'sticky campus'," she says, "When you go there, you want to stay there, you can come here, do your study, eat together, do sport. It's a community asset.

"We have highly successful, high performing students who are attracted to that, particularly the ability to study in Manukau amongst a highly diverse general community.

"City Campus is much the same. Making the campus open and accessible - AUT does that well."

AUT's Law School also does a few other things differently in terms of the accessibility kaupapa, Khylee says. One is breaking down the competitive ethos.

"Law schools thrive on that stuff - the first class you go to you do the 'look left, look right, look in front of you, look behind you only one of you will survive until second year. You know, ridiculous Hunger Games, horrible anxietyinducing stuff. We take quite the opposite anti-competitive approach."

While she was still settling into her role. AUT announced the appointment of Damon Salesa as AUT's Vice-Chancellor. How does she feel, being the first Māori dean of law to work with the first Pacific person to hold the position of Vice-Chancellor at a New Zealand university?

"I am really excited, Damon and I met in a first-year history paper in 1991 and I knew from then that he was going to be someone pretty special – I get really emotional actually to think that 30 years later he'd be my boss. I'm over the moon, beyond excited.

"One of his goals that I fundamentally agree with people of any preparation should be able to come here and we'll come to you."



Beauty entrepreneur's winning formula

She may have grown up on a farm riding motorbikes, but she was always destined for global success.

Meet Jaimee Lupton: PR whiz, beauty and haircare entrepreneur, and co-founder of MONDAY, a cult line of luxurious-yet-affordable haircare that's taking the world by storm. Since launching just over two years ago, the brand's rise has been exponential. Six months of stock sold in the first four weeks and MONDAY's pretty pink bottles of shampoo and conditioner are now flying off the shelves of the world's biggest retailers, from Coles and Tesco to Amazon and Walmart. With over 8 million bottles sold so far and an ever-growing battalion of beauty industry accolades, MONDAY is quite literally revolutionising the supermarket shampoo game.

"I think I knew we had a good thing in MONDAY, but it's been pleasantly surprising to see just how much people have loved it and what a community we've built," says laimee, an AUT alumna and Mumbrella's 2021 Under-30 Achiever of the Year. "I think it's been so successful because people were looking for what I was - something that looks really premium, feels incredible to use, doesn't compromise on values that are important to them, and doesn't cost the earth!"

But as well as being a great product, much of that success must also be attributed to Jaimee's PR prowess and entrepreneurial predilection.

"I think I was always destined to be an entrepreneur. As early as primary school I'd buy and sell things from eBay. I got a real kick out of it and learned valuable skills about margins and keeping running costs low."

After completing high school at Epsom Girls Grammar, she honed her skills at AUT, gaining a Bachelor of Communication Studies and opening the door to a wealth of exciting opportunities. The public relations courses she completed provided a useful framework for launching the business, encouraging her to think holistically about her offering, rather than focusing solely on the bottom line. But as she points out, her AUT experience extended well beyond the classroom walls.

"AUT taught me that university is not just about the mandatory work you do as part of your course, but the opportunities that surround you while you're there. I was always connecting with new people and interning in different places, such as Fashion Week and PR agencies. Whether or not you realise it at the time, you end up using those connections later. At AUT I built invaluable foundations and pathways for the future."

Recently she's been giving back to the AUT community, sharing her story with students to empower and inspire.

"I was once where so many AUT students are today and know how invaluable it is to hear from people who've had some success in the field you're looking to get into. It can seem like a big gap between where you are and where you want to be, but it's really not."

After graduating, Jaimee headed across the ditch, taking up a role at Australia's top luxury communications agency. The seedbed for MONDAY was sown.

"I saw a gap to create something that felt beautiful and luxurious, just without the unnecessary price tag. 'Exclusivity' has long been a buzzword in beauty, but by definition that means someone is always excluded. So. I set out to create a more inclusive beauty brand."

Now firmly established in 10 different countries, Jaimee's focus for 2022 is on breaking into new markets and retailers, expanding into other personal care categories, and getting the new products her team has been perfecting onto supermarket shelves. It'll be a busy year – she and partner Nick are also due to welcome their first child in July.

"With the baby on the way I've been forced to slow down and take things a little easier. MONDAY has been my baby for the past few years, which has been so great, but it's time to put my other baby first!"







"I'm in a unique position and I'm very lucky," Will explains. "At the same time, doing business up here is very different to New Zealand – you've got to find a balance of being unique to the environment and being true to yourself."

While the Kiwi style of 'saying it how it is' can sometimes come across as abrupt in a US business environment, Will has landed in a comfortable place: "You don't need to follow everything. Amazon really embraces the global approach and my style's different, and people like that. Some of the ways that I operate are definitely to my advantage."

Leading creator product and distribution across Amazon's audio platforms (Alexa, Audible and Kindle) means that on an ordinary day, Will has a few hundred product and engineering resources reporting to him globally. Many are based in Amazon's HQ of Seattle and others

are in Texas, the East Coast of the US, Asia and Europe.

"Amazon is doing a push in audio right across all its platforms, and my team basically builds products to meet that demand."

One of those products is the Audiobook Creator Exchange. It allows independent creators to distribute audio content through all Amazon platforms, "so that everyday authors, narrators and podcasters can come and basically have a career through Amazon".

Launching that product was career-defining for Will. "It wasn't just a project; you're enabling a way of working, enabling people who thought they would need to be signed by a publisher. They can now earn money, make a living, and I'm very proud of that.

"That's what I love, that's true tech – where you are enabling things or you're disrupting technologies, and

growing at scale, and we've already seen it's got massive opportunities."

When he started as an undergraduate with AUT, it's fair to say it seemed unlikely we'd find Will leading product and engineering for one of the globe's technology giants. Retiring from an international career as a professional triathlete, Will had sights on becoming a physiotherapist, but realising it wasn't the career for him he pivoted and completed a science degree.

"I had an interest in business so I finished that degree and then got a job – that's what led me to the MBA."

The move from science to management consulting for KPMG then PwC came with a need to acquire a set of financial and analytical skills. He was drawn to AUT's MBA programme because it offered the flexibility to study part-time and keep progressing his career.

His MBA provided invaluable financial skills that he now applies to his job every day – where he has a massive amount of data at his fingertips.

"Being able to model and forecast financials, and look really deeply at it from an analytical perspective. Without the MBA I would not have been able to tell you what a P&L looked like or how to analyse data sets as accurately and with confidence. Those sorts of things now are absolute baseline for me in terms of how I approach my day."

While he wonders if he may have benefited from a bigger break after his undergraduate degree (he started the MBA six years after graduating), his MBA colleagues were all at different points in their career – a valuable spectrum of people to connect with. "There were the fellow emerging leaders, if you like, who were in a similar situation to me," says Will, "and then there were the people who were much more seasoned and coming back to revisit things.

"I was doing it in my late 20s and in hindsight didn't have a huge amount of experience workwise. The other people I was studying alongside were quite accomplished."

