



Monday Monthly



Newspaper of the University of Cape Town

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Multi-million-rand partnership to grow African health innovation

HELEN SWINGLER

South African drug and vaccine researchers and health innovators are smiling. UCT and the South African Medical Research Council (MRC) recently announced a R370 million biotechnology partnership to develop new medicines, vaccines and other biotechnologies to combat HIV/AIDS, TB and malaria, Africa's big killers. The funding and support partners are the Bill and Melinda Gates Foundation and the Departments of Science and Technology (DST) and Health.

The announcement was made at the MRC's Tygerberg offices, and the development will provide a significant fillip to local health innovation and the bio-economy.

Two programmes

The partnership integrates existing role players – government, academia, industry – into a co-ordinated system, each with specific roles in drug and vaccine discovery.

It will support two distinct programmes, one involving UCT directly.

In the first programme, researchers from across South Africa will compete for funding from the MRC's Strategic Health Innovation Partnerships (SHIP) earmarked for AIDS and TB vaccine development. This initiative has received R125 million from the Bill and Melinda Gates Foundation, R130 million from the DST, and R60 million from the Department of Health.

The second programme is a partnership between the Bill and Melinda Gates Foundation, SHIP and UCT, through the Drug Discovery & Development Centre (H3-D), with its Director, Professor Kelly Chibale, as Principal Investigator and Project Director.

H3-D is Africa's first integrated modern drug discovery and development centre, the objective of which is to deliver drug candidates for clinical development. In addition to R50 million in funding from SHIP and the Technology Innovation Agency for this work, H3-D will receive R55 million over five years from the Bill and Melinda Gates Foundation.

H3-D has already delivered promising results in its short history. In 2012 H3-D and the Medicines for Malaria Venture discovered a novel chemical compound with the potential to impact both malaria control and eradication. The clinical candidate,



Picture by Michael Hammond

Integration and partnerships: Prof Kelly Chibale (right) addresses the press at the announcement of a R370 million partnership to develop new drugs and vaccines, a significant boost to the local health biotechnology sector. He is flanked by UCT Deputy Vice-Chancellor Prof Thandabantu Nhlapo.

MMV390048, will enter Phase 1 human clinical trials at Groote Schuur Hospital this year.

Capacity development

While life-saving drug, vaccine and technology discovery is at the heart of the news, the partnerships will fulfil a longer-term goal: to develop a critical mass of top-flight South African scientists in the field, able to compete at high international levels.

The partnership also harnesses skills and research networks in and outside South Africa and will be led by local

scientists, backed by the DST and the Department of Health.

Funding from government and the Bill and Melinda Gates Foundation has been the partnership's lifeblood. As the MRC noted, the South Africa medical research sector is "severely under-funded".

African science solutions

Speaking at the launch, Acting Vice-Chancellor Professor Thandabantu Nhlapo said the new partnerships reflected UCT's own vision of internationalisation through an

Afropolitan niche.

"We believe our partnering with the Bill and Melinda Gates Foundation, the MRC and government helps us develop Africa-generated solutions to African problems. At the southern tip of Africa, UCT could be the gateway to this, a link between the global North and South."

He said that UCT's Drug Discovery Centre (H3-D) showed that research not only created new knowledge but new jobs, career opportunities, and infrastructure – and reversed the brain drain.

He added: "It's exciting to come and work in Africa." ■



An African first: Assoc Prof David Taylor (left), founding director of the African Institute of Financial Markets and Risk Management, and Prof Don Ross, Dean of the Faculty of Commerce.

UCT launches Africa's first academic risk institute

Last month saw UCT launch the African Institute of Financial Markets and Risk Management (AIFMRM), the first of its kind on the continent. AIFMRM is an academic institute that conducts research and delivers education and training in financial markets and risk management.

"No similar academic institute, aimed at creating a steady and sustainable pipeline of African university graduates with sophisticated knowledge in banking, insurance, risk management and quantitative finance, exists on the continent," said Professor Don Ross, Dean of the Faculty of Commerce.

"In the 21st century, capacity for situation-specific innovation in financial markets and risk management will be among the core determinants of which emerging markets graduate to mature development, and which remain mired in middle-income traps.

