New lab drives TARS to bright future

NEW ZEALAND’S leading traffic and road safety research group, based at the University of Waikato, is moving to a purpose-built lab which will enhance its capacity and bring its research arms into a central location.

The new laboratory will house the Applied Cognitive Psychology group’s psychophysiology lab, eye-tracking lab, and New Zealand’s most advanced driving simulator. These laboratories form the core of the Traffic and Road Safety (TARS) research group and will allow TARS to further enhance its already highly-regarded research.

Associate Professor Sam Charlton, a specialist in road safety and transportation psychology, says the new lab will make it much easier to co-ordinate research and being all in the one place, it will be much more efficient. The former TARS labs were spread across a number of different locations in Hamilton.

“It also means that all our postgraduate students can work together, which just wasn’t possible before,” he says. “Being an education institute as well as a research provider, one of the key goals of TARS is training tomorrow’s road safety researchers.” The Applied Cognitive group and TARS come under the umbrella of the School of Psychology in the Faculty of Arts and Social Sciences at Waikato University.

Since being formed in 1993, TARS has carried out important research into issues ranging from truck driver fatigue, distractions produced by cell phones, perceptions of risk, safety at intersections, the design of road worker’s safety vests, patterns of driving behaviour in New Zealand, the design of overtaking lanes, the effectiveness of road signs, urban threshold design, and many other topics.

TARS also carried out research which informed the recent government decision to decrease the blood alcohol limit when driving from 80 milligrams of alcohol per 100ml of blood, to 50mg. The change takes place on 1 December.

TARS and the Applied Cognitive group have conducted externally-funded research for organisations such as the New Zealand Transport Agency and the AA Research Foundation. In addition, the laboratories are used extensively for teaching and have often been featured in national news media on issues such as the impact of alcohol on driving and the use of cellphones by drivers.

In 2005, TARS won a prestigious Motoring Excellence Award in Road Safety Research from the Automobile Association, New Zealand.

GOOD DRIVING: Psychology research technician Rob Bakker, road-testing in Waikato University’s new Traffic and Road Safety Laboratory.

Hotting up for the world junior champs

NEW ZEALAND’S junior track cyclists won two gold, a silver and two bronze medals at their world champs, held in Seoul, South Korea last month.

They had to ride in temperatures of 30 degrees plus with humidity as high as 90% and they used the University of Waikato testing lab at the Avantidrome in Cambridge to assist their preparation for the steamy conditions.

University of Waikato sports scientist Joe McQuillan says it can take up to 10 days to adapt to such environmental conditions so it was important to prepare the 14 cyclists, mostly high school students, before they arrived in Korea.

“The cyclists had to travel from a New Zealand winter to an environmentally challenging climate. Without any acclimation, the initial days in Seoul would require a reduction in training load, affecting the final stages of preparation for the event. We circumvented this somewhat by providing a stepping stone from a cool wintery climate to hot and humid.”

For the five controlled heat sessions, they cranked up the heat in the lab and checked the riders’ thermal comfort and performance measures every 15 minutes of their 60 minute sessions.

“We balanced their feedback with how much ‘heat stress’ we wanted to put them under and assessed how they coped in general. We also monitored their body weight and liquid drunk before and after the session to ascertain who sweats more.” Some riders lost more than 2kg during their hour-long session.

As well as preparing for trying conditions, the information they gathered in the lab also assisted coaches to know which athletes might need to monitor hydration and fatigue levels during actual competition.

Head coach Ross Machajeski says working with the university was very useful. “Not just having access to the lab but also to be able to talk about different aspects of the riders’ training. With BikeNZ’s sports scientists in Glasgow, it was good having Joe here with his knowledge to call on.”

Magic getting fit for sleep

These boots are made for recovery.

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Springs project bubbling

Telling New Zealand’s geothermal story.

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The complexity of tangihanga

Finding out how tangi are changing.

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Designer shows off his skills

Shy designer making a big noise.

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Agreement benefits Chiefs and university

By Professor Roy Crawford

An agreement between two of the Waikato region’s most successful organisations is bringing the worlds of sport and academia closer together. A memorandum of understanding (MoU) was signed between the Chiefs Rugby Club and the University of Waikato in July.

Vice-Chancellor Professor Roy Crawford says he was delighted to formalise what was an already strong relationship with the Chiefs and says the University of Waikato is committed to extending its research contributions to include high-performance sport.

Formalising the relationship with the Chiefs also served to strengthen the university’s engagement and partnerships both regionally and nationally, he says.

The MoU will see the two organisations working together in a range of areas of interest, with key priorities identified as nutrition and research programmes, student projects and internships.

For the Chiefs, the main benefits are likely to be in the form of in-depth research into areas such as on-field performance and fan behaviour, while university researchers will benefit from being able to study different areas of a professional sporting organisation.

Chief Executive of the Chiefs, Andrew Flexman says the MoU is an exciting development for the two-time Super rugby champions.

“There are a number of areas where we are looking at more in-depth research projects and I’m looking forward to the first initiatives getting underway,” he says.

“The big challenge for us, as it is for all live sports, is attendance so some more research into fan behaviour would be good. How we go about attracting the next generation of fans is an obvious area to look at.” There are also likely to be opportunities for players to undertake study to prepare for a life after rugby, he says.

As well as examining the physical, virtual and imagined travel practices of privileged action sport participants, Dr Thorpe was also interested in the various (im)mobilities of less privileged youth spaces of conflict, poverty and disaster.

Two case studies in her book include Transnational Mobilities in Action Sport Cultures, such events reflect important new trends in the global production and consumption of sport.

As a result of transnational corporations, events, and social media, many young people are imagining the world very differently to past generations, and this is affecting their sense of space, place, identity, politics and belonging, says Dr Thorpe.

The focus of her new book is the transnational processes and various mobilities in action sport cultures, stemming from her own experiences which she then explored in much greater depth over a nine-year period.

Dr Thorpe is a former competitive skateboarder turned academic based at the University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand.

“I was fascinated by their claims that their participation in these sports gave them a sense of belonging to global cultures or ‘tribes’.

“But I quickly realised that I couldn’t understand their experiences of this ‘transnational imaginary’ without considering the bigger context and the role of transnational corporations, events, media and the action sport tourism industry,” says Dr Thorpe.

As well as examining the physical, virtual and imagined travel practices of privileged action sport participants, Dr Thorpe was also interested in the various (im)mobilities of less privileged youth spaces of conflict, poverty and disaster.

Two case studies in her book include Christchurch post-quake and Gaza.

In Christchurch Dr Thorpe found young people who’d previously had outdoor lifestyles, who organised much of their lives around their action sports.

“By this time people were moving globally, rather I was interested in their local mobilities once their ‘place’ had moved.

“They had to look hard to find alternative locations for their activities – travel further to surf or climb, and some skateboarders built a skate park amongst the ruins. People converged from all over the city to help build and play in these spaces. These new alternative mobilities gave them a reason to stay and helped them to cope with the stresses of life in this radically changed city.”

Social media came into its own in Gaza. As part of the younger generation of technologically savvy Gazan residents, the founders of the parkour group, PK.

ON 14 October, 2012, Austrian skydiver and BASE jumper Felix Baumgartner stepped out onto a platform more than 39,045 metres from earth and jumped. That leap set an array of world records.

Not only did he become the first person to free-fall while breaking the sound barrier and achieve the greatest distance travelled and speed reached by a skydiver, the event broke the record of the most watched live streaming event on YouTube with more than eight million people around the world watching the live footage. The jump was carefully choreographed by Red Bull who invested more than £9 million to create this sporting spectacle.

According to Dr Holly Thorpe, author of the new book Transnational Mobilities in Action Sport Cultures, such events reflect important new trends in the global production and consumption of sport.

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**Magic getting fit for sleep**

MORE and more sporting events are being held at night, and for the athletes it’s pretty hard to get to sleep afterwards; they’re so wound up following such intense and strenuous activity, not to mention the adrenaline rush from playing in front of large crowds. Yet sleep is known to be essential for athletic recovery and night games mean a nightmare for sleeping patterns.

Waikato Bay of Plenty Magic netball coach Julie Fitzgerald and Senior Lecturer Dr Matt Driller from Waikato University are working together to study aspects of recovery in players from New Zealand’s number one netball franchise.