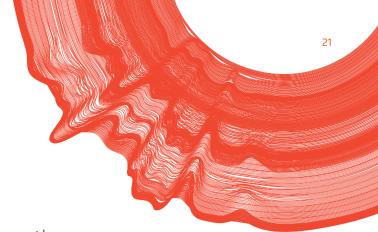
While much of his career since has focused on media and entertainment, Will says it wasn't planned like that.

"When I was consulting, I was interested in energy sectors, and I did a bit of financial services. Then when I joined Spark I was interested in telco. Then Spark, as most telcos have done, wanted to invest in adjacent areas of business and that included media and entertainment."

It was while at Spark that Will founded and launched New Zealand's first dedicated Internet of Things start-up, Morepork, which drew the attention of US-based music streaming service Pandora. That led him to resettle in California, and it was a short hop from Pandora to a role at Amazon to lead their video platforms Prime and Twitch.

The move from leading product and creator acquisition strategy for video to audio platforms a year ago means Will is now working with different technology. "How things are built, how content is ingested, and then distributed is very different so that's been a bit of a learning curve.

"I'm a curious student of engineering in that sense, I love digging into detail and finding



out how things work – it does help. Understanding how your products operate is really important."

But, he says, the fundamentals are the same. "The creator needs, or user needs, are very similar. You as a user using Alexa versus you as a user using Fire TV or Twitch are very similar, the way we monetise that is very similar."

One of the most important lessons from Will's AUT days that he's brought with him to California is about product-market fit. "In my marketing strategy course we talked a lot about that.

"Basically, when you find a fit with a consumer – when a consumer adopts a behaviour and loves it and organically turns up to that product without you having to do anything from a marketing or sales perspective, that's very powerful – that's a very powerful proposition.

"I've seen that up here, there are so many products that don't have that fit and you're spending millions and millions of dollars trying to market them properly – whereas something like Twitch has so little marketing behind it, it's all organic, people hear about it, and they want to do it. I've seen that realised in the work that I do."

Twitch – the video game live streaming service, may be an example of people 'organically turning up' to a product, but it also leaves most people over a certain age wondering, 'why would you want to watch someone else play a video game?'

Knowing what's going to work in market isn't easy, says Will. "That type of thing is, quite honestly, like trying to trap lightening in a bottle, it's hard and doesn't happen every day.

"Amazon is very good at testing ideas and allowing you the ability to try things with the right resourcing and investment, and so I just think it encourages that innovative mindset to push the boundaries."



AUT BioDesign Lab: Testing the boundaries

Imagine a future where your long-term health is optimised using wearable technologies that measure the impact of that sixth coffee you drank, the last five months of late nights at the office, or that 20-minute jog you took this morning – a device that predicts impending chronic disease years before symptoms show up, giving you time to take preventative action.

While that may sound more like science fiction than science, it's one of the many trailblazing projects in the pipeline at the AUT BioDesign Lab, a transdisciplinary collaboration of engineers, designers, physiologists, neuroscientists and clinicians who all share a common goal – to find workable solutions to real-life problems.

Described by co-director Dr David White as "the waterhole where all the different animals from across the savannah come to drink", the lab is a meeting place of great minds from across the University, and the birthplace of a tonne of brilliant ideas.



THE BIODESIGN LAB HAS DEVELOPED AND PATENTED TWO NEW BREATHING TECHNOLOGIES. DR DAVID WHITE (CENTRE) WITH ANUSHKA VERMA DURING A RESEARCH PROJECT ADVISORY GROUP MEETING, DEMONSTRATING A PATIENT BREATHING SIMULATOR.

"Our focus on engaging in original and challenging research has resulted in the lab undertaking world-leading research on many fronts," says David (aka 'Dr Nose' due to his pioneering work around the benefits of nasal breathing).

"We've developed and patented two new breathing technologies, RACer and Kazoo-NO, that treat conditions like nasal allergies, airway obstruction and sleep apnoea. We're leading ground-breaking research into the management of metabolic diseases such as obesity and type-2 diabetes, and we're spearheading investigations into how breathing modification can influence airway health without the need for pharmacological intervention."

The Kazoo-NO device enables users to hum at a specific frequency while nasal breathing and was inspired by the ancient practice of Bhramari Pranayama (which translates to 'bumblebee breath' because it's at the same sound frequency bumblebees make when flying). Meanwhile, the lab's most successful project is its RACer (Rest-Activity-

Some might consider this risky as it challenges long-standing beliefs, however we prefer to think of this as being brave since new ideas come from new ways of thinking.

Cycler) pressurised breathing system, which has not only brought big benefits to those suffering from sleep apnoea and pulmonary disease but has also shown potential for treating brain injury, disease and age-related neurological decline. And, as part of the lab's ethos of supporting innovation – where commercialisation enables society to directly benefit from their research – they've launched a start-up company to take this technology to market.

Breathing neurotherapy is an exciting area for the team, which has undertaken extensive research into how different forms of regulated nasal breathing can be used to boost health and wellbeing.

"Our objective is to develop augmented breathing technologies as clinical support tools for neurological and psychiatric conditions like depression, anxiety, pain management and traumatic brain injury."

Their work also heralds good news for the 70,000 New Zealanders who suffer from dementia, with the lab currently investigating new strategies to improve the cognitive performance of those living with the condition.

"In 2020, we completed our first brain activity EEG study looking at neural signatures of breathing. The results are exciting! Our technology demonstrates a change in both locations of the brain and states of activity during different breathing parameters. Eventually we hope to gain external research funding targeting specific applications for this novel neurological treatment."

But securing funding is an ongoing challenge.

"That's because our proposed activities are often outside the scope of current thinking. But our view is that new solutions are derived from original research. Some might consider this risky as it challenges long-standing beliefs, however we prefer to think of this as being brave since new ideas come from new ways of thinking."

Since its launch in 2013, the AUT BioDesign Lab has grown rapidly – the initial team of three has now swelled to include 12 AUT researchers, nine doctoral and master's degree students, and more than 10 external research partners. Fellow Co-director Dr Catherine Crofts (Health and Environmental Sciences faculty) represents the clinical perspective while David (School of Engineering, Computer and Mathematical Sciences) provides technology and design resources and strategy.

An enthusiastic supporter of industry innovation, the lab works closely with several medical device and technology-based companies, helping them develop early-stage concepts. In 2017, Aō-Air engaged the lab to help create a safe air citadel within a transparent facemask system. AUT Master of Engineering student Bradley Nixon played a key role in the project. Meanwhile in 2019, Master of Engineering student Michael Van Wyk worked with Zero-Cast to embed smart technology into their wrist orthotic brace, eliminating the need for plaster casts.

But not all BioDesign Lab projects revolve around humans. They're also leading the world in marine turtle conservation through their development of the world's first implantable front fin prosthetic and new types of artificial muscle.

