Tennis is a fast-paced game, and media can be too, but Victoria University academics started 2012 by proving they can handle both at once.

When The Conversation sent an urgent request for research-based tennis stories during January’s Australian Open, half a dozen researchers responded within hours.

Several pieces were accepted by The Conversation, then followed up by ABC Radio, the Age and Sydney Morning Herald.

Here are a few of the highlights:

Professor Damian Farrow showcased his research on anticipatory skills in tennis by posing the question: exactly how do you return a 200 kph serve with just one-third of a second?

As Professor Farrow explained, players use both situational probability and the biomechanical elements of the server’s technique to predict likely service direction to buy time for a response.

In one experiment players watched videos of a simulated match where the first serve in the first point of each game was served to the same location: By the end of the first set skilled players saw the pattern but lesser-skilled players did not.

To test how a server’s action itself provides clues, scientists use customised goggles so a receiver sees the action up to the point of racquet-ball contact, but not the ball flight. In some tests the receiver’s vision is masked even earlier: when the ball reaches the peak of the toss.

“Skilled players are able to accurately predict service direction 300 milliseconds before the serve is actually struck,” Professor Farow said.

“This suggests skilled players can interpret where the ball is going to be hit based on the location or height of the ball toss and angle of the racquet as it’s thrown toward the ball.”

Not surprisingly, the best servers are those who stay one step ahead of opponents by disguising these cues: famously Pete Sampras’ coach in training used to call what serve Pete had to hit as he tossed the ball – resulting in a consistent action that provided little anticipatory information to a receiver.

Professor John Zeleznikow looked at the increasing use of artificial intelligence to give players the edge.

“Most of us would be stunned to think information technology and artificial intelligence could in any way determine the outcome of the Australian Open,” he said. “But it is already happening by applying modern data mining to inform coaching and playing decisions with empirically derived knowledge.”

The tennis data for this type of analysis can be grouped into micro and macro categories, he explained.

The macro analysis uses long-range time series data on performance ranking, match results and tournament placing, while the micro view involves match-specific performance analysis data on movement tracking and ball tracking.

Results from one analysis showed women benefit from a ‘strong-weak’ serving strategy – first serve aggressive and second serve conservative – while male players should adopt a more aggressive ‘strong-strong’ approach.

Martin Robertson wrote a piece on the Australian Open’s success from a brand marketing perspective.

From the grass-court tournament of 1905 to today’s star-studded spectacle the Australian Open has remained physically and emotionally grounded in the city, he explained.

It was 1985 when the Victorian government decided to build a national home for tennis. Rod Laver Arena – the battle ground of many Australian Open finalists
Scientists have long thought these factors important to maximise reintroduction success, but Dr Guay’s study on Dunnarts with Zoos Victoria and The University of Melbourne’s Department of Zoology showed the level of brain reduction may be a major reason why.

The Dunnart study will be published in *Zoo Biology* and has already received media in Australian Geographic and major Tasmanian newspapers.

**PROFILE: DR KEVIN MCDONALD**

Dr Kevin McDonald is driven by a curiosity for how diverse communities work, particularly in the context of increasingly globalised and mobile societies.

The Director of the new Centre for Cultural Diversity and Wellbeing describes himself as a social scientist of how change occurs.

In the late 1990s he undertook a large study of youth experience in Melbourne’s west, while recently he has lived in the United Kingdom where he was researching violence as part of a European Union Marie Curie fellowship.

McDonald studied at the French Ecole des Hautes Etudes en Science Sociales from 1978 to 1986, and in 2008 went back to spend a year teaching in the doctoral programme in that university.

The fluent French and Spanish speaker completed his doctorate under sociologist Alain Touraine, one of the most important European sociologists of the twentieth century, who pioneered the sociology of social movements and the study of post-industrial societies.

McDonald has since spent 10 years at the University of Melbourne and other educational institutions. He is a volunteer with the UK-based Council for Assisting Refugee Academics, where he is involved in its Jordan-based programme of support for Iraqi

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**STUDY ON BRAIN SHRINKAGE SHIFTS TO TASSIE DEVILS**

The quality of captive breeding enclosures and time spent in them may be crucial to the success of marsupials released back to the wild.