Ms Fitzgerald and Dr Driller, a sports physiologist, worked together at the Australian Institute of Sport (AIS) in Canberra, and now, both based in the Waikato, are working together again.

Dr Driller has secured a Waikato University summer research scholarship for a student to work with him during the Magic’s pre-season training to monitor aspects of recovery. To test sleep patterns, the netballers will go to bed wearing an actigraph, like a wrist-watch embedded with accelerometers that can pick up the slightest of movements.

“We’ll be able to tell how long a person takes to fall asleep, how many times they wake in the night and how long they sleep for, allowing us to assess both quality and quantity of sleep,” says Dr Driller.

“This is really building on what we did at Australian Institute of Sport,” says Ms Fitzgerald.

“The research Matt conducted with the netball programme there, particularly in regards to sleep and recovery, was invaluable and changed the way many of us (players and coaches alike) think.

“Players were given valuable feedback that will assist them not only with coping with the demands of high performance sport, but generally in life. I’m excited to be able to continue this work with Matt and have full confidence that this will be a great innovation for our Kia Magic team and eventually elite sport in New Zealand.”

**Trials Boots: Kia Magic’s Jo Harten testing recovery boots.**

Another thing they’ll be looking at is recovery boots. Dr Driller used them with a number of elite athletes in Australia, where he introduced Ms Fitzgerald to the concept. The boots, which inflate in four sections from the foot up, are used to speed up the removal of metabolic waste from the muscles and enhance blood circulation following exercise, aiding the recovery process.

Dr Driller says most of the evidence that the boots work is anecdotal. "Athletes swear by them, but we need actual data to determine their effectiveness in a recovery setting."

They’ll use a number of different performance, physiological and perceptual measures to test the recovery of players after hard training sessions both with and without using the recovery boots.

**Increased performance**

SO, if you’ve been taking beetroot juice shots to improve your sporting performance, new research shows that it’s good for you; more so if you’re an average rather than elite athlete.

Joe McQuillan, new teaching fellow and Sports and Exercise Science Laboratory Manager at the University of Waikato, is studying the benefits of beetroot juice supplementation on cycling performance for his PhD (through AUT).

Mr McQuillan’s is a cyclist himself. He’s based at the Home Cycling at the Avantidrome in Cambridge where BikeNZ has its HQ and the University of Waikato, tertiary partner with the Avantidrome, has a testing lab that’s used by athletes and students.

For his PhD research Mr McQuillan tested cyclists taking large and small doses of beetroot juice over short and long periods.

“We found taking 140ml a day for three days had the same effects as taking it for longer. It’s concentrated, about the equivalent of four beetroots in a 140ml dose, and it’s the nitrate in the vegetable that affects performance.”

Mr McQuillan measured the nitrate levels in the athlete’s blood, how their levels changed and the effect that had on performance. “The improvement, say over four kilometres, was about three seconds.”

“But we found the body reaches a saturation point after a certain number of loading days and fails to respond any better to increased doses.”

New Zealand cyclists went off to the Olympics in London and Commonwealth Games in Glasgow with their beetroot shots. “Even though they’re elite athletes and the results weren’t as impressive as they were for average cyclists, there can still be a placebo benefit to taking the juice,” Mr McQuillan says.

“What we don’t want to create is an impairment in performance from supplementation.”

Before the Commonwealth Games, Mr McQuillan and fellow Waikato staffer Dr Matt Driller worked with our world champion sprint cyclists, testing and monitoring aspects of their fitness. “We measured their oxygen consumption, training intensity and recovery between workouts,” says Dr Driller. It helps coaches and BikeNZ’s own sport scientists to get a better understanding of the cyclists aerobic and physiological states and enables them to modify training and optimise what they’re targeting. And while the cyclists get questions answered, university staff and students are getting good access to elite athletes.

“There are mutual benefits to this working relationship,” says Dr Driller.

In the University of Waikato’s sport science lab at the Avantidrome, university staff can also work with athletes to measure a range of variables including blood lactate, peak power over set time periods, VO2max and metabolic efficiency.

Mr McQuillan says the students are getting good value out of the lab, assisting in the lab, learning how to use the testing equipment, and integrating with various sports who are making use of University of Waikato expertise. “It’s a good training ground.

“The students are being exposed to unique, hands-on practical learning environments. I believe sports science is a science that’s growing. People are becoming more aware of what sports science can offer,” he says.

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**Performance Focused: Joe McQuillan is working with New Zealand’s elite cyclists at the Avantidrome in Cambridge.**

**Researcher looks for key to successful migration**

THEY’VE had success on the track in Glasgow and now a University of Waikato Postdoctoral Research Fellow is aiming to find out whether moving to Cambridge to train at the Home of Cycling had anything to do with it.

New Zealand cyclists returned from the Commonwealth Games with more than a dozen medals, making it one of the country’s most successful sports. Now Dr Rebecca Olive is launching a research project looking at athletes who have moved to the Waikato to train at the Avantidrome and what impact the move has had on their performance.

“The ultimate goal for any athlete is gold medals, so they will be happy with the success they’ve had in Glasgow,” she says.

But what has the experience been like for the athletes and staff of BikeNZ, many of whom moved from towns and cities which had been home for most of their lives?

“They often come from communities that have supported them for a long time. I’m interested in what impact this has on athletes. What this experience is like for them, migrating for their sport and how it impacts. Things such as how this migration affects relationships and a sense of belonging.”

Hers is a social and cultural research project, focussing on the people rather than the sport itself, but she will encompass whether these migrations impact performance.

“Just how the athletes feel is important to their trainers as it can affect performance, both for better or worse.”

Among the wider issues she will consider are whether facilities such as the Avantidrome serve as a magnet for young people hoping to break into the top echelon of the sport and what impact they have on towns such as Cambridge, which is now home to many of the country’s best cyclists, on top of long being home to our best rowers. “What does this mean for Cambridge and the Waikato? Do they become part of the community and contribute to the regional identity?”

Dr Olive hopes to begin interviewing athletes and staff of BikeNZ in the next few weeks.

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Knowing how people learn

THINK how it’s possible to hit a golf ball perfectly, until you start thinking about it. Sure as eggs, the next shot will be a shocker.

“That’s caused by having too much access to explicit knowledge about movements,” says Professor Rich Masters. “But what if you learnt without that knowledge?”

Professor Masters is an expert in the ways people learn and perform skills, with his research focusing on implicit motor learning, the acquisition of skills without conscious awareness of the knowledge that underpins their performance.

As the acknowledged leader in implicit motor learning, Professor Masters says it’s a far more diverse field than simply sports.

“It has relevance for many different domains in which movement is important,” he says.

His work crosses discipline boundaries from sports sciences to rehabilitation, surgery, speech sciences, movement disorders, ageing, psychology and developmental disorders and disabilities.

“It’s a fascinating topic that has significance for a range of interests that are central to the New Zealand way of life, one of which is high performance sport.

“I’m an experimental psychologist so I design experiments based on psychological principles to examine the way people learn and perform skills.”

Professor Masters is based in the Department of Sport and Leisure Studies in the Faculty of Education at the University of Waikato, returning to New Zealand after 13 years in Hong Kong, where he was first Assistant Director then Director of the Institute of Human Performance at the University of Hong Kong. Before that he lectured in the School of Sport and Exercise Sciences at the University of Birmingham.

DON’T THINK SO HARD: Professor Rich Masters, a leader in implicit motor learning.

He’s returned to New Zealand to give his family a Kiwi lifestyle and is impressed with his new surroundings.

“This department at Waikato University wants to go places. It’s interested in research, and wants to strengthen its appeal to undergraduates by offering something unique in New Zealand,” he says. “That’s where I come in.”

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Assessing the Dragon

WHEN kung-fu master Bruce Lee hit the big screen in the 1970s, he did more than bear up bad guys and astonish audiences with his lightning fast reflexes.

According to Associate Professor Robert Rinehart from the Faculty of Education’s Sport and Leisure Studies Department at the University of Waikato, Lee also empowered Chinese men, helped develop a Chinese-national identity, bridged Eastern and Western worldviews and provided a vehicle to redress social injustices.

“Lee consciously worked to create a sense of pride and, through the action sequences, shared understandings between two widely-different worlds,” Dr Rinehart says.