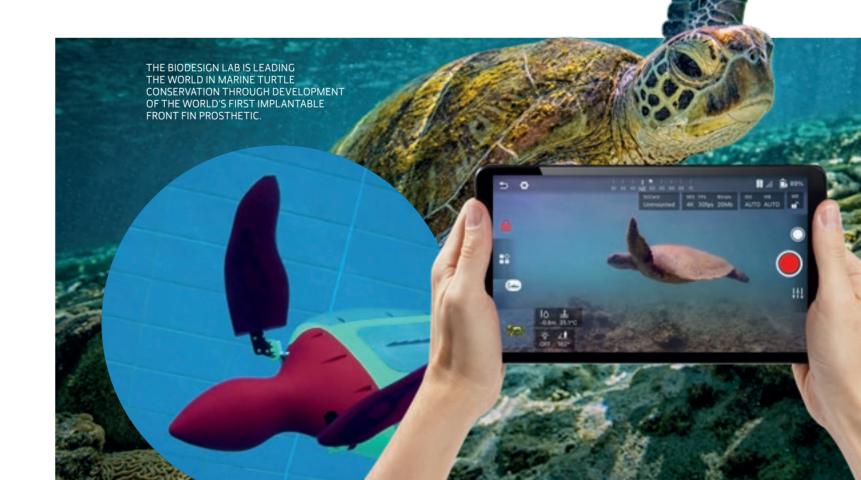
"Sea turtles are among the planet's most endangered species due to limb amputations from human hazards like fixed fishing nets. Although several attempts to replace lost flippers have previously been made, none were based on an implantable solution inspired by hip and knee prosthetics currently used in humans."

None, that is, until Dr Lorenzo Garcia joined AUT in 2016 and offered the project to undergraduate engineering students in their final year. Thanks to their efforts, implant design has taken a giant leap forward gaining strong interest from turtle rehabilitation and rescue centres worldwide.

And as David explains, the consequences of these international collaborations are far-reaching.

"This research initiative seeks to not only increase the chances of turtle survival, but it also strives to educate humanity about the importance of the survival of all life on earth."

Now that's transformational stuff!



P6 INSIGHT | 2022

This one precious life

By the time she stepped onto the grounds of AUT, Jess Tyson had already lived an extraordinary life – a life peppered with joyous highs (she was named Miss Teen World at the age of 15) and unimaginable lows (she was sexually abused at the age of 7).

Now a highly regarded journalist for Māori Television and founder of Brave, a charity which raises awareness about sexual violence affecting young people, Jess is a beacon of hope for Māori youth struggling to conquer adversity.

"I love sharing stories about incredible Māori people who have overcome significant challenges and gone on to do amazing things. These stories really resonate with me, and I believe they're the best way to inspire those who are facing hardship," explains Jess.

Her passion for uplifting others was fuelled during her time at AUT, where she completed a Bachelor of Communication Studies majoring in Journalism.

"In class one day we were discussing justice in society, and how hard it is for victims of sexual abuse to prove it in a court room. When I was 9, I testified against my abuser in court during a three-day trial, but charges were dismissed through lack of evidence – so I'd been through that exact experience myself. Although I'd already found peace with what had happened to me, I still wanted to do something to help others."



Her chance came a few years later when she entered (and won) Miss World New Zealand.

"Being crowned Miss World New Zealand helped me see the value in giving back and gave me the confidence, courage and bravery to share my story. 'Beauty with a Purpose' is one of the main categories in the pageant, and sees contestants tasked with working on a charity project. That's when I decided to open up about my own experiences and launch Brave."

In the four years since its inception, the organisation has gone from strength to strength. Now run by a team of five – and funded in part with the \$20,000 less won during her stint on 2021 Celebrity Treasure Island - countless young Kiwis have been empowered and supported.

"We used to go around and talk to all the schools but since the pandemic, social media has become the best way to connect. It's pretty hard to juggle my full-time job and my work with Brave, but we get such great feedback, so we know it's having an impact. This drives us to keep going and keep growing."

A self-proclaimed overachiever, less is keeping one eye firmly fixed on Brave while also taking her career at Māori Television to the next level, in her role as a news reporter with Te Ao with Moana.

"This is my first year doing current affairs and I want to become really, really good at it!"

At the same time, she's completing her final year of part-time studies in te reo Māori at Te Wānanga o Aotearoa.

"When I was majoring in journalism, I found I was really drawn towards Māori news. My dad is Māori and my mum is Pākehā, but looking back I didn't grow up as immersed in the culture as I should have been. At AUT I got involved in the Māori Students' Association and became one of the leaders. That opened my eyes to the beauty of my culture, and I picked up a couple of te reo courses which I did alongside my degree.

"Learning about my culture was the biggest highlight of studying at AUT. All the staff in Te Ara Poutama, the Faculty of Māori & Indigenous Development, were amazing. I really struggled moving from my home of Whanganui to study in Auckland because everything was so much more expensive. They supported me, helped me financially, and provided me with a mentor. Having that community around me was the best and most influential part of my university experience."

After graduating, Jess enrolled in Te Wānanga Takiura o Ngā Kura Kaupapa Māori o Aotearoa for their one-year full-time full immersion te reo programme - and she hasn't stopped learning since.

"Once I decided I wanted to focus on Māori news, I knew that I had to speak the language. As Māori, there's a feeling of shame not knowing our language, and I'm such a perfectionist that in the past I've been too scared to try in case I made mistakes. If I hadn't studied at AUT I wouldn't have become nearly as comfortable learning and trying new things."

At just 28 years of age, less has already accomplished more than many. And she says there's plenty more to come.

"What makes me proud is the fact that I haven't stopped at one thing. I've continued - and will continue - to achieve great things hopefully for the rest of my life."







At AUT I got involved in the Māori Students' Association and became one of the leaders. That opened my eyes to the beauty of my culture.



For the greater good

Mention artificial intelligence (AI) and most of us think of robots, self-driving cars and smart assistants like Siri and Alexa. But AUT senior lecturer and cognitive neuroscientist Dr Mangor Pedersen is harnessing the power of AI to revolutionise the treatment of epilepsy, traumatic brain injury, and hopefully one day soon, dementia.

With a background in psychology and neuroscience, and an unbridled curiosity for the human brain, Mangor has been developing life-changing new health and clinical technologies for close to a decade.

Since completing his PhD – which focused on using brain scanning and mathematical modelling to identify whether surgery is needed for treatment of epilepsy – he's been working at Melbourne's Florey Institute of Neuroscience and Mental Health as the AI Lead on the ground-breaking Australian Epilepsy Project (AEP). The project aims to improve the medical journey, and lives, of those living with seizures and is Australia's largest–ever single government investment into epilepsy research.

"Traditional science is based on averaging across people, but what we really need to be doing is looking at each person as a unique individual not as an average person. This project is enabling us to do that," says Mangor, who made the move from Melbourne to Auckland – and AUT – in 2020

"Currently the pathway from someone's first seizure to treatment can take up to 10 or 15 years, which is unacceptable. In the Epilepsy Project we will collect advanced brain imaging, genetic and cognition data from 4,000 people, to train a model of what epilepsy is. This can be used as a rapid tool to predict if an individual who has had their first seizure is likely to have another, and if they'd benefit more from surgery or anti-seizure medication."