"AIFMRM's establishment improves the prognosis in this area. We owe this new basis for optimism to the forward-looking and expansive vision of our sponsors from the sector who have risen to the development challenge we face," Ross added.

Founding director Associate Professor David Taylor said: "While our overall purpose is to increase the extent and depth of expertise and to address skills shortages, the institute is specifically focused on two key areas. One is transforming the profile of quantitative finance, risk management, insurance and banking professionals.

"The other is ensuring that the next generation of academics is in place to safeguard the continuity of graduates in these areas."

Founding sponsors of the institute are FirstRand Ltd, Barclays Africa Group, Liberty Holdings Ltd, and the Western Cape Government's Department of Economic Development & Tourism. ■

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NEWS IN PICTURES

1 Goodall delivers flagship lecture: Just two months shy of her 80th birthday, chimpanzee researcher and activist Dr Jane Goodall visited UCT in February to deliver the first Vice-Chancellor's Open Lecture of the year, this to a packed Baxter Theatre Centre. These lectures provide a vital interchange between the university and the community; opportunities to hear first-hand from renowned academics, researchers and innovators. Prior to this, Goodall addressed the Cape media on campus, providing insights into her extraordinary life, centred on her research among the chimps at Gombe Stream National Park in Tanzania. She now travels the globe, working some 300 days a year, to rally support and funding for her vision, a bigger plan to address human need and the ecosystem.

Picture by Michael Hammond

2 Derby delight: Liam Slatem, captain of the FNB UCT rugby team, lines up a box-kick under pressure against Maties on 10 February. It was an historic day for the Ikeys at the Danie Craven Stadium as they outclassed arch-rivals Maties 33-16 in the 2014 FNB Varsity Cup. Having last bested Maties in the inaugural tournament in 2008, UCT made their intentions known early on with a powerful scrum that had the hosts back-peddalling. Two tries from Ikey flanker Jason Klaasen and one each from Lihleli Xoli and Slatem did most of the damage, while flyhalf Dean Grant – a former Matie – kept the scoreboard ticking over with three conversions and two penalties. The win leaves UCT in fifth place going into round three. The Ikeys take on the Nelson Mandela Metropolitan University's Madibaz in Port Elizabeth on 24 February.

Picture supplied

3 Back to school: Freshers' parents listen intently to SCR president Nommangaliso Gondwe's address during the orientation programme for out-of-town parents and guardians. This year UCT hosted 3 200 parents, the largest number to date, at its two parent orientation sessions, which familiarise parents with the UCT environment, and help them understand some of the academic and social experiences their children may encounter at UCT. The group of out-of-towners was so large that they had to be accommodated in two venues, Jameson Hall and the Beattie lecture theatre. Vice-Chancellor Dr Max Price emphasised parents' special responsibility towards students and urged them to keep the lines of communication open: "...so that they can come to you when they are struggling and you can encourage them to seek help".

Picture by Michael Hammond

4 Runway to nowhere: This picture, from Albanian artist Adrián Paci's 2007 video *Centro di Permanenza Temporanea*, forms part of the *When Oceans Meet* exhibition at the Michaelis School of Fine Art, on view from 27 February to 5 April 2014. Translated the title means "centre for temporary permanence". It illustrates the reality and predicament of illegal Latino workers seemingly waiting to be deported at a Los Angeles airport. The two-part exhibition attempts to establish a wider dialogue around some of the issues that local communities in Cape Town face. This installation is loosely linked to Dr Siona O'Connell's exhibition, *Spring Queen – The staging of the glittering proletariat*, which highlighted the plight of Cape Town factory workers. *Centro* will be screened from March 27 to March 29.

Picture supplied

5 Fresh start to 2014: UCT's campuses have been crawling with fresh-faced first-years since 27 January, when the first Orientation programme for new students kicked off. The blue t-shirts pictured are worn by enthusiastic orientation leaders from the Faculty of Humanities, who welcomed the greenhorns with song and dance on the Jameson Plaza. The colourful gear reflects the excitement the orientation period brings, as students absorb an abundance of tips about how to negotiate a potentially challenging university career. From campus and library tours to curriculum advice and pep talks by Campus Security Services, the 4 735-strong class of 2014 was given a comprehensive introduction to life at UCT.