“His films work holistically to balance the sense of pride and, through the action sequences, shared understandings between two widely-different worlds.”

Associate Professor Rinehart and Associate Professor John Wong from Washington State University collaborated in a project to analyse Lee’s influence on martial arts along with the effect his physical prowess and pride in his body had on a sense of national identity in China at a time when relations between China and the west were at a critical point in history.

Their work, first published in Sports History Review in November 2013, explains how Lee – who died in 1973 aged just 32 – made just five movies as an adult but they played a significant role in raising the awareness and appreciation of martial arts throughout the Western world.

“The movies also radically changed the entrenched – and stereotypical – view of Asian men as either weak and insignificant or sinister.”

“One of the ways Bruce Lee tried to reflect change positively ... is through the use of his body image,” they say. “Lee deliberately used his powerful body to reflect a stronger image of the Chinese male – and he did it through popular culture,” says Dr Rinehart.

The pair analysed Lee’s first three movies, The Big Boss, Fist of Fury and Way of the Dragon and found Lee’s contribution to the construction of national identity was based on the male Chinese body. He understood how his body image was able to have a positive impact on Chinese people both in Hong Kong and other countries.

Dr Rinehart says his co-author Dr Wong grew up in Hong Kong in the 1970s. Dr Wong had the idea for looking at Bruce Lee’s work in terms of the so-called rapprochement of the East and the West, having watched the movies when they first came out and recognising their impact on popular culture.

In the movies, Lee “portrayed a new conception of the male (Chinese) body and physical prowess to Chinese, but also to North American audiences”.

He was able to combine both Eastern and Western worldviews, providing a cultural bridge that served to increase both Western and Eastern audiences – but also to create shared understandings between two widely-diverse cultures.

“Lee consciously worked to create a sense of pride and, through the action sequences, his films work holistically to balance the physical with the cognitive or spiritual.”

They say Lee saw the media – and movies in particular – as a good way to spread the word about martial arts and to overcome stereotypes. While the movie plots were “fairly formulaic”, it was Lee’s physical prowess that captivated audiences and made inroads to “a new perception of Chinese identity”.

Dr Rinehart and Wong claim Lee, like most successful actors, “tacitly understood his relationship to audience and his ‘power’ to embody something more than simply a singular actor for the camera”.

At the time, US-China diplomacy was still in its infancy and Lee offered the physical embodiment of Chinese strength and pride, but it came with a Western connection, making it more palatable to a Western audience.

It was Lee’s work that opened the way for “less stereotypical opportunities” for other Asian actors, such as Jackie Chan and Jet Li.

“In three popular films, Lee’s impact was great and there are still cults surrounding Lee that celebrate his impact upon the raising the status of Hong Kong and Chinese nationals and émigrés throughout the world,” Dr Rinehart says.

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BRUCE LEE: Empowered Chinese men.
Collecting the stories from 1000 springs

A TWO-YEAR project mapping the physical, chemical and microbial diversity of 1000 geothermal features in the central North Island will provide a unique resource telling New Zealand’s geothermal story.

The 1000 Springs Project is part way through the mammoth task of sampling and analysing the geothermal features and loading the data onto a publicly available website.

It’s a joint project between the University of Waikato and GNS Science and Professor Craig Cary from the University’s Thermophile Research Unit says many other interested groups have also been involved. “We’ve got DoC, Fish and Game, marine iwi, councils, landowners, anyone who has an interest in geothermal features.”

He says while New Zealanders value the country’s geothermal features, “we know very little about them, what is in them and how best to manage this resource”.

“There are more than 3000 features in the North Island and only a handful have been looked at.”

The chemicals in the pools are all different, the PH levels range from extreme acid to alkaline, and temperatures from warm tap water to 95°C.

The project will provide a “unique metric” of information about each surveyed feature to enable the best management measures to be put in place. “Nothing like this has ever been undertaken before,” Professor Cary says. “We’ll carry out the survey, analyse the chemistry, extract the DNA, look at the bacteria living there under different conditions, the different thermophiles, and extremophiles living at the edge of biology. At a genetic level, we’ll find out who’s there and what they are doing.”

Along with providing a massive amount of scientific data, an app is being developed by University of Waikato computer science senior lecturer Dr Annika Hinze which will tell the story of each site.

Keeping the machinery running

THERE’S a worldwide shortage of medical physicists, despite good numbers of people keen to do the job. The trouble is, hospitals can be reluctant to take on and train new registrars.

There were just three positions available in New Zealand this year. There were 38 applicants.

Medical physicists keep the hi-tech machinery running correctly and safely in hospitals’ operating theatres.

Along with repairing machines, medical physicists conduct research to improve medical equipment and addressing the gaps.

Along with providing a massive amount of scientific data, an app is being developed by University of Waikato computer science senior lecturer Dr Annika Hinze which will tell the story of each site.

Smart kids from the wrong side of the tracks

DR NADINE BALLAM knows what it’s like to come from the poor side of town. Growing up in a single-parent household, money was tight and that determined some of the courses she took at school. “I couldn’t do photography for example, because I had to have a sophisticated camera, it was very digital, and there’s no way we could afford that.”

Dr Ballam saw out her school years without much enthusiasm and it was to be 12 years before she picked up university “and ran with it”. Her PhD looks at the lives of gifted and talented young people from low socio-economic backgrounds.

“Fear of failure was a big driver – 75% of respondents felt pressure to perform and fear of failure,” says Dr Ballam. “But they also were aware that their talents could enable them to break the poverty cycle and change their circumstances.”

And while a lack of money hindered access to resources, the majority of respondents found their experience of adversity promoted resilience.

Identity was one of the key themes from Dr Ballam’s research – giftedness had impacted positively on the participants’ sense of identity (personal well-being) and self-worth.

“They were able to find … success,” she says. “They were able to say ‘I’m gifted, I can do this’.”

While gifted young people facing socioeconomic constraints face challenges developing their gifts and talents, those challenges are mostly physical.

“I think we need to think about what broader support these particular young people should be given. Perhaps rather than trying to fix those limitations the focus needs to extend to the more intrinsic aspects, on supporting and empowering these people to develop a strong and secure sense of their own identity.”

The students Dr Ballam is now studying or following diverse careers, in business, law, the arts and professional sport. She hopes her research will spur more debate.

Associate Professor Howell Round

ASSOCIATE PROFESSOR HOWELL ROUND says being a medical physicist requires a masters degree in medical physics and three years clinical training. “I was working in New Zealand on a training programme and found out there was someone in Australia, John Drew, doing exactly the same thing. We got together and developed the programme. We worked blindingly fast and in a little more than six months had a programme up and running.”

The Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM) was formed and Dr Round, a former president, currently chairs its Professional Standards Board.

He says Australia “showed us examples” to the programme up and run it properly, as well as in New Zealand in 2003 at Canterbury University and in Australia the following year.

The organisation used to be amateur and run by volunteers. Their first office was the old morgue at Sydney’s Royal North Shore Hospital, but these days ACPSEM owns premises in Sydney, employs eight staff, has a turnover of millions and continues to expand – thanks in part to Dr Round. The International Atomic Energy Agency has adopted the ACPSEM programme. “We’ve achieved so much and attracted students to the job. It’s challenging, pays well, it’s a secure job and it helps people.”

Every three years Dr Round tracks down every clinical medical physicist position in Australia and New Zealand to find out how many there are and what they’re doing. This survey helps to register trends and to forecast how many physicists each country is going to need going into the future.

“It’s very, very useful for lobbying governments,” he says. Dr Round has also taken on the job of chairperson of the Professional Development Committee of the Asia Oceania Federation of Organisations for Medical Physics.

“We’re working with countries as diverse as Korea, Afghanistan and Tajikistan. It’s a big area with huge contrasts, in culture and facilities. "Korea has extensive resources; Afghanistan is working on rebuilding and extending its radiation oncology services, and the situation in Tajikistan is horrendous – they have nearly eight million people, one radiation oncology centre with two machines for the whole country,” Dr Round says.

“We have to develop programmes that ensure safe and appropriate operations that cover staffing levels, continuing professional development, and certification and licensing of medical physicists.”

“It’s not a field where you can make mistakes.”

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IT’S easy to say old people want a meaningful life, but what does that actually mean? With the number of people aged 65 or older climbing steadily – expected to reach one million by 2031 – the government needs to know how to best meet the needs of this growing group.