The results have been profound.

"One 18-year-old girl started having nightly seizures at the age of 15. An MRI didn't show anything out of the ordinary, but then I tried the method I'd developed during my PhD which looks at the function of the brain instead of the structure. It showed that there was a tiny part of her brain that was hugely connected to everything else. We tested hundreds of other people but couldn't find anyone else with the same thing, so we decided to surgically remove it. That surgery was performed back in 2014 and since then she hasn't had a single seizure. Her case study is a fantastic demonstration of what novel technologies can do."

Since then, his work has expanded into the field of concussion, initially focusing on professional Australian Rules footballers, and now also New Zealand rugby players thanks to funding from New Zealand's Health Research Council.

"It's an area of strong interest right now, and there's so much to explore, not only in terms of the impact directly after a head injury, but also the long-term consequences." DR MANGOR PEDERSEN IS DEVELOPING LIFE-CHANGING NEW HEALTH AND CLINICAL TECHNOLOGIES. PHOTO CREDIT: THE FLOREY INSTITUTE OF NEUROSCIENCE & MENTAL HEALTH



Mangor's technology "looks a little like a flight path diagram" and enables experts to get a clear picture of an individual's brain networks. Over the 2022 and 2023 rugby season, he and his team at the AUT Traumatic Brain Injury Network (TBIN) will scan 60 New Zealand Rugby Union players immediately after they've suffered a concussion, to ascertain the changes to the brain, and whether or not those changes can help predict their

"Right now, no one can give us any estimate of how long it will take a player to recover from a head injury – it could be two weeks, it could be two years. But if we can use these new methods to figure out how quickly people will recover, that will be a huge step forward for brain injury. We know that symptoms resolve more quickly than physiological recovery so we need to have better brain recovery assessment tools that clinicians can use."

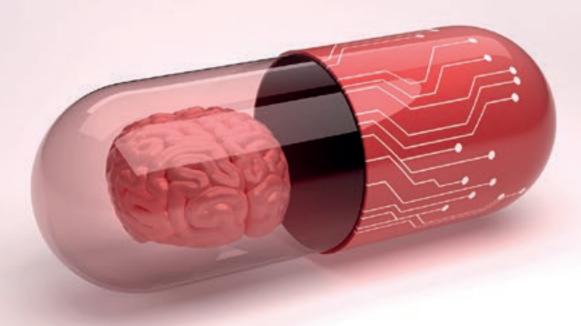
His work has already improved the lives of many, but perhaps his most significant contribution is yet to come.

"Aging disorders are the next step. We know that brain injury has a link with dementia and it's crucial to understand why that is, and what that is. Disorders like dementia and Parkinson's are so devastating and affect so many people, and because of our aging population this is only going to get worse. On top of that, we have changes in the brain happening 10 or 15 years before any symptoms, so we need to find markers that we can target in advance, so people don't go down that path."

It's challenging, but incredibly fulfilling work.

"Knowing that you can create a new method or brain algorithm that makes someone's life better is pretty amazing. Even though human neuroscience has seen major developments over the past 20 years, there's still so much left to understand about the inner workings of the brain and its complexities.

"Developing methods that can deepen our understanding – and more importantly help people suffering from these conditions – has always been utterly fascinating to me. It's pretty fun too!"



66

Even though human neuroscience has seen major developments over the past 20 years, there's still so much left to understand about the inner workings of the brain and its complexities.

The best job in the world

It was a lightbulb moment during his communication studies degree that determined Jeremy Olds' stellar career to date. After graduating with first class honours, he went on to earn a MA as a Fulbright Scholar at Columbia University in New York. Now he is Managing Editor at Mastermind Magazine in Paris.

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JEREMY OLDS, MANAGING EDITOR AT MASTERMIND MAGAZINE IN PARIS.



It was while he was studying at AUT that Jeremy recognised journalism was the perfect vocation for him. "My very first day of that third year – I was like, 'of course this is the job I'm meant to be doing'," he says.

But for sage advice at high school, he may not be where he is today.

"I was one of those students who was quite ambitious and didn't really know where to channel that energy, so I just trusted the advice of my teacher."

Work experience at Rotorua's Daily Post as part of his degree left a lasting impression and it was during that placement that his journalism lecturer, Helen Sissons, planted the seed of Fulbright in his mind.

"It was a very formative experience – having the newsroom exposure and having someone as experienced as Helen who was a veteran BBC journalist.

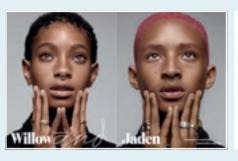
"She really helped to chart my course."

Applying for the scholarship in 2015, Jeremy presented a case for a unique study in what would prove to be a watershed in American history. "It was a historically unique opportunity to be studying and thinking about journalism in an American context."

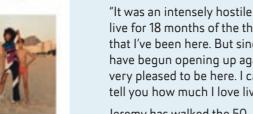
Trump won the election the following year which makes his thesis on a death row inmates' art collective a very special piece of work.











His story explores the ethical quandaries that arise from giving men who have committed horrendous crimes a voice in the wider community through the medium of art. Focusing on a group of death row inmates in Tennessee he follows efforts by educators who worked with the doomed men to raise awareness around capital punishment.

"I actually got the chance to go to death row and sit in on one of these art classes and meet the men. In terms of a reporting opportunity, it felt like something I wasn't able to do in New Zealand."

Sensitivity is so underrated in journalism – kindness and sensitivity have, for me, been hugely beneficial values in my reporting. 99

leremy is very considered in his response to questions, with frequent pauses as he searches for the precise word, often rephrasing to make for a more perfect picture.

It's this attention to detail that is fundamental to good journalism, he maintains, along with determination and sensitivity.

"You have to be curious about the world and pursue that curiosity, and be willing to follow something until you get to the end of that train. Sensitivity is so underrated in iournalism – kindness and sensitivity have, for me, been hugely beneficial values in my reporting. Accuracy is non-compromising: you have to

be a stickler for detail. Curiosity, sensitivity, attention to detail."

He could also throw in a hefty dose of foresight and the ability to spot a trend.

"You're always thinking in the present and in the future because you have these deadlines."

There's another quality to being a good journalist that Jeremy doesn't mention, but illustrates unconsciously: telling a good story.

His story continues with a stint at the Telegraph in London. Then he was enticed to Paris in 2019 by Mastermind's Editorial & Creative

> Director, Marie-Amélie Sauvé. "who's an incredibly impressive woman, a real visionary, and she's taught me a lot."

Knowing just two people and speaking very little French, Jeremy took a bold step and, after a year, gradually settled in.

"My French was improving; I'd built a circle of friends. And then COVID really changed the spirit of the city."

A curfew was imposed every night at 6pm and the restaurants and museums closed. Movements around the city were tightly controlled.