Picture by Raymond Botha

UCT helps SA take giant leap into the space age

A multi-million-rand agreement between the University of Cape Town Faculty of Engineering & the Built Environment and top European space technology company Airbus Defence and Space is set to propel SA into the high-tech world of international space technology.

Fifteen years ago, a young engineering student had a brainwave. Today his little idea has developed into a sophisticated software tool that has attracted the attention of the top technology companies around the world, resulting in a massive deal with Airbus.

"Many years ago I had a moment of insight and vision into the future. I realised this sort of technology would come into use. It was rudimentary back then; but I decided to pursue it, and it paid off massively," says Professor Arnaud Malan, Associate Professor in Mechanical Engineering in UCT's Faculty of Engineering & the Built Environment (EBE).

Professor Malan and two PhD students will now be working with Airbus Defence and Space, formerly known as Astrium, in a new R2.5 million research agreement set to put South Africa on the strategic international space technology map.

The agreement has profound implications for South Africa – in both the short and the long term – impacting on the economy, business and science; with Airbus investing in the development of a computational fluid dynamics (CFD) software tool called Elemental, for ground-breaking use in the modelling and design of space applications – such as rockets and satellites.

"This is a huge, strategic moment for South Africa," explains Professor Malan. "Space industry is the epitome of hi-tech." The software can be used to model, in 3D, all kinds of technological applications, for future space applications and commercial use. The software will be licensed and will generate significant income from

annual licensing fees, which is part of its economic benefit.

Professor Francis Petersen, Dean of EBE, says that this new strategic project between Airbus and the Department of Mechanical Engineering is a great honour for the university, and will strengthen its efforts in this area. "We are delighted that Airbus, Europe's number-one space technology company, has identified the Faculty of Engineering & the Built Environment as a strong research partner in their overall strategy," he says.

Professor Malan says Elemental is a giant leap for technology. It uses mathematical models and equations in the field of CFD – enabling scientists to study the dynamics of fluid flow through a computer model, offering accurate predictions and unprecedented insights. It is a sophisticated analysis technique offering multiple predictions. "It can answer 'what if' questions very quickly. You give it variables, it gives you outcomes."

The commercial CFD software market, currently generating over R5.6 billion annually worldwide, is one of the fastest-growing fields in engineering today. "Elemental is all South African," says Professor Malan proudly. It is different from similar CFD code, as it was designed from the outset to allow for rapid development of the complex multi-physics devices that today pose lucrative opportunities for industry. "The best commercial software in the world has been found to be limited. That is why they're looking to us," explains Professor Malan regarding the Airbus-UCT initiative.

The technology has already resulted in two UCT spin-out companies – Numerus Technologies (Pty) Ltd and Elemental IP Holdings (Pty) Ltd – aiming to allow South Africa to enter into lucrative and modern technological markets, ranging from software licensing and the development of internationally competitive products and devices, to the cost-effective provision of electricity. ■



Space race: (seated) Guido Schwartz, Head of New Business, Airbus, with EBE Dean Professor Francis Petersen and (standing) Warda Sablay, Innovation Office contracts officer, and Assoc Prof Arnaud Malan.

BRIEFS

» Student wins landscape architecture award

An award-winning project by UCT landscape architecture student Tara McCaughey illustrates that the Cape Town suburb of Woodstock remains a beacon of hope in a country where inner-city degeneration has taken a heavy toll.

McCaughey collected the prestigious Corobrik award for the Most Innovative Final-Year Landscape Architecture Project at UCT, together with a R7 000 prize, for proposing a living system that not only celebrates everyday activities through the creation of a network of public squares and streetscapes, but also provides an opportunity for nature's processes to occur.

Corobrik's manager for the Western Cape, Christie van Niekerk, said the award shows how South Africa's future landscape architects are rising to meet increasingly complex challenges.

» GSB professor appointed to Council of Statistics South Africa

In a role that will help shape policy-making in South Africa, University of Cape Town Graduate School of Business professor and emerging-market economics expert John Luiz has been named a national member of the Council of Statistics South Africa at a recent cabinet meeting.