Professor Peggy Koopman-Boyden, CNZM, is based at the National Institute of Demographic and Economic Analysis (NIDEA) at the University of Waikato and has led a study, funded by the Ministry of Business, Innovation and Employment that took a three-pronged look at aspects of ageing: What constitutes a meaningful life; older people’s use of digital media and the impact it has on their sense of inclusion or exclusion; employment and work practices among the over 65s and the impact that is having on the labour market.

“Basically what’s good for older people is good for everybody,” says Professor Koopman-Boyden.

“People want a sense of purpose and to feel significant, they want to belong somewhere. They want to be able to take care of themselves, have social interaction with family and friends and for Maori, marae activities are very important.”

The researchers found people liked to live alone because it gave them freedom, greater choice and control. They liked being alone physically but not socially – “alone but connected”.

“And we found people living alone could often make bad decisions because they didn’t have someone to discuss things with,” Professor Koopman-Boyden says.

“Even when you’re socially connected, you’re probably not going discuss personal issues or financial matters with people you meet socially.”

To work or not to work

NEW ZEALANDERS are living longer in a healthier physical and mental state. This means they can and are working longer. However, labour force participation doesn’t necessarily improve the wellbeing of older people says Waikato University economist Dr Michael Cameron.

“We found that full-time employment is associated with lower life satisfaction than part-time employment or retirement in the over 65s and that suggests we need to find creative ways to assist them to remain in the workforce in a part-time or bridging role.”

Dr Cameron says the part-time solution may be better both for the older people themselves through increases in their life satisfaction and for society overall through maintaining the size of the labour force, as well as retaining the substantial experience of older workers.

In Australia where there is compulsory superannuation and importantly where the age pension reduces in response to additional earnings, there are fewer older people working longer. In New Zealand there are nearly 3000 people over 85 or older still doing some kind of paid work.

That could be because there are no means or income tests for people who continue to work and collect superannuation once they’re 65.

Dr Judith Davey from the Institute for Governance and Policy Studies at Victoria University in Wellington has been focussing on older people and paid employment.

“For any business there have to be good financial reasons to keep older people in paid employment,” she says. “We need to make sure that older workers are helped to fit with the job, such as by giving opportunities to keep up their skills, and the job is modified to suit the needs, values and interests of the older worker.”

Just as there is a transitional stage for young people coming into work, older people are moving out of the workforce more gradually, through phased retirement.”

This is what older people said they wanted:

- Mobility
  - Bus stops closer to supermarkets
  - Wider pavements for mobility scooters
  - Chairs in shops

- Maintenance
  - Low maintenance, single-person houses
  - New technology alarms, lighting, heating, etc

- Finances
  - Advice on budgeting and managing finances
  - Simplers procedures for reporting financial abuse

- Health and Nutrition
  - Regular hearing, vision and oral checks at GP visits

- Emergency support
  - Life tubes
  - Eccoli dynamo kits (Age Concern)
  - House and social alarms

- Social connectedness
  - Programmes/courses for those starting to live alone
  - Regular ‘senior hour’ at local cafes
  - Internet courses

FINDING THE NEEDS OF OLDER PEOPLE

A group of academics has been consulting older people at different ages and stages in their lives, to find out what constitutes a meaningful life.

Old in the digital age

FOR older people digital communication is proving to be a mixed bag, Dr Margaret Richardson from the Department of Communication at the University of Waikato has been researching how older people are responding to digital media. “For the housebound, it’s been an absolute boon, giving people access to goods, services and information. One person said ‘it’s given me my life back.’”

And for keeping up with family and friends, Skype is a popular means of communication – often used by older people who have been using computers for some time, says Dr Richardson.

However some people felt stigmatised because everyone assumed they would have a computer and know how to use one, and if they didn’t, they felt their intelligence and competence was being questioned. They also felt penalised if the computer was the only way to buy a product or take advantage of a special offer.

While some people felt there was no need or they were “too old to be bothered” to buy a computer and learn how to use it, other people had safety and privacy issues and still liked to deal with their service providers, such as the bank, face to face.

“If people had a mentor or digital intermediary they trusted, then they were more likely to use computers and the internet,” Dr Richardson says. “It helps that libraries provide free access, and Hamilton City Libraries are trialling volunteers to support those who might need help. Westpac bank and SeniorNet have joined forces to provide a seminar series and follow-up training workshops on online banking and these actions are helping to raise awareness and build confidence.

“For policy and practice, I’d recommend the services of digital champions to promote the benefits of an inclusive digital society and support its roll out among older people,” Dr Richardson says.
AT SOME stage in our lives we will have to face a situation that calls for palliative care, whether it be for family or whānau, friends or ourselves.

The Ministry of Health and Health Research Council identified that Māori use less palliative care services and the organisations wanted to know why. In a community and academic partnership, the University of Waikato and the Rauawaawa Kaumātua Charitable Trust (with, along with other partners) have been working together to develop a model for communication and health literacy around palliative care for kaumātua (Māori elders) and whānau.

The Trust supports, advocates and provides programmes, activities and services that enhance the quality and enjoyment of life for kaumātua, older than 55 years, in a whānau-oriented service. Professor John Oetzel and Dr Mary Simpson from the Department of Management Communication at Waikato University participated in the research project, which was led by Rauawaawa. “The Trust identified that there was a communication issue between kaumātua and their whānau and the medical profession,” says Professor Oetzel. “So we took a number of approaches to identify what would help kaumātua and their whānau consider palliative care when someone close to them needed it.”

Additional researchers were key collaborators for the project, coming from the University’s Te Kooti Research Institute, Te Reo Māori and the University of Auckland – Waikato Clinical School in Hamilton, and the Waikato District Health Board.

CEO for the Rauawaawa Trust Rangimahara Reddy says the kaumātua-led community-based model approach to this research worked well because of the goodwill within the collaborative research team and the commitment to the kaupapa.

“Throughout the project each group was able to take the lead at different phases and their ability to be inclusive and educational provided great workforce development opportunities for Rauawaawa.”

Dr Simpson and Professor Oetzel were key leads in the communication and report writing phases of this research, and for that we are hugely indebted. The results of the research in essence highlighted what each party involved in the palliative care process (kaumātua, whānau and health care workers) felt worked well and what needed to be improved.”

Dr Simpson says they analysed the material that hospices and care agencies used around palliative care to see if it communicated effectively with kaumātua and whānau, and whether it fitted with tikanga. “For the kaumātua and whānau who took part in the study, many of these materials did not fit well with tikanga. “We interviewed kaumātua who had experienced palliative care with friends or whānau, and we also held focus groups with whānau members, mostly non-kaumātua, about their experience and of course we talked to palliative care workers from hospitals, hospices and people who work with the Trust. Our goal was to find out what worked rather than what was going wrong.”

And what does work? The answers are hardly surprising says Dr Simpson. “When health workers respect and value Māori culture and communicate in ways that are explained clearly and don’t do ‘doctor speak’, then people feel more comfortable. It’s more than delivery of care; it’s showing the patient that he or she is cared about and being attentive to the nuances of the culture. You can’t assume people are all the same.”

Maehe Maniapoto, a Rauawaawa trustee, says it’s most important that kaumātua and their whānau have enough information so they can ask the right questions relevant to their respective situations.

Dr Simpson says one of the things people found useful were communication books, so everything that was happening to a patient was written down and people didn’t have to keep repeating what was happening and what was going to happen. It also made it easier to talk about issues around palliative care.

It comes down to a matter of balance, where medical staff create an environment where it’s okay to ask questions and the patient and whānau know what questions to ask, Professor Oetzel says. “Patients want dignity and respect for decision-making, but also require information and direction without feeling like they’re being told what to do. It needs to be adaptive, but I think there will always be tensions and a need for give and take.”

As a result, of this research, regular workshops on palliative care have been built into programmes at Rauawaawa to ensure kaumātua have the information before they need it. Ms Reddy says, “Much like people getting airline emergency information at the beginning of a flight rather than when a flight emergency comes to their attention.”

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Māori women in tribal governance

Ms Toi is off to Arizona as the recipient of a Fulbright-Ngā Pae o Te Māramatanga Graduate Award. She will spend a year in Arizona researching and writing her PhD in law about the invisibility of women in tribal governance.