"It was an intensely hostile place to live for 18 months of the three years that I've been here. But since things have begun opening up again, I'm very pleased to be here. I can't really tell you how much I love living here."

leremy has walked the 50-minute journey each way to the Mastermind offices in the centre of town every day since a public transport strike that lasted a few months limited his options.

"It's beautiful: I walk past the Louvre, past the Paris Opera. I can walk up to Montmartre – it's crazy to think this is my stroll to work in the morning."

And that beauty and variety carries on at work. Mastermind is a biannual magazine published in a book format that covers arts, culture, architecture, philosophy and even an interview with an astronaut.

"In this issue, for example, you have a fashion editorial by Craig McDean who's a leading fashion photographer. And then you turn the page and it's an interview with Judith Butler (American philosopher and gender theorist), so the remit runs broad which makes it a really interesting project to work on.

"You're always doing interesting mental calculations around timeliness and future-proofing ideas and making sure we are only doing stuff we really believe in and not following things that are popular or trendy or doing the rounds on publicity."

But the globetrotting has not diminished Jeremy's love for New Zealand and his appreciation of the values that set him on his path.

"My class (at AUT) was such an incredible group of talent and they're some of the best journalists in New Zealand today - Jessica Beresford at the Financial Times, Kim Downes on TVNZ, and Kristin Hall (1 News). Alex Mason on Newstalk ZB. Conor Whitten on Newshub."

Was it a freakishly talented year or a course that produced great journalists?

"Both! It's the kind of course that attracts the people who get into this line of work. The people that year were really here to be journalists and the teachers fostered that."

leremy misses New Zealand – family and friends, of course - but also the ease of New Zealand culture.

"When you live in a foreign country, there's such a process of assimilation and active compromise of yourself that takes place. It's almost like you're a smaller version of yourself because you're trying to fit into the system and its foreign and you don't quite get it."

But, for now he's excited to be telling stories to a much wider audience.

"Whenever I try to entertain the idea of doing something different, I can't picture myself doing anything except journalism.

"I think it's the best job in the world, truthfully."

66 My class was such an incredible group of talent and they're some of the best iournalists in New Zealand today. 99







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The power of Lisa

The first 15 years of Lisa Tai's career have the makings of a blockbuster movie. As a leader within Deloitte's forensic team she has helped uncover dubious criminal activities, tackle fraud, and fight white-collar crime.

Her latest role within the global organisation also has great movie potential. As creator of Deloitte's Pasifika Services team 'Pås Peau', the AUT alumna is now leading a crusade to empower Pacific communities and boost Pasifika representation within Deloitte and beyond.

"Our focus is on providing more opportunities for Pacific people to join Deloitte and building capability and capacity across Pacific communities. This is my full-time role at the moment and I love it." she

"Deloitte and professional services need more Pacific people – we're severely under-represented. We bring different perspectives, experiences and values that contribute positively to our clients' needs and challenges. Large firms like ours have an impact to support wider societal outcomes, and therefore it's really important that Pacific peoples have a voice and are represented."

Born in Suva to a Rotuman mum and Fijian/Chinese dad, Lisa and her family moved to Auckland in the late

"We didn't have much in terms of material possessions but my parents worked really hard to make sure we had what we needed. I was a good student at school and did well but never really thought about what kind of career I wanted. I didn't really come from a background where people thought of 'careers' everyone was just focused on getting a secure job that would pay the bills."

But a full scholarship to study at AUT marked the start of an exciting journey. She enrolled in a Bachelor of Business, Economics ("I excelled in economics at school and figured I should do something I was good at"), developing skills and forging relationships that have helped get her where she is today.

"I thrive in group and team environments and really enjoyed the small nature of the AUT classrooms.

"AUT prepares you for the workforce through soft skills like group work, presentations and research. It's an important time in your life where vou're essentially transitioning into the workforce, learning new skills and meeting new people."

After graduating, Lisa "fell into forensics" when she was asked to help out on some forensic projects at McCallum Petterson, the boutique firm she'd secured a job with which later merged with Deloitte.

"At the time I had no idea what forensics was, but once I started, I was hooked. I really enjoyed it and never looked back."

A secret to her success is keeping things simple. She has just three workplace criteria: Do I like the people? Is the work interesting? Am I making a positive impact?

"I've been lucky that all of my roles have ticked all of those boxes."

In addition to her responsibilities at Deloitte, Lisa works with the Pacific Business Trust (she's currently



LISA (RIGHT) WITH (FROM LEFT) HER HUSBAND IUNIOR AND CHILDREN KANOA AND KEILANI (AND THEIR PUPPY CAMELO).



PACIFIC BUSINESS TRUST'S HATCH PACIFIC TEAM - CRUISE TUAKURA. INDIGO SAGALA, LISA TAI AND NELSON ANNANDALE.



on secondment as an interim general manager). It's another role she's deeply passionate about.

"I see so much potential in our young Pacific people. They can, and will, have a really positive impact on the New Zealand business and corporate landscape. I help Pacific Business Trust with several programmes but my favourite is HATCH Pacific, which supports young Pasifika who have a business idea they want to pursue. We guide them on how to start, what to think about, and how to put their business plans together. Founded on Pacific values, the main aim is to instil confidence in our young people."

It's fair to say that Lisa has aligned her life's work closely with her favourite quote: If you waste your gifts, you're insulting your ancestors.

"Our ancestors, families, and parents have worked so hard to get our generation ahead, and it's up to us to realise that opportunity and make the most of what we've been given. The cycle continues when we then build on the foundations for the next generation. It's really important to think about the legacy you are leaving behind."

I see so much potential in our young Pacific people. They can, and will, have a really positive impact on the New Zealand business and corporate landscape.

The making of a university

With more than three decades of service and 18 years at the helm, Derek McCormack is one of New Zealand's longest serving Vice-Chancellors. Prior to his departure, we asked Derek to reflect on his, and AUT's, journey.

I joined AIT in 1990, and worked in various executive positions. They were the years we strove to become a university. AIT was the premier polytechnic. It had a great vibe and an outstanding leader in John Hinchcliff who articulated a compelling vision. It felt like a place on the

We had 6,000 equivalent full-time students growing to 9,500 over the decade. Many of the students were studying for professions that were lifting their

66 Even with our often outrageous

average citation scores. ??

confidence, none of us would have

believed we could be where we've got

to today, 21 years later – a world-ranked

with 95% of our students in degree and

postgraduate study, more than 1,000

university, second largest in New Zealand

doctoral students and 750 research active

academics whose publications have put

us into the world's top 30 universities for

registration requirements to degrees, and during the 1990s several of our big programmes were redeveloped as NZQA-approved degrees. Looking to the future we saw that more and more AIT students would be studying at a level commensurate with university. A change in the institution seemed inevitable.

At first AIT applied to the Minister of Education to change its name to the Auckland University of

Technology. That got a "no" on the grounds that to be named a university you had to first be established as one. A five-year process followed to build the case. It galvanised the energies of the institution around it. In October 1999, we celebrated success.