Responsible for all social and economic statistics in the country – ranging from censuses, to monthly and quarterly reports on the Consumer Price Index, to official unemployment rates – Statistics South Africa plays a key role in ensuring that decision- and policy-making in the country is informed by accurate statistics.

» Noakes sheds light on carbohydrate resistance

Carbohydrate intolerance is the root cause of many modern human ailments, and much heartache could potentially be avoided by testing individuals' tolerance of what has become a ubiquitous source of energy, argues Professor Tim Noakes.

Speaking last month at an open lecture hosted by the UCT Heritage Society in partnership with the UCT Summer School, Noakes, who holds the Discovery Health Chair of Exercise and Sports Science, expanded on his thesis – "and this is not one that is widely taught, or believed" – that chronic diseases are largely based on insulin resistance.

"We are either profoundly carbohydrate-tolerant, or we're normal, or we're carbohydrate-intolerant. It's different for each and every one of us," he said.

Copies of *The Real Meal Revolution* – the bestseller co-written by Noakes and three others – have sold out in all major cities around the world.

» Donor becomes part of Chancellor's Circle

Author and physician Dr T Lee Baumann recently received a gold pin from UCT Vice-Chancellor Dr Max Price, marking his entry into the Chancellor's Circle.

The Chancellor's Circle pin was in acknowledgement of Baumann's donation of R800 000 for the establishment of the God at the Speed of Light scholarship for African students studying at UCT.

Baumann is the author of *God at the Speed of Light* and many other books on spirituality and quantum physics. He has established 32 God at the Speed of Light scholarships at various institutions in America, and now in South Africa.



Deputy Vice-Chancellor

University of Cape Town

The University of Cape Town is one of the world's leading research-led universities and aims to produce graduates whose qualifications are internationally recognised, locally applicable and underpinned by values of engaged citizenship and social justice.

The academic leadership of UCT is headed by an executive team comprising the Vice-Chancellor and four Deputy Vice-Chancellors (DVC's), one of whom will shortly retire. We seek to appoint an accomplished academic with a record of vision and leadership to the position of DVC. While all DVC's must fulfil a wide range of roles, and portfolios may change over time, the newly appointed person will specifically be responsible for internationalisation.

Please access the full advertisement and application requirements, including the job description at: www.uct.ac.za and click on "Vacancies".

www.uct.ac.za



UCT is committed to the pursuit of excellence, diversity and redress. For this post we seek particularly to attract Black African South Africans. Our Employment Equity Policy is available at <http://www.uct.ac.za/downloads/uct.ac.za/about/policies/eepolicy.pdf>

Full circle for new humanities dean

HELEN SWINGLER

In Professor Sakhela Buhlungu's office suite in the Beattie Building you can hear sounds reminiscent of warriors. They're chanting: "a 'U', a 'U', a 'UCT!'."

Humanities freshers.

It's O-Week and the otherwise quiet locale – in January the academic staff are only beginning to trickle back – is beginning to buzz.

It's a good time for a new dean to be starting. Although Buhlungu arrived at UCT in November last year, it was to work an overlap period with former Dean of Humanities, Professor Paula Ensor.

He looks fresh, alert, keen. Ten years ago the new captain of UCT's largest faculty wouldn't have imagined himself here. The industrial sociologist, steeped in the study of the history, contributions, and future of South Africa's trade union movements, simply wanted to teach and write.

But the transition from academic to manager is important at this time in his career. He'd had some tough encounters with "terrible HoDs" in his time. Some years ago an opportunity came up to fill in as an acting head of department at the University of Pretoria, where he worked.

The experience made him think more carefully about the value of savvy academic leadership in higher education.

"You can't simply leave the running to others. You have to step up and do something – for yourself and for other people."

Later he adds: "I'm not one to live in a comfort zone."

With a broad vision to position the humanities faculty as the best on the continent, his first task is to familiarise himself with the nooks and crannies of the faculty – its diverse offerings and scholarly wealth.

He's aware that it's an important time for humanities. There's been plenty of talk about the diminishing

value of humanities degrees – and even more talk of the urgent need to teach critical and imaginative thinking and communication skills.