Ms Toi will be part of the Indigenous Peoples Law and Policy Program, College of Law at the University of Arizona.

Her research in Arizona – mainly on the experiences of Pueblo and Navajo women - will be used as a comparison to what she has already learned about the roles Māori women play in tribal governance and she says she expects to learn that, in general, Māori women are doing better than their American counterparts.

“My reading of the situation there is that it’s pretty patriarchal,” she says.

“From what I’ve read it seems Pueblo and Navajo women are banned from decision making whereas Māori women are active and vocal.”

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Māori women in tribal governance

Ms Toi graduated with an LLB in 1997 and a BA in 1996 from the University of Auckland and obtained an MBA in 2008 and an LLM (Hons) in 2010 from the University of Waikato.

She says her PhD is aimed at developing a “what I’m calling gender analysis toolkit” for the first time.

“My case study is of Ngāpuh. I’m from the Hokianga and women there are very vocal, informed and active,” she says.

“Women are there but often they are not recognised. I’m looking at the way women can influence decision making.”

In most post-Treaty of Waitangi settlement situations, she says, the organisations established are based on corporate or patriarchal models which “greyscale” or push the involvement of women into the back ground.

“The talk is often, settle, settle, settle and we’ll sort it out later but there are concepts within tikanga that respect Māori women.”

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Students research topics close to their hearts

Two University of Waikato students are travelling to the US this year on Fulbright scholarships. One to complete a PhD, the other to talk about his PhD research.

The complexity of Tangihanga

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In the interest of SMEs

ALTHOUGH almost all New Zealand’s businesses are small or medium-sized enterprises (SMEs), specific policies for this sector are scarce. The issue was enough for SME specialist Professor Delwyn Clark at Waikato University’s Management School to take action.

“Time and time again we hear it said that small businesses are vital to the New Zealand economy, but nobody seems to be addressing their specific needs,” Professor Clark says. “What’s good for big businesses may not always be good for small.”

As an academic, Professor Clark decided to find out just what research was being done on small and medium businesses, and with a colleague from Victoria University, secured a summer research scholarship for a student to dig deep and find all the people who are doing research in the sector.

“We found that while there was a lot going on, everybody was working in silos. There was no central place that people could go to find out the latest research, no matter the specific management discipline.”

So, with the backing of the Small Enterprise Association of Australia and New Zealand (SEAANZ), Professor Clark started working on a collaborative project with the Ministry of Business, Innovation and Employment.

In June this year, the Minister for Small Business, Steven Joyce, launched the SME Research Hub that pulls together important information in one place for small business and policy makers. At the same launch Mr Joyce also released the first Small Business Sector Report that provides detailed information on the nearly 500,000 small businesses in New Zealand.

“Our work will connect with the Business Growth Agenda and the Productivity Hub’s programmes,” says Professor Clark.

“As we refine our website we can identify gaps and priority areas for research. One of the most pressing areas is the impact of ICT on small firms and how they can work smarter with new technologies.”

She hopes the new hub will connect people working in similar areas and create opportunities for collaboration, and that people who provide advice to small businesses will also make use of the web-based resource.

“Our aim is to initiate discussion and debate about the priorities for SME research in New Zealand, and the more information we get, the better we’ll be able to influence evidence-based policy making for this important sector.”

PROFESSOR DELWYN CLARK

But you don’t have to wait too long – we’ve got intakes starting in November 2014, and January and March 2015.

You can start a degree, upskill professionally or exercise your brain with a range of flexible study options available at our Hamilton and Taupō campuses, or online.

Start a degree in a variety of subjects, such as Education, Engineering, Law, Management, Psychology or Science – with more than 100 subjects in a range of disciplines, you can craft your degree to suit you.

Or, if you’re thinking of going a step further with your study, take a look at our graduate and postgraduate opportunities. There are plenty of options to choose from, which will enhance your career prospects even further.

To see how Waikato can give you the advantage, take a look at our programmes at www.waikato.ac.nz/study or contact us on 0800 WAIKATO or info@waikato.ac.nz

At the University of Waikato, the possibilities are endless.

A world of opportunity awaits you at the University of Waikato.

Web in the pocket

AN international project to create a data-gathering, curating, crowd-sourced and automatically updating digital tool is a step closer to reality. And that could be good news for tourists, adventure seekers, trampers, hunters, people lost in the bush and, more importantly, those out looking for them.

The tool has been dubbed WiPo, or Web in the Pocket, and is the result of work by University of Waikato researchers Drs Stuart Dillon and Karyn Rastrick alongside Munster University’s Professor Gottfried Vossen (also an Honorary Professor at Waikato) and research assistant Florian Stahl.

Professor Vossen spends two months each year in New Zealand working on the project and, with Florian, supervises students in Germany working on a prototype.

WiPo works by allowing selected data to be ‘pushed’ to a digital device and remain available to the user even in areas where there is no access to the internet. Data can include text, audio or video content.

While internet access is available in an ever-increasing range of places, there are still times and places when a user is unable to access the web.

And that internet expansion is being overshadowed by the massive amounts of data being created on a daily basis. That flood of data means it’s increasingly difficult to filter the good from the bad.

With WiPo provides one solution. Dr Dillon says expert-curated data, with criteria determined and entered by the user, can supply more worthwhile, detailed and specialised information to the user. It would be able to take advantage of the most recent information by automatically updating from sources identified by the user, with that data then ‘pushed’ to the device.

PROFESSOR GOTTFRIED VOSSEN

PROJECT MANAGER

BUSH TELEGRAPH: Drs Karyn Rastrick and Stuart Dillon creating the WiPo.

Dr Dillon says e-tourism and Search and Rescue are two areas where WiPo could provide real benefits. Prototypes being developed have used New Zealand’s Hobbit movies as an example, with information about all aspects of the movies, from Hobbit land to film locations, movies as an example, with information about all aspects of the movies, from Hobbit land to film locations, maps and reviews, able to be loaded into a device, providing accurate and up to date information to the user, no matter where they are.

Search and Rescue could also benefit, with searches able to be provided with the latest information, including things such as the likely behaviour of missing people, weather, terrain and search updates.

“They could also be provided relevant information depending on who they are looking for. Lost trampers, hunters, dementia patients or people who don’t want to be found all behave differently,” Dr Dillon says.

The next steps of the project, he says, will be to move towards the use of more crowd-sourced data curation, similar to how Wikipedia works, but using more refined information.

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Longer life electrodes

HEART, cochlear, spinal-cord and deep-brain stimulators all deliver therapeutic stimuli through electrodes implanted in the human body, but implants would have longer battery life, smaller electrodes, and could offer greater therapeutic impact if the effective surface area of electrodes was increased.

This is a grand challenge, says electronic engineer Professor Jonathan Scott who’s taken up the challenge with colleagues from the University of Waikato’s Faculty of Science and Engineering, Drs Ray Carusons and Gregory Jacobson and PhD student Mark Jones.

“Effective surface area is everything for implantable electrodes,” says Professor Scott. He says surface roughening technology exists to characterise electrode impedance through the use of a newly-developed, fractional-capacitor model of the electrode-electrolyte interface.

Effective surface area is everything for implantable electrodes,” says Professor Scott. He says surface roughening technology exists to characterise electrode impedance through the use of a newly-developed, fractional-capacitor model of the electrode-electrolyte interface.

They are applying this model in order to understand exactly how the electrode impedance is affected by various biological events. “Since surface roughening treatments have been used as anti-fouling protection, it is clear that not all surface roughness approaches invite the same outcome,” says Professor Scott.

With continued research this Waikato University team hopes to be able to explain what happens when electrodes degrade in the body, and develop a way to improve the electrode surface area without becoming susceptible to the body’s natural defences.

Gregory Jacobsen, Mark Jones, Professor Jonathan Scott and Dr Ray Carusons.

ENGINERS INVESTIGATING: (L-R) Dr Gregory Jacobsen, Mark Jones, Professor Jonathan Scott and Dr Ray Carusons.

Jacobsen, Mark Jones, Professor Jonathan Scott and Dr Ray Carusons.

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ELCO long-life electrodes for medical applications impressively reduced negative effects of time as cells in scar tissue and the body’s immune reactions act on the pores in the metal surface.” The team has developed an objective method of characterising electrode impedance through the use of a newly-developed, fractional-capacitor model of the electrode-electrolyte interface.