But the feeling inside AIT wasn't unanimously joyous, and the new university wasn't welcome in the wider tertiary education sector. AUT was a bit of an 'ugly duckling'. When it started in 2000 we had only 40% of students enrolled in degrees, the rest in pre- or subdegree certificates and diplomas. We had little research,



a poor library, and woefully inadequate facilities for university work. We'd gone from being the biggest and best polytechnic to the least and most suspect university.

Our next challenge was huge - to re-envision the institution in a way that would both retain the support of our students and stakeholders and at the same time gain new interest. We also had to learn the ropes of the university sector's structures and funding arrangements. And with no setup grant (we got none) and an already

> tight budget, we needed to find the wherewithal to build facilities and a resource base that could support advanced learning and research.

Even with our often outrageous confidence, none of us would have believed we could be where we've got to today, 22 vears later - a worldranked university, second largest in New Zealand, with

95% of our students in degree and postgraduate study. more than 1,000 doctoral students and 750 research active academics whose publications have put us into the world's top 30 universities for average citation scores.

'Great graduates' is AUT's mission, and we've promoted the 'C-skills' as one way to develop students. They are the transferable skills that you come away from university with no matter what your major subject was. They are what you need for anything the future will confront you with. The ability to be curious about things, critical in your reasoning, creative in solution building, to be

sophisticated in dealing with complexity, to be able to communicate clearly, to collaborate with others and be culturally intelligent. These are the skills essential for the twenty first century and are the essence of a great graduate.

During 18 years as Vice-Chancellor there are so many highlights. We realised that to make our contribution we needed to focus on the emerging university market, and our mission became one of opportunity for people missing out. We deliberately targeted our recruitment to different schools and communities from those universities traditionally had. One expression of that was the South Campus. After years of analysis, lobbying and talking with the community we managed to get Government to support and partly fund the establishment of a university campus in the heart of New Zealand's youngest and fastest growing population. That early commitment to opportunity was key to AUT becoming the largest university provider to Māori and Pacific students, who've grown to become 30% of our domestic enrolment in degrees and postgraduate studies.

Another highlight was the transformation of the physical face of the AUT. We needed to shake off the image of the old ATI and state ourselves with an arresting new presence. The result has been standout facilities and great places and spaces for innovative, person-centred, teaching, learning, research and work.

Some question whether campuses and buildings are as necessary for a twenty first century university. I think they are. The best learning is something interactive and social. That's most likely to happen in buildings designed to bring people together.

But, amongst the greatest highlights for me have always been the successes of colleagues, students and alumni. I've been thrilled when our people win competitions, gain competitive grants, are honoured for their achievements, and so on. It's kept me mindful that the success of a university is only the successes of its people. And of course, those successes are there

in their thousands at every graduation.

My message to our AUT whānau, alumni and friends is an enormous thank you for the chance you gave me to work with you. Keep on being great, and supporting AUT to be a university making a profound contribution.



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A new machine designed by AUT alumna Dalya Al-Mohamadamin could put a good night's sleep back on the menu for the thousands of Kiwis suffering from sleep apnea.

DALYA AL-MOHAMADAMIN IS ON A MISSION TO IMPROVE SLEEP AND IMPROVE LIVES.



As part of her recently completed PhD, Dalya has developed a tool that increases the comfort levels of sleep apnea sufferers and helps relieve some of the condition's impacts. Initial clinical trials and computer modelling have proven promising, and plans are now in the pipeline to undertake larger trials and collect more data to strengthen results.

"Sleep apnea is a potentially serious disorder which stops people from having a good sleep by restricting their breathing and preventing deep sleep. This leads onto poor performance in daily life, restlessness and eventually heart problems," explains the biomedical engineering graduate.

"Current treatment is a CPAP (Continuous Positive Airway Pressure) machine, however that falls short in a few key areas. It's simplistic, not particularly comfortable to use, and doesn't take full advantage of the repository system to minimise sleep apnea."

Dalya's innovation creates additional cyclical air pressure that stimulates the respiratory system while people sleep, boosting their comfort levels and reducing the number of times they stop breathing. It should prove popular – it's estimated that at least 4% of men and 2% of women in New Zealand suffer from obstructive sleep apnea, and according to Dalya's research, that number is on the rise.

"Sleep apnea is becoming more common in developed nations and one of the main causes is obesity. As technology and the pace of life accelerate, obesity rises and so too does the disorder."

Now that she's graduated from AUT, Dalya hopes to continue her life-changing research within the industry, and eventually go back to university to teach biomedical engineering. It's a heavily male-dominated field, but she's keen to drive change and inspire other women to join her journey – and as a finalist for the New Zealand L'Oréal

66 I encourage all women to consider biomedical engineering because it brings opportunity, contributes to society and is a rewarding career path that you can be proud of. **?

UNESCO For Women in Science mentoring programme in 2020, she's already proving to be a powerful role model.

"I encourage all women to consider biomedical engineering because it brings opportunity, contributes to society and is a rewarding career path that you can be proud of. At the very start of my PhD studies my professor said to me, 'Dalya, life is too short. We should help each other for a better future'. Those words have stuck with me ever since and are my inspiration to always try and help others."

A beacon for human performance

Helping people live longer healthier lives has been a lifelong quest for AUT alumnus and Los Angeles native Matt Kritz.

Currently a linchpin in the creation of a ground-breaking human performance institute at the University of California San Diego (UCSD), Matt has dedicated his career to developing elite athletes and optimising human performance. From working with Olympic hopefuls and helping establish High Performance Sport New Zealand (HPSNZ) through to co-founding companies that empower people to maximise their health and movement capabilities, Matt has played a pivotal role in shaping the future of sport.

As UCSD's Senior Associate Athletic Director for Athletic Performance and Wellness, he's drawing on his decades of experience to develop "a beacon for human performance" unlike anything ever seen.

"My work at UCSD has two main drivers: to establish the safest, most effective way to develop athletes in a holistic integrated manner, and to build a centre of excellence that houses some of the most bold and innovative minds, inspired to develop a model for health that enables people to thrive not just survive," explains Matt.

Not one to rest on his laurels, he has also recently launched a company 'Thrivata' (your thrive data) which helps people understand how ready they need to be to face their daily demands, based on their mind, body and energy competency. He reckons it's his most exciting project to date because of the impact it will have on improving people's health across their life span.

Both Thrivata, and his trailblazing work at UCSD, have their roots firmly in New Zealand. The PhD in Sport and Recreation Matt gained from AUT (with invaluable support from Professor John Cronin) supplied the ideal springboard for success.

"AUT provided an incredible opportunity for someone like myself. By the time I'd finished my PhD I'd helped build what is now HPSNZ, supported several of New Zealand's top athletes and national teams as their strength and conditioning coach, and helped establish strength and conditioning as a viable and lucrative profession in New Zealand. In all, AUT was the catalyst for me to become a high-performance sport specialist in the area of athlete development, and I continue to build on that experience.