Victoria University ecologist Dr Patrick Guay measured the brains of Stripe-faced Dunnarts – small mouse-sized Australian marsupials – bred in captivity over several generations and found those kept in an enriched environment showed little or no decrease in brain size.

This is significant as captive-bred animals typically have smaller brains than wild relatives, resulting in poorer skills for nesting, avoiding predators, finding food and rearing young.

“This study on Dunnarts shows the importance of enriched enclosures and, if possible, short-term captivity for successful breeding and returning of endangered animals to the wild,” Dr Guay said.

“Hopefully, this will help improve the success of captive breeding programs for many of our endangered or critically endangered marsupials, including the Tassie Devil”.

An extended study will now focus on the endangered Tasmanian Devil. With Zoos Victoria, the Zoo and Aquarium Association and the Save the Tasmanian Devil Program Dr Guay will measure the skulls of deceased devils from zoos and wildlife parks across Australia to see whether captive-bred devils retain wild brain sizes.

“Reduced brain size may be used as a warning sign,” Dr Guay said. “If we find current captive breeding strategies have led to reduced brain size we need to do something about it before captive bred threatened species, including devils, become domesticated zoo animals that can never be released back into the wild.”

He said the aim of an enriched captive breeding environment was to provide animals with features and activities to stimulate natural behaviours.

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**The Conversation** is a new Australian media channel that delivers academic insights, analysis and research news to the public within the daily news cycle. It also allows academics to position themselves as experts in their field, building their own and the university’s reputation for relevant research and knowledge exchange.

Victoria University is now in partnership with The Conversation and researchers are being urged to register as contributors and join the community of 2,000 academic authors who’ve published 3,500 articles and 1,200 research summaries on the site.

Since March 2011 The Conversation has had 800,000 unique visitors, with 40 per cent of them international.

Academic staff wanting help to draft pieces for The Conversation can contact the university’s Research Writer in the new Public Affairs Unit, Michael Quin at Michael.quin@vu.edu.au or 9919 9491.

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**A Tasmanian Devil.**

**A Stripe-faced Dunnart.**
academic refugees. One project involves using community theatre for reconciliation.

McDonald also has a book coming out on subjective experiences of violence, drawing on interviews of those around the edges of terrorism in Britain, Australia and Spain.

“By looking at personal paths into violence we often find it’s driven by a search for release and a fascination with the unknown more than anything else,” he says.

Now as director of Victoria University’s newest research centre, McDonald says he is looking forward to “bringing people together in new ways to produce new synergies and outputs”.

“There is so much interesting research going on at Victoria University around community diversity and that was one of the attractions for me,” he says.

He explains one of the new centre’s major roles will be to ensure research outcomes are relevant to the community, government and business, and which have international impact in scientific disciplines.

“We need to be confident in the quality of our work and as researchers understand where our research fits into debates in each discipline and have the confidence to jump in and add to that story,” he says.

“The Centre is not just an email list you are added to or deleted from: the centre will bring a wide range of partners together in new ways to develop engaging research that has an impact in its discipline.”

While still in its beginnings, the Centre will build three transdisciplinary research programmes:
- "Mobilities, transitions and resilience; Cultural diversity, technologies and creativity; Wellbeing, embodiment and diversity."

The new Centre has a strong emphasis on social media, both in research, in the way centre members work together, and as a way connecting with partners and building a ‘research footprint’ beyond the university. They already have a twitter feed, and McDonald is keen for social media to work as a platform for exchanges that turn ideas into projects, and those projects into programmes of research.

‘Please get involved in the conversation’, he says. The centre’s twitter handle is @ccdw_research.

PHOENIX TEAM WINS CUP

The win was announced in December but one month earlier Centre for Strategic Economic Studies PhD student Catherine Xiaocui Lou delivered a presentation on behalf of the Phoenix Project Team at VU and progressed to the final round against 371 international submissions.

Her entry proposed using Phoenix services to support Small and Medium Enterprises for their supply chain and logistics needs.

With perseverance and support from the Formula SAE organisers and competing teams, they managed to overcome several breakdowns and did well in a number of categories.

Local alumni organisations, IIT alumni Victoria and IIT Alumni Australia raised close to $2,000 to support the venture.

Victoria University aims to strengthen its research relationship with IIT-R through such collaborations, Assoc. Prof. Sharda said.