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Jacobsen, Mark Jones, Professor Jonathan Scott and Dr Ray Carusons.

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Better business in the Bay

IN THE Bay of Plenty there are many people with money to invest in business and plenty of people with good business ideas – they’re just not pairing up as often or as quickly as they should.

Enter Tina Jennen. Her vision is to set up a vibrant innovative regional innovation centre, an entrepreneurial ecosystem, similar to Silicon Valley but focusing on ventures that fit in with the Bay of Plenty economy and infrastructure.

“When I was studying for my MBA at Waikato, working with lecturer Dr Colleen Rigby, we organised a survey – it was part of a team action learning project where we consulted entrepreneurs and investors, business owners, students, employees, and sought to find out the barriers to business start-up and what needed to change,” Ms Jennen received 1600 responses.

As a result of the research, one team member set up the Venture Centre, a website designed to boost the success of innovative and entrepreneurial enterprises by connecting people and resources in the Bay, and Ms Jennen helped local angel investor group Enterprise Angels launch their entrepreneurial arms, Plenty of Innovation, which encourages and prepares local entrepreneurs to take advantage of investment funds available in the region.

“The Bay of Plenty has been through some tough times, first the Global Financial Crisis, PSA and then Renzi. We’re resilient and there’s a lot of talent here, we just need to link the right people up and show them how to do business better,” says Ms Jennen.

To that end, she has been running entrepreneur boot camps across the Bay of Plenty – in Rotorua, Taupo and Tauranga. The American, who has worked in large and small businesses, in the corporate and not-profit sectors, says people can have good ideas, but don’t always know how those ideas can transform into a sustainable business. Others might have ideas that just need tweaking to make them fly. They also don’t know how to price producers, especially when there are long production and sales cycles, she says. “The other thing people in start-ups do is wear too many hats, trying to keep costs down when in fact they need to bring in more capability. Nobody has all the skills required to run a business; it makes sense to bring in people with the necessary expertise.”

Ms Jennen says bringing potential investors together also gels them thinking bigger. “They get talking and realise that if they band together they will have a bigger package of money and be able to finance bigger projects. It’s about developing an improvisational culture. You have to be creative in your problem solving and break down barriers to market entry and accessing resources.”

In July, WNT Ventures in Tauranga was one of three technology-focused incubators approved by the Callaghan Innovation Business Incubator Support Programme. The programme offers support and funding to businesses setting up in the sector. “This came together because of the capability and diversity the team has across ICT, high value manufacturing, and technology in the primary sector,” says Ms Jennen.

Ms Jennen says Waikato’s MBA helped her to bring all her different skills and experience together and focused her career direction. And it was the MBA lecturers who linked her up with Enterprise Angels.

She and Dr Colleen Rigby, whose main teaching role is in leadership development and building high performing teams at Waikato University’s Centre for Corporate and Executive Education, have written a paper about her research and her subsequent activity and presented it in Hawaii at the International Conference on Business, and their work has also been presented in Philadelphia and Dublin.

“Participants at these conferences were very interested in how Tina had used her research to engage the full spectrum of the community and the resulting developments in entrepreneurship in the Bay of Plenty,” says Dr Rigby.

“Tina epitomises a Waikato MBA student who is able to take her learning and capabilities into the community and bring about significant and lasting change.”

ACTION-FOCUSED: Tina Jennen, bringing entrepreneurs and investors together in Tauranga and the greater Bay of Plenty region.

Tauranga Energy Consumer Trust supports campus

PLANS for a purpose-built University of Waikato campus in Tauranga have taken another step with the news that the Tauranga Energy Consumer Trust supports campus plans.

The TECT decision provides one of the key funding packages for a purpose-built University of Waikato campus in Tauranga and the greater Bay of Plenty region.

“TECT is a strong community-focused organisation,” Chair Bill Wasley says the TECT decision is great news for the downtown Tauranga.

Consumer Trust (TECT) has agreed to provide valuable funding for a campus plan is robust and an “attractive investment opportunity” with low risk and the potential to impact positively on many key areas of the Bay of Plenty economy.

The June report, prepared by Professor Frank Scrimgeour from the University of Waikato Management School, shows the campus would generate benefits of $188 million over the next 20 years and provide a rate of return of more than 30% on the initial investment.

It will impact positively on attracting researchers and teachers, postgraduate students, international students, and retaining undergraduate students in Tauranga, along with allowing the development of new programmes for delivery in Tauranga.

One of the biggest gains comes from having students remain within the Bay of Plenty, undertaking higher education that ultimately contributes back into their own whānau, hapāi, iwi and communities. University Vice-Chancellor Professor Roy Crawford says the decision marks a significant milestone for the Partnership and the project. The University of Waikato has long had a presence in the Bay of Plenty and considers the region an important part of the university’s future, he says.

Dr Alan Hampton, Chief Executive, Bay of Plenty Polytechnic, says the announcement is a very important stage on the journey of collaboration to provide tertiary provision and applied research in Tauranga that is attractive and relevant in New Zealand and overseas. From here, the parties will work towards a Heads of Agreement and will consider the next steps in the process.

TAKEOUTS

New position on Māori Economic Development Advisory Board

University of Waikato Pro Vice-Chancellor Māori and Dean of the School of Māori and Pacific Development Professor Linda Smith has been appointed by the Government to the Māori Economic Development Advisory Board.

The board, established in May 2013, monitors and evaluates the implementation of He Kai Ke Aku Ringa, the Crown-Māori Economic Growth Partnership. Announcing her appointment, Minister for Māori Affairs and Associate Minister of Education Dr Pita Sharples said He Kai Ke Aku Ringa was a blueprint for a productive and innovative Māori economy that will support better paying jobs and higher standards of living for Māori.

Professor Smith is an expert at linking education and research to Māori development and will add an important dimension to the work of the Advisory Board,” he said.

A professor of education, Professor Smith is also a member of the Health Research Council, the Marsden Fund Council and sits on the Council of the Royal Society of New Zealand.

Population economist off to London

Professor of Population Economics at the National Institute of Demographic and Economic Analysis (NIDEA) Jacques Poot has been selected to be a NZ-UK Link Foundation Visiting Professor to the UK for 2014. Professor Poot will be primarily working in London.

NIDEA is a research institute under the Faculty of Arts & Social Sciences at Waikato University. It undertakes research at the interface of population, social and economic demographics, and helps inform choices and responses to the demographic, social and economic interactions that are shaping New Zealand’s future.

Professor Poot’s research interests include all aspects of the economics of population (such as migration, fertility, labour force, and ageing) and especially the geographical dimension of these topics. He currently co-leads a large research project on regional population change and socio-economic consequences. The project is called Nga Tangata Oho Maurangi and is being carried out by researchers at NIDEA, Massey University and Motu.

The NZ-UK Link Foundation visiting professorships were established in 2010, and the first one was awarded to Waikato Professor of Law and Public Policy Margaret Wilson.

New coastal research centre agreement signed

A statement of intent to establish a new coastal biotechnology research centre with bases in Tauranga and China has been signed by the University of Waikato and Venture Taranaki in the name of Coastal Zone Research, Chinese Academy of Sciences. The two institutions intend to establish the China-New Zealand Coastal Biotechnology Joint Research Centre, which would aim to integrate China and New Zealand’s coastal biotechnology research efforts. It would also aim to align more effectively administration sections, investors, industry and international businesses especially in China and New Zealand.

The relationship between the University of Waikato and the Ventral Institute of Ocean Resources began in 2010 during the Tenth International Marine Biotechnology Symposium in Qin Dao, China, convened by Professor Song Qin. Professor Song and Professor Chris Battenhill, chair of Coastal Science at the University of Waikato, are heading the fledging development between China and New Zealand.
The biological heritage challenge

REVERSING the decline of New Zealand’s biological heritage is the mission for a new national research programme led by the University of Waikato’s Professor Bruce Clarkson.

The New Zealand Biological Heritage Science Challenge is one of 10 national Science Challenges funded by the New Zealand government, designed to allow more strategic science investment to deliver major and ongoing benefits for New Zealand. Funding of $29.9 million is guaranteed for the first five years.