Having worked off and on for UCSD since 1999, returning to the university as Senior Associate Athletic Director in 2019 was "a dream come

"It has allowed me to apply the learnings I acquired while in New Zealand getting my PhD and working for HPSNZ to a NCAA (National Collegiate Athletic Association) Division 1 university sports department. Not only that, but it's a great opportunity to showcase how well New Zealand develops athletes and how their coach-led, athlete-focused and performancedriven ideology can create winners in any sporting environment."

There's no doubt Matt has achieved an incredible amount for the elite sports sector and human health generally. But the rewards he has gained personally are also significant.

"I've helped thousands of athletes achieve and they've helped me be a better me I've helped a country improve its Olympic infrastructure and a world leading university develop its foundation for holistically developing scholar-athletes. I've worked with hundreds of inspiring professionals from whom I've begged, borrowed and stolen everything I know about human performance. My career isn't over yet and I have a hell of a lot of very cool memories!'



SEVENS) AND MATT KRITZ AT THE AMSTERDAM SEVENS TOURNAMENT DURING THE 2014 SEVENS WORLD SERIES

AUT was the catalyst for 2010 WORLD CHAMPIONSHIPS IN NEW DELH

me to become a highperformance sport specialist in the area of athlete development, and I continue to build on that experience.

Champion for digital transformation

A trailblazing role spearheading the digital transformation of a leading fresh produce distribution business has cemented Avinash de Silva's place in New Zealand's fast-growing IT sector.

Technology and Platforms Manager at Fresh Direct NZ, Avinash is the mastermind of a high stakes project to transition the company into a cutting-edge cloud-based ecosystem. His efforts have earned him industry recognition as a finalist in the prestigious NZ CIO Awards as Emerging ICT Leader of the Year.

"At Fresh Direct I'm looking at every system and piece of IT they have, understanding what the issues are, and creating a plan to move them across to really cool future–proofed technology and platforms that will help everybody, from the warehouse worker right through to the Board of Directors," says Avinash, who graduated from AUT with a Bachelor of Engineering Technology in Mechanical Engineering in 2016.

Currently working towards his Master of Information Governance in his spare time, he's a man who loves his work.

"I came to New Zealand from Sri Lanka as an immigrant with no network, but from the day I started working I've been fortunate to have amazing mentors. My rise in the industry has been quite fast and sometimes I feel a bit of imposter syndrome – but being recognised in the NZ CIO Awards has definitely helped with that!"

Since graduating from AUT Avinash has navigated a "topsy turvy" career trajectory, from mechanical engineering, to supply chain management, and finally to IT.

But the skills he developed during his bachelor's degree have laid rock-solid foundations for success across all his chosen fields.

"The course taught me a unique set of skills that have served me throughout my entire career – specifically how to look at problems, identify the root cause, and find solutions. The programme was extremely versatile and very relevant to New Zealand. It's been easy to find work referencing these skills."

At Danone Nutricia, he coordinated the flow of raw materials and scheduled production across multiple manufacturing lines, while at Datacom he helped build the Dynamics 365 HR practice and led HR implementations across a string of medium to large enterprises. He became a familiar speaker at business symposiums and events, and was featured on the cover of Datacom's website, annual report and marketing collateral.

"Being the face of a billion-dollar company was surreal, very strange and definitely one of my biggest achievements to date."

But what Avinash is most proud of is his success as a mentor, both at Fresh Direct and through his volunteer work with Upside Youth Mentoring.

"I recently hired someone at Fresh Direct and he was so excited to work with me. The mentors I have had in New Zealand have helped me so much, and it's so rewarding to know that I can be that person to others now."



AVINASH DE SILVA IS THE BRAINS BEHIND FRESH DIRECT NZ'S EXCITING DIGITAL TRANSFORMATION.

The course taught me a unique set of skills that have served me throughout my entire career – specifically how to look at problems, identify the root cause, and find solutions.

Game changer

Nick Jones' fascination with storytelling started with his childhood love of reading. He aimed to teach English and write novels in his spare time, but while studying at AUT, he learnt his real talents lay in plot and dialogue – and now he's taken a position with leading Swedish games creator Sharkmob, based in London.

Already holding master's degrees in creative writing and in English and new media studies from AUT, Nick has nearly completed his PhD in narrative design, and along the way he learned that he struggled with all the 'padding' that goes into a good book.

"Whenever I tried to write a novel it always fell short on the word count: I wanted to just get straight to the action or to the dialogue and so there was hardly ever any narrative prose in between those segments."





This realisation sent him along the path of screenwriting (under Andrew Bancroft – writer, director, producer and lecturer at AUT) while simultaneously developing his interest in gaming.

Nick was always a reader of genre fiction veering towards horror, but latterly fantasy fiction too, which has helped his gaming creations.

"I'm a big horror fan and a big fantasy fan – the two major genres that I end up reading. That is reflected in my work and I've been a little bit typecast as a fantasy writer in video games which is funny to me because I didn't read much fantasy until I started writing fantasy for games."

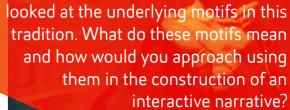
His attraction to gaming was obvious from a young age and he has always enjoyed the genre titles, but admits he enjoys most things except racing or sports games – "I play pretty much anything that has a good story – that's what I'm looking for in a game."

As he travelled the path of academia his interest in mythology and legends has developed into a passion and a PhD. He taught a course on interactive narrative design and the influence of horror writer HP Lovecraft on storytelling. From there, an idea developed and a deep dive into folkloric tradition and how that can be used in video game narratives followed.

Nick focused on the Benandanti from the Friuli-Venezia Giulia region in northern Italy, an agrarian cult who claimed to fight witches in their sleep to ensure a good harvest. These stories are echoed all over Europe, he says, and are an illustration of 'mimetic circulation' – how concepts are exported and adapted, how they're reinterpreted and changed over time.

"I looked at the underlying motifs in this tradition. What do these motifs mean and how would you approach using them in the construction of an interactive narrative?"













The foundation for interactive narratives could be attributed to table-top role-playing games like Dungeons & Dragons. But Nick maintains the interactive and nonlinear narratives can be traced all the way back into our distant past with the use of tarot cards, the I Ching and other similar oracle texts.

"These require user input and interpretation to create a narrative and I would argue that they are very early examples of interactive non-linear narratives."

Technology has definitely influenced narrative design, Nick says, with

incremental advances allowing for more freedom with the story.

"One thing I like is when non-player characters (NPCs) in a game start to interact with the world and each other on their own. For example, The Legend of Zelda: Breath of the Wild has a dynamic weather system where, when it starts raining, NPCs will cover their heads and run to the nearest cover, rocks will get slippery and certain animals will come out – these are ways in which the game can interact with itself to create a more realistic and immersive world and is a really exciting approach."