Feedback from the IIT-R students can be seen at www.facebook.com/IITMumbai.

NEVER TOO OLD TO WORK IT

Claiming you are too old for aerobic work-outs may no longer be a valid excuse, with Victoria University sports scientists saying it’s time for pensioners to sweat.

A pilot study by Victoria University PhD researcher Victoria Wyckelsma showed 70-year-olds could handle the intensity of aerobic work-outs on an exercise bike, despite their age or lack of fitness.

“They tolerated the intensity of it very well and we think there’s no reason why older people can’t use more intense exercise like this to achieve greater fitness and wellbeing,” Ms Wyckelsma said.

The participants did four sets of intense four-minute bursts on exercise bikes, with three-minute rests in between each set.

“This high intensity interval training is a different sort of training than you’d expect older people to be doing,” Ms Wyckelsma said. “But we think it may be more beneficial than longer sessions of low intensity exercise and, being quicker, also easier to fit into a daily routine.”

Ms Wyckelsma said it may be time to rethink exercise routines for older people. She added that until 10 years ago it was thought older people should not do weights training, but that it was now a commonly accepted exercise for them.

“The science is showing that more intense workouts are possible and this is just a continuation of that,” she said.
In a study supervised by Professor Michael McKenna and Dr Itamar Levinger, Ms Wyckelsma is now seeking volunteers over the age of 65 for a 12-week study to prove the physical benefits of the high intensity training.

“We already know older people can handle this type of workout, now we just need to measure its benefit,” she said. “We expect the trial will show big improvements in fitness, wellbeing and capacity to carry out daily activities.”

Whilst most adults over 65 will qualify for this study, people with type 2 diabetes or those with heart disease are not eligible.

“There’s no minimum fitness level or maximum age limit for this study,” she said.

To volunteer for the study ‘The effects of ageing and high-intensity exercise training’ or for more information contact Victoria Wyckelsma on 0419 137 897 or victoria.wyckelsma@live.vu.edu.au

**RESEARCH AMBASSADORS**

The Research Ambassadors scheme is now open to new recruits after a successful launch in 2011.

The joint initiative between the VU library and the Office for Postgraduate Research aims to provide peer-to-peer support to research students from across the university with advice or help with research processes, quantitative and qualitative methodologies and software troubleshooting.

The scheme also provides employment opportunities for HDR students to share their skills, learn from others, and contribute to Victoria University’s research culture.

PhD candidate Lenora Sundstrom says her experience as a Research Ambassador has given her the opportunity to use her research skills to help others while meeting new people from across the university.

“There are so many things I enjoy - helping fellow researchers, being able to work with peers one-on-one, meeting other students and staff, and the experience gained through working across so many parts of the university,” she said.

Being a research ambassador has also helped the American student better understand the research culture in Australia, and give something back to the VU research community.

Ms Sundstrom says her experience as a Research Ambassador has given her the opportunity to use her research skills to help others while meeting new people from across the university.

“They gave me advice and guidance, shared examples of their candidature and ethics proposals with me and always had time for whatever questions I had – however silly or ridiculous those questions may have been,” she said. “It was really important to me to ‘repay’ this guidance and being an RA provided the opportunity to do that.”

The Research Ambassadors program will soon be recruiting for 2012. For more information, visit http://guides.library.vu.edu.au/seekRA or contact Research Librarian, Jenny Cameron.

**TOO MUCH BOUNCE ON THE WICKET**

Victoria University researchers have demonstrated the all-season synthetic pitches used by some suburban cricket clubs are too bouncy.

The surface with a rubbery underlay is more resistant and can be left year-round instead of the roll-out synthetic mats traditionally used by suburban clubs - but it had also caused complaints from players about dangerously high ball bounce.

School of Sports and Exercise Science researchers Dr Kevin Ball and Dr Con Hrysomallis used super slow-motion cameras to measure the speed and angle cricket balls bounced off each different pitch.

Results showed the ball popped up higher on the rubbery pitch compared to turf and traditional synthetic roll-out surfaces.

“The cricketers seem to have been right about the bounce being higher, and that could indeed be a safety issue especially for players moving between pitch surfaces,” Dr Ball said.

Results also showed the ball came more slowly off the new type of pitch.