Dean of the Faculty of Science & Engineering, Professor Clarkson, is recognised as one of New Zealand’s foremost authorities on ecological restoration and has been seconded as a full-time interim director for New Zealand’s Biological Heritage Science Challenge until December this year. The secondment will see Professor Clarkson set up the framework for the programme, while allowing time for the group to recruit a permanent director.

“Hosted by Landcare Research, the research undertaken in this challenge will be designed to protect and manage New Zealand’s biodiversity, improve biosecurity and enhance the country’s resilience to harmful organisms,” says Professor Clarkson.

“This programme has the potential to be a game-changer in terms of a fundamental shift in research thinking, alignment and collaboration. The proposed research will require new ideas to flourish and work at a much larger scale compared with now,” he says.

In fact, Professor Clarkson describes the five-year research programme as the biggest of its kind for this topic in New Zealand to date. He hopes that the integrated ‘one ecosystem’ research agenda will synergise benefits, deepen collaboration across research boundaries and most of all, increase the focus of investment on the ‘mission critical’ research which works with and for the community.

“The proposed national partnership, coupled with a high-performing, integrated research agenda, will deliver fit-for-purpose, socially acceptable, cost-effective and well-tested solutions to address national priorities in both natural and production ecosystems.”

Professor Clarkson became involved in the project last year when he was invited to work on the Biological Heritage Science Challenge oversight group. The group’s first job was to put together a research plan. He acted as co-ordinator for the plan involving seven Crown Research Institutes and eight universities. He worked part-time on the project for several months, culminating in the submission of the proposal to the Ministry of Business, Innovation and Employment at the end of April.

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Conference highlights data flood

DEALING with massive amounts of data is one of the looming problems facing the world’s research communities, a leading data expert says.

Professor Bryan Lawrence (pictured) of Reading University told the fifth eResearch New Zealand Conference that the world faces a “big and significant looming data problem”.

About 120 delegates attended the conference, held at the University of Waikato, where Professor Lawrence was one of three keynote speakers, along with Kai Lin Thane from Moaia Science Lab and Dave Tang from IBM.

Organising chairperson Dr Joseph Lane from Waikato University says eResearch is about using tools and technology to augment traditional research practices.

“It spans all research areas,” he says.

The conference explored ways in which researchers could use technology to collaborate more effectively by developing ways to share what are often very large amounts of data. Education was also a key focus of the conference – both in terms of how existing researchers can develop the necessary eResearch skills and how a new generation of researchers learn them as part of their postgraduate studies.

Professor Lawrence, a leading researcher into weather and climate computing, told the conference the world is now producing so much data, it’s creating significant infrastructure implications. “Storage can’t keep up. Enhanced computing produces more data and we are now making more data producing equipment than storage,” he says.

Professor Lawrence says it’s difficult to see what the future holds but for researchers, the need to share increasingly large amounts of data raises serious questions. “This flood of data has implications for computing, data networks, software and people,” he says.

In his own networks, Professor Lawrence predicted that in the next five years, he would have between 30-300 petabytes of data to share. “That’s not total data, just data to be shared.” One petabyte is equal to 1024 terabytes while one terabyte equals 1024 gigabytes. Professor Lawrence predicted any solution would be based on infrastructure partnerships and more collaboration but warned it was extremely difficult to predict what will happen, even in the short term.

Dr Lane, from the Faculty of Science & Engineering, says there was good feedback from the conference.

“One of the comments I heard was how good it was to see a broad range of organisations represented or involved, particularly government sectors that don’t normally attend academic conferences.”

App shows the way at Fieldays

AN INNOVATIVE digital app designed to provide mobile, location-based information at events was one of many University of Waikato innovations on show at this year’s National Agricultural Fieldays at Mystery Creek. The app, designed by Dr Annika Hinze and Associate Professor David Bainbridge from the Faculty of Computing & Mathematical Sciences, was put through its paces in the Innovation section at Fieldays and allowed users to learn more about featured displays.

The app runs on small tablets and was used at Fieldays to provide key information about other products and services on display in the Innovation section by using a location-based system which also provided text, images and videos. The location information was able to be accessed via augmented reality or interactive maps, which could be connected through GPS satellites, bluetooth beacons or simple QR codes. Dr Hinze says the app is adaptable to other event-based situations or location-aware awareness and can also include audio content and run on mobile phones. It will also be able to switch to a photo-viewer, providing 360-degree immersion into featured content. Even location-based note-taking and personalisation can be supported, she says.

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Organisations such as the Ministry of Social Development, Ministry for the Environment, Statistics New Zealand and others actually have similar data problems to researchers in universities and CRIs.”

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Award recognises lifetime immersed in education

IT SHOULD really be no surprise that Enoka Murphy received one of the highest awards available for tertiary teaching. At the Ako Aotearoa Tertiary Teaching Awards in Wellington in July, the te reo Māori and tikanga lecturer from the University of Waikato’s School of Māori & Pacific Development received a Sustained Excellence award for teaching in a kaupapa Māori context.

The award comes just a year after he picked up a faculty Teaching Excellence Award from the university and four years after being the recipient of a prestigious Nga Tipuna VC and 28 (Māori) Battalion Memorial Scholarship.

Mr Murphy, (Ngāti Manawa, Ngāi Ruapani, Māmatua, Tainui, Te Arawa) says winning awards is not what he’s about “but you get pushed into these things. “The loyal thing to do is to say yes.”

Mr Murphy’s life has been about education since the beginning. His parents were teachers and “I’ve been teaching since I was 15 or 16. I finished School C and started teaching.”

He’s taught in kohanga reo, kura kaupapa Māori and at tertiary level, along with being involved in theatre, kapa haka and speech competitions. His entry to the awards was the first to be completed entirely in te reo.

Teaching te reo, he says, is not like teaching any other subject. “It’s not just getting up in the morning and going to work.”

“…we’re part of it. Te reo is at the core of the reclamation of our language, our culture, our rights. Without language, it is so much more challenging to have a culture.”

Mr Murphy uses the usual words to describe good teaching – enthusiasm, passion, belief – but says that “ultimately, teaching intellectually rocks their socks off.”

“In a single day you can achieve so much.” While Mr Murphy would be happier not being in the limelight, he recognises the importance of the award and says it’s not just for him.

“There are excellent Māori teachers all over the place who won’t go for this sort of thing unless they are pushed. There are people who have been doing this for 50 years and they are awesome. People like Wharehia Milroy, Timori Kareru, Huirangi Wairerepuru and many others. I can jump around and make cool games and great resources whereas they can just sit in a chair and speak and every student will hang off their every word. This is as much an acknowledgement of them.”

The Ako Aotearoa Tertiary Teaching Awards aim to recognise and encourage excellence in tertiary education, at a national level.

They provide an opportunity for teachers to further their careers and share good practice in teaching. Up to 12 Sustained Excellence Awards of $20,000 each are awarded annually.

The artist and the academic

SCREEN and Media Professor Daniel Fleming uses the work of film director, screenwriter and artist Vincent Ward in his lectures, and now he can tell his students about what it’s like to work for the man whose films include Vigil, Map of the Human Heart and Rain of the Children. Professor Fleming took five months’ unpaid leave from the University of Waikato this year to work at Vincent Ward Films. “When Vincent proposed I come and work for him as a concept developer, it was an opportunity too good to pass up,” says Professor Fleming.

“My reasons were two-fold. I wanted to firmly cross that line between academia and the creative side of filmmaking and I knew it would be hugely beneficial for our students if I could bring this practical experience to their learning.” His first few weeks involved reading short stories and novels, judging their potential to transform into film or TV drama and pitching the ideas to Mr Ward.

“If Vincent thought they would fly, he’d then pitch them to potential collaborators in LA, Sydney or Berlin. One concept survived the process and is currently in development with Vincent’s company as an eight-part TV drama series.” Its working title is Himmler and the series dramatises transformational moments in the life of Holocaust architect Heinrich Himmler as seen through the eyes of Himmler’s young daughter Gudrun. “We want to find a way of understanding the psychology of evil at the intimate human level where it reveals itself in moments of everyday life,” says Professor Fleming, “and we want to look at those events without focusing on Hitler.”