The freedom to explore this new and exciting area of study has led Nick to his new role, based at London's Barbican Centre, one of the most senior international appointments for a New Zealand narrative designer.

There are many opportunities for designing the future of gaming, says Nick.

"Any new field is exciting to be a part of – you get to come in on the ground floor and shape how things are likely to be for the next several years."

Driving change for diversity in golf

Tagging along with her sports-mad parents was the ultimate training ground for world champion golfer, Member of New Zealand Order of Merit and AUT alumna Phillis Meti.

With a childhood spent on netball courts, football fields and athletics tracks Phillis honed her skills, representing the Cook Islands in netball and New Zealand in discus, shot put and waka ama. When her dad decided to take up golf, another door opened.

"I first tried golf when I was six or seven. Dad was just getting into it and he'd make me swing clubs with him," recalls Phillis. Blessed with height and power, she excelled immediately.

"I was a lot bigger than the other kids, which gave me an advantage. I'm 6 feet tall and by the time I was 12 I had size 11 feet!"

At 19 Phillis won her first Volvik World Long Drive Championship – the youngest player to ever take the title. A decade later she won it again, and two years after that too. Currently the World Number One ranked female long driver, she holds the world record for driving a golf ball the furthest in competition – an incredible 377 metres, with a swing speed of 125 miles/hour.

Now back on home turf due to COVID-19, Phillis is using her success as a platform, encouraging more females, particularly Māori and Pasifika, into the sport.

"There's a real lack of diversity. I want to make golf more accessible for everyone," explains Phillis, who is currently completing an

apprenticeship through the New Zealand PGA – an organisation which only has seven female members among a 500-strong membership.

"We're trying to push for more women and girls in golf. Right now I'm encouraging adults with grandchildren or children to come out and swing a club, because that's how I got into it. We don't have the same growth in the game that we used to – parents don't bring their kids to play anymore and we've lost those 'I started with my grandma' stories."

For the past 10 years Phillis has partnered with In2 Golf, a foundation which promotes inclusive pathways for youth and women into the sport. She also runs free junior golf clinics and ladies' golfing programmes to encourage people at all ages and stages to give golf a go. The Bachelor of Sport and Recreation she gained from AUT is proving to be a powerful ally in her mission.

"The longer I work in this industry, the more I get out of this degree. I graduated in 2016 but I'm still using everything I learned right here, right now. AUT helped me gain a deeper understanding of New Zealand's sport and recreation industry and it taught me how to learn."

Not only that, but the university supported her to juggle her studies with a professional golfing career, empowering her to succeed in both. "I believe that if an athlete wants to be an athlete, but also wants to study, they should be able to do so to the best of their abilities. AUT helped me do that by being flexible, giving me extensions, and allowing me to sit exams at different times if I was competing overseas. They really know how to look after their athletes."

With a wealth of sporting accolades, Phillis has much to be proud of, but her greatest achievement comes as a surprise.

"My proudest moment was when I gained my bachelor's degree. Getting it over the line was a huge moment for me."

Another 'pinch me' moment came this year when, as part of the 2021 Queen's Birthday Honours, she was appointed a Member of the New Zealand Order of Merit for her services to sport, particularly golf.

"I got this email from the Governor-General. I wasn't sure what it was, but when I showed mum, her eyes nearly popped out! It's such an honour, but I feel like I haven't even started yet in terms of my contribution to sport.

"I always believe you should leave something better than you found it, and hopefully by the time I'm finished, long drive will be standing on its own two feet and there'll be a lot more girls playing."





Almost human

Does a machine have rights? Can you own property in a virtual world? If an Al machine paints a picture, should it get royalties?

These are just a few of the burning questions that keep AUT alumnus Sam Ennor awake at night. The self-confessed nerd is deeply fascinated by the legal ramifications of the rapidly approaching AI revolution. And now, armed with an AUT law degree and a decade of IT industry experience, he's turning his soft spot for sci-fi into an extraordinary career.

A solicitor at Hudson Gavin Martin
– a firm with a lion's share of New
Zealand's tech-focused clients –
Sam now gets to spend his days, as
well as his nights, perched at the
intersection of law and technology.
It's basically his dream job.

"While I was at AUT we were studying a case involving quite specific technology and the judge had no idea of what he was ruling on. I thought to myself, 'hang on, that could be a thing', and decided there was probably a niche for a lawyer with an IT background," says Sam, who achieved the second best overall academic record in his year and made it onto the AUT Dean's List two years running.

After being selected for the Hudson Gavin Martin summer programme in 2018, and later being offered a permanent role there, his future was assured.

"At Hudson Gavin Martin I've found not just one department or a couple of partners that are interested in the same stuff as me, but an entire firm that's dedicated to it. We do so much work here that I'm interested in, and even with the more general law work there's usually something thought-provoking and tech-related

underpinning it. Plus, whenever someone gets something AI related, they loop me in because they know it's the area I'm particularly passionate about."

But when Sam talks about AI, he's not just talking Facebook algorithms or smart phone voice recognition. He's talking futuristic, space-age type stuff.

"We are in the middle of the AI revolution right now. We have deep learning AI which starts with the construction of an artificial neural network modelled on a human brain, and then uses massive amounts of data to train itself. We have creative machines which can write genuinely moving poetry without human input, and machines that can make their own decisions.

"Traditional tech has relied on people to do the work to bring on the advances, but there's a good chance that when Al achieves a sufficient level of sophistication it will start modifying itself – that's when we could potentially lose control. The issue with Al is that when it really takes off it will be much faster, and make much more of a difference, than we expect."

Already there are numerous examples of people adopting the technology too hastily. Recent research brought to light the fact that facial recognition technology was very good at differentiating people with light skin tones but struggled to differentiate people with darker skin tones, because the Als had been fed a great deal more data on Caucasian faces.



"Obviously if this technology is used by law enforcement agencies it could lead to all sorts of issues, but luckily somebody discovered the problem and now they're conducting in-depth research to try and address it."

The issue of Al-caused harm is another mind bender, and one that Sam has devoted a great deal of time to.

"My Bachelor of Laws (Honours) dissertation examined liability for harm caused by deep learning Al. If a machine makes a decision that leads to loss or damage, should it be liable? Usually there's a clear chain to trace back to a human – but when you get too far into Al you end up with a grey area, because essentially you have a manmade thing making its own decisions.

"My proposed solution was to create a legislative framework providing collective insurance along the lines of ACC – I called it AICC! I thought those owning, operating or benefitting from AI machines could pay some sort of levy, which would unlock the benefits but also recover some of the liability of unpredictable behaviour."

He admits though, it's probably a long way off.

"The issue is that technology is moving so fast that if we were to draft something new, by the time it moves through the system, the landscape will have already changed."

But Sam – "an eternal optimist" – remains confident that one day he'll get his day in court.

"It's my dream that by the time an Al in New Zealand causes enough damage for it to go to court, I'll be on one side of the argument. My dissertation tackled the theoretical part of it but I'd like to see what actually happens when the rubber hits the road."