Meanwhile the traditional synthetic pitches and turf pitches were found to behave similarly to one another in bounce height and speed.

“That the new pitches performed differently to the other types has implications not only for safety but also skill development,” Dr Ball said. “Junior players could get used to slower, higher bounce then they will progress to the seniors where pitches act differently.”

Most suburban clubs are using a mixture of these old and new synthetic pitches while the more elite clubs are using turf pitches.

Since the testing, the company producing the surface has adjusted its product to better mimic turf wickets.

**PhD COURSEWORK IS HERE**

The University will this year introduce coursework units into research training.

The PhD coursework initiative, together with ongoing enhancements to the PhD program, aim to ensure doctoral students are supported to achieve their goals as postgraduate research trainees.

Two core coursework units – ‘Conceptualising and Contextualising Research’ and ‘Research Integrity and Ethics’ – have been approved for new PhD students starting this year.

The units are designed to prepare students for candidature and for the Australian research environment. Further elective units in research methodology will be offered from 2013.

Curriculum development for the units has been led by Professor Helen Borland and Professor Ron Adams from the Office for Postgraduate Research. This has included opportunities for supervisors to contribute views on HDR student learning and skill development needs, and curriculum and learning tasks within units.

Further opportunities to learn about the new units or contribute to coursework development will be available this year. Student information sessions will be held early in semester 1, 2012. For information call 9919 4522 or email pgresearch@vu.edu.au.
LONG WARM-UP FATIGUING PLAYERS

Research shows major sporting clubs may be tiring their players by warming up for too long.

A study by James Zois and ISEAL colleagues compared performance after various warm-up routines including one conducted by a first class (Series A) Italian soccer club.

It showed a specific 6-minute warm-up routine produced better results than the club’s all encompassing 23-minute routine of run-throughs, stretching and change-of-direction tasks.

The players’ speed, agility and jumping performance were all better after the short warm-up – by as much as 7 per cent – while athletes in the longer warm-up showed signs of fatigue.

“This shows that beyond the 5 minutes needed to increase heart rate and muscle temperature, then a couple of targeted explosive routines, you can just start tiring players out for no real benefit,” he said.

James Zois

He said a preliminary survey of European soccer clubs and AFL clubs showed many had longer routines, with some lasting for up to one-hour.

“We believe a lot of these are far too long and counter-productive,” Mr Zois said. “On top of that some players are also doing their own routines like boxing in the corner for 20 minutes to get their anxiety and nervous energy out.”

“Coaches need to restrict and focus their players’ warm-up so they can save all that energy for use on the field during competition.”

He said for athletes with no injuries the shorter warm-up would suffice, but for those with injuries extra stretching or exercises may be required.

The study ‘High-intensity warm-ups elicit superior performance to a current warm up routine’ was recently published in the Journal of Science and Sport Medicine.

Mr Zois received extensive media coverage on ABC Radio, SEN Radio and the Age for this research and an earlier study on static stretching warm ups being overused by athletes.

RESEARCH FUNDING ONLINE

The Office for Research is urging academic staff to join a new online database for research funding, now available at Victoria University.

Research Professional provides a comprehensive funding opportunities database, which researchers can search in all disciplines from a wide range of Australian and international sponsors.

All funding opportunities in the database are eligibility verified for Australian researchers. The database has a user-friendly interface and features powerful searching and customisation tools.

From any computer in the university network, search by visiting researchprofessional.com and choosing Campus Access. Use is free of charge through Victoria University’s subscription.

The site features a ‘help’ button in the top right hand corner with a ‘Quick Start Guide’ and video introduction.

Creating a personal account only takes one minute and allows you to use the database from any computer in any location, create customised funding alerts to your inbox, save searches and share information with colleagues.

To register simply click on ‘self-registration’ and complete the form.

Research Professional also runs beginners online training broadcasts, with the next on April 27.

For help using Research Professional contact David Garland on 9919 4955.

GAMERS DEPRESSED?

Excessive video gamers may have higher levels of anxiety and depression, according to preliminary research into video gaming researcher.

PhD student Daniel Loton is conducting a global study comparing academic results, relationships and physical and mental health in excessive gamers – who spent on average more than 33 hours a week playing video games – with more balanced players who devoted 21 hours to the pursuit.