Students can tell his students about what it’s like to work for the man whose films include Vigil, Map of the Human Heart and Rain of the Children. Professor Fleming took five months’ unpaid leave from the University of Waikato this year to work at Vincent Ward Films. “When Vincent proposed I come and work for him as a concept developer, it was an opportunity too good to pass up,” says Professor Fleming. Meanwhile, Professor Fleming has seen his book Making the Transformational Moment in Film translated into Chinese. The book uses Vincent Ward’s work as a thread to develop an argument about the cinematic image, and the book is dedicated to Vincent’s mother, a Jewish refugee from Nazi Germany.

“Interestingly Vincent went on to explore some of my ideas in his art and video installation work, culminating in his exhibition of ‘cinematic vignettes’ in a cathedral in China. Professor Fleming’s work as a thread to develop an argument about the cinematic image, and the book is dedicated to Vincent’s mother, a Jewish refugee from Nazi Germany.

The University of Waikato hosts Integrated Data Infrastructure hub

RESEARCHERS will be able to access more official data than they can click a mouse at when the first university-based Integrated Data Infrastructure (IDI) hub in New Zealand opens at the University of Waikato.

The hub is being hosted by the National Institute of Demographic and Economic Analysis (NIDEA) and will provide access – by approved researchers – to a staggering range of data on education, tax, families and households, sentencing and charges, health and social issues, with plans to expand these information pools in the future.

The benefits of hosting the hub include increased international research collaborations, higher quality research and a stronger connection with government, with the research used to inform government policy.

NIDEA research associate Dr Bill Cochrane says many research questions cannot be answered using aggregated data and require access to the actual responses of individual participants in surveys. “Previously, official data of this kind could only be accessed by approved researchers in Statistics New Zealand’s secure data labs, in Auckland, Wellington or Christchurch,” he says. “The new lab will allow researchers to access this data on-site, facilitating their research and promoting participation in leading edge quantitative social science research.”

The hub is the first of its kind to be hosted at a university. Waikato Management School economist Professor Les Oxley says the hub is an exciting development, “the equivalent of the invention of the spreadsheet” in terms of data integration.

“This sort of access to data will ensure the university is more a part of the policy-making process than ever before. It will help the government get deeper into the economic and social issues in New Zealand, and help find solutions.”

Faster data: Professors Jacques Poot, Les Oxley and Robert Hannah supporting the IDI Hub.

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At the University of Waikato, the possibilities are endless.
Designer shows his stuff

IN A white beanie and black top, with an impish smile and a friendly word for everyone, it would be easy to mistake Keith Soo for a student.

You imagine he’d be the sort of bloke you’d run into out on the town, rather than in a lecture theatre. But Mr Soo is no stranger to lecture theatres in his job at the University of Waikato as a senior lecturer in computer graphic design. And while he’s been on staff for nearly 10 years, it’s likely he’s more well-known overseas, where he’s a highly regarded, award-winning interactive graphic designer.

In 2009 he won the annual Shanghai Science and Art competition, beating designers from a dozen other countries with his 3D colour, sound and movement installation.

That led to him taking 18 months off from the university to be involved in several projects for the mammoth Shanghai World Expo in 2010, where he designed a wide range of work for the Brazil, Monaco and Liverpool pavilions.

Mr Soo returned to the University of Waikato in 2011 and in 2012 won a Faculty Teaching Excellence Award.

Last year he took part in the Institute of Electrical and Electronic Engineers (IEEE) Visual Arts Programme + Experiment with his work VJCSS, an interactive mirror which turns a user’s image and movements into melodic patterns.

He’s originally from Singapore and studied at the Nanyang Academy of Fine Arts – the oldest such institution in South East Asia – before heading to the Whanganui School of Design, where he completed a Bachelor of Computer Graphic Design, specialising in interactive design.

He later completed his honours at the same institute before completing his masters in a conjoint programme between Whanganui School of Design and the University of Waikato. Mr Soo says he always wanted to be an artist, initially a sculptor, and he enjoys both his work at the university and the international assignments he is involved with.

“The more people you work with internationally is good and being exposed to their work is amazing”. He says students often ask what it takes to be a successful graphic designer and Soo says the answer is simple: “you must be passionate”.

“Being a graphic designer is a niche career but you can go in so many directions. You have to be passionate and you have to want it”.

“It’s more about curiosity and passion that anything else. Everyone is different so I always encourage students to believe in themselves.”

Which clean up option to choose?

THE Rotorua District Council has agreed to stop spraying the city’s treated wastewater in the Whakarewarewa Forest by the end of 2019.

Working with district and regional councils and local iwi, University of Waikato scientists have been helping assess a range of options for restoring and protecting water quality, including how to treat and dispose of the city’s wastewater post 2019.

Spray irrigation of treated wastewater began in 1991 when the council stopped pumping the city’s treated wastewater directly into Lake Rotorua. The aim of this land-based treatment process at the treatment plant was to reduce nutrient loads to the lake and improve water quality.

This was highly effective at first, but while the forest is still effective at absorbing phosphorus from the wastewater, 70% of the nitrogen now leaches back into Lake Rotorua via Puarenga Stream. In addition, some parts of the irrigated forest receive more water than is ideal for tree growth and the groundwater underneath the irrigated area has become enriched with nitrogen.

Waikato’s Professor David Hamilton and Chris McBride have been modelling nutrient sources to the lake. “We have three main ways of reducing impacts on the lake,” says Professor Hamilton.

“These are to reduce what goes into the treatment plant, increase the level of treatment in the plant, and to have an effective way to reduce nutrients where the treated wastewater enters the environment. The standard of costs, engineering feasibility, environmental outcomes, community and cultural aspects, and overall long-term sustainability,” says Mr McBride. One of the reasons the amount of wastewater has increased is that some communities located around other lakes have already replaced septic tanks with reticulation. The wastewater is then pumped to Rotorua’s treatment plant.

Professor Hamilton and Mr McBride are also working with the Technical Advisory Group for the Rotoma and Rotowhiti Sewerage Steering Committee, assessing wastewater options for the communities around these two lakes.

The government is helping to fund this $23-38 million project (depending on options taken) through subsidies from the Ministry of Health and the Ministry for the Environment. District and regional councils are also contributing to offset the costs for residents.

Mr McBride has contributed to the assessment of options that would protect these lakes. “Clusters of houses may have their own small treatment systems and disposal fields, or traditional reticulation and piping may be used with a centralised treatment plant for one or both lakes.”

“It’s our job to provide advice to the Technical Advisory Group and the Committee on the different approaches, again taking all aspects into consideration”.

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WHAKAREWAREWA FOREST: No longer a preferred site for Rotorua’s wastewater.

Designing new apps over summer

FROM landscape design to developing apps, Jemma Konig (pictured) has taken a leap in her learning thanks to a Summer Research Scholarship at the University of Waikato.

Jemma had previously studied and worked as a landscape designer, but found she liked the technology design side of her work more than the landscaping side. She enrolled at Waikato where she is now in the third year of a Bachelor of Computing and Mathematical Sciences, majoring in Computer Science.

The former Rotorua Girls’ High School student says she applied for a Summer Research Scholarship as she wanted to explore the world of Android devices, with the possibility of iOS development in the future.

FLAX (Flexible language acquisition) is open source software that has been developed at the University of Waikato and used as a tool for teaching and learning a second language.

The language learning activities had already been designed and existed on large-screen web-connected devices but Jemma’s job was to modify the design to suit small-screen devices.

During the summer, Jemma developed a shared Android library application, which makes it faster and easier for other developers to build other activity applications, an activity template that can be used to base future applications on, and two FLAX activity applications (Calloclominoes and Calloclation Matching).

“I had’t had any experience with this kind of existing code before so it really built my knowledge of how it all works in the real world.”

The two apps are published on Google Play for free download and use. “One has had 500 plus downloads, the other 100 plus and I was really pleased to see this as I never expected them to get this many downloads,” says Jemma.

Having completed a paper based around Android development in 2013, Jemma believes this helped in her selection for the project, which she worked on under the supervision of Computer Science Professor Ian Witten.

Summer Research Scholarships are open to students enrolled at any New Zealand, or Australian university and provide undergraduate, final-year honours and first-year masters degree students the opportunity to experience the challenges and rewards of research. The $5000 scholarships are offered in various disciplines for a 10-week full-time research project over the summer study break.

FROM

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apps over summer

Jemma Konig

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