Preliminary results show the excessive gamers reporting 15 per cent more stress and anxiety and 25 per cent more depression than balanced gamers.

“Both groups averaged levels of stress, anxiety and depression well above norms reported in past studies,” Mr Loton said. “But most alarming was that excessive gamers scored more than half the maximum measure for each and enough to determine clinical significance.”

He said excessive gamers also showed different coping styles compared to balanced gamers.

“Excessive gamers displayed higher avoidance coping and lower approach coping styles compared to balanced gamers,” he said. “This may be reflective of video games being used as a coping mechanism to relax and as a distraction from difficulties.”

He said while it appeared some problems were associated with excessive video game play, including lower mental health, the severity of these problems and whether they came before or after excessive play was yet to be determined.

Meanwhile excessive gaming did not appear to affect success or satisfaction at work or study. In fact, excessive players showed marginally higher success in their studies, failing fewer subjects and scoring higher grade averages than they had intended.

Mr Loton said more data was needed to definitively answer the question of how much video game play was too much and invited adult gamers to take part by visiting www.videogamesstudies.net

Participation involves completing online surveys monthly for a short period, and all participants who complete the study go into the draw to win $500 Australian dollars.

STUDENT RESEARCHERS GET RESULTS

Some of the brightest young students from the Faculty of Health, Engineering and Science have presented findings from their summer of research.

The 12 students spoke this month on topics ranging from sports nutrition to emergency department handovers and gestational diabetes.

Students were recommended for the three-month research scholarship by undergraduate course
coordinators on academic performance and interest in undertaking post-graduate studies.

They gave their faculty presentations and two-page project reports as the program’s final requirements.

Undergraduate science student Lucinda Monie said the experience had given her an insight into the world of research.

“It’s been great and much more in-depth than anything else I’ve done,” she said. “I would definitely consider more research work after this experience.”

Ms Monie’s research focused on a type of flower called the Red-spotted Lip Cymbidium found in a massive area stretching from the Himalayas and Bhutan to China and Vietnam.

“What appear to be two distinct orchids are lumped together as one species, so we used genetic markers to determine whether the two forms are one species or two,” she said. “From what we’ve got so far the two forms appear to be quite different from each other.”

Supervisors Professor Randall Robinson and Dr Patrick Guay praised Ms Monie’s first foray into research.

“She has been an excellent research student: methodical, detailed and patient, which are all excellent skills for a researcher,” Professor Robinson said. “You just show her once how to do something and that’s it. She has an almost photographic memory.”

FISH OIL GRANT WIN

School of Biomedical and Health Sciences researchers have landed an industrial research grant from Melbourne-based pharmaceutical and complementary medicine producers AZPA.

Dr Xiao Su, Associate Professor Michael Mathai and Dr Andrew McInch received the $81,607 AZPA grant for a project focusing on omega-3 polyunsaturated fatty acids and fish oil.

The team will also investigate the potential application of Raman Spectroscopy in fatty acid research.

This project extends the collaboration initiated with AZPA two years ago. The clinical trial with Slimaluma was conducted successfully in 2010 and the product has since become available on the market for appetite suppression and weight loss.

This project will further strengthen the connection of VU with the local community and industry.

CORPORATE GOVERNANCE STEADIES SHIP

The relatively recent introduction of corporate governance guidelines has helped Sri Lanka maintain stable economic growth, according to a Victoria University governance researcher.

Victoria Law School research officer Dr Kumi Heenetigala presented her insights on the importance of corporate governance at two recent seminars in Sri Lanka: one to the Certified Management Accountants and the other to Bank of Ceylon.

“I specifically underlined the importance of the board of directors in carrying out their oversight functions,” Dr Heenetigala said.

“Among the numerous corporate failures in Sri Lanka, Golden Key Credit Card company was the most recent when a large number of depositors lost their life savings. This was partly attributed to ineffective corporate governance structures” she said.

Dr Heenetigala said this included corruption, risk management failures and insufficient board oversight by senior management.

She said that these seminars gave them a complete understanding of what corporate governance was.

Sri Lanka’s economy was affected by 30 years of civil war and further worsened by the 2004 Tsunami.

She said institutions that had given more priority to corporate governance had weathered the financial turmoil much better than those which had not.