Minister of Higher Education and Training Blade Nzimande has promised a new era having accepted the charter for humanities and the social sciences – following the work of the task team he appointed in 2010 and headed by UCT's Professor Ari Sitas. One of the proposals is a National Institute for the Humanities and the Social Sciences, to revitalise these areas.

Buhlungu's own sense for the faculty seems to mirror this. He wants to champion the faculty's flagship schools, institutes and centres – areas of rich scholarship; from gender and African studies, social development, anthropology, linguistics, and culture – and bring them to the public arena.

"The Michaelis School of Fine Art is doing some wonderful things; the South African College of Music is sending opera stars out into the world. We have amazing staff, and we're producing great work and scholarship."

There is some consolidation and realignment planned, and some work to be done regarding staffing in the faculty – particularly in the light of the large number of senior academics due to retire. Succession planning is vital.

"It's time for a regeneration of the academic labour force," he says. "It's a serious thing, and we can't afford to ad hoc the process."

Black women are particularly scarce in the faculty, and there are too few in senior positions.

And he's puzzled. Diversification is crucial to harnessing different worldviews and knowledge. But where are all the coloured students?

"It's one sector that's getting left behind, and no-one is noticing it."

The UCT campus is still a familiar place; Buhlungu did his BA honours in African Studies here from 1985 to 1986. But he doesn't have fond memories of Cape Town and didn't much like the city then ("It could brush up its image a bit").

He grew up in the Eastern Cape,

and he describes a child frightened of the violent thunderstorms – part of a large family, the children three years apart, the regular intervals marking his father's visits. He was a migrant worker on the mines near Brakpan.

The young Sakhela attended Jongilizwe College in Tsolo in the Eastern Cape, meant for the sons of chiefs and headmen, and intended to perpetuate the homeland system.

It was a defining experience ("Every child needs a stint in boarding school"). It was there he met Bantu Holomisa, and Dumisa Ntsebeza. The political activist and advocate was one of his favourite teachers.

After initially studying at the University of Transkei, he had another defining experience while immersed in the trade unions and labour organisations in the early 1980s and 1990s.

His later scholarly work reflected the changing nature of trade unionism in South Africa and Africa, union movements' political engagement, industrial relations, political activism, and the 'new' social movements.

Asked to describe himself, Buhlungu chooses the words carefully: curious, adventurous, thinker, determined, quiet.

"I'm in a process of self-discovery. I like to surprise myself."

Beyond the faculty meeting and travels to meet alumni around the country, Buhlungu is gradually reconnecting with Cape Town. His family is still in Pretoria until their family home has been sold and he is still supervising students at the University of Pretoria.

Together with Andries Bezuidenhout, he's also working on a book on mining and how it has shaped the lives of South Africans. The book, *Enclave South Africa: Mining and the post-apartheid social order*, shows how old forms of social control have given way to new ones, and how divisions of race and class have continued into the present.

"But one thing has remained throughout – life for most miners remains unpleasant and violent," he adds. ■



Picture by Michael Hammond

"I'm not one to live in a comfort zone" – Prof Sakhela Buhlungu, new Dean of Humanities.

Milestones

- With a PhD in sociology from Wits (2001), Buhlungu was Professor of Sociology and deputy dean of postgraduate studies and ethics at the University of Pretoria.
- From 2011 to 2012 he was Ela Bhatt Visiting Professor in the International Centre for Development and Decent Work at the University of Kassel, Germany.
- Buhlungu also taught Sociology at the Universities of Johannesburg and the Witwatersrand, where he was co-director of the Sociology of Work Unit (SWOP), a research centre focusing on work and labour issues.
- From 2006 to 2007 he was head of the Department of Sociology at Wits.
- He has published extensively on these and other topics. Recent publications include *COSATU'S Contested Legacy: South African Trade Unions in the Second Decade of Democracy* (edited with Malehoko Tshoedi, HSRC Press 2012, Brill 2013).

How can we make our cities healthier for our children?



City living: The urban environment, at neighbourhood or community scale, has been recognised by international research to shape illness, health and well-being. The Healthy Cities for Children project of the Children's Institute involves a multi-disciplinary research team which focuses on the well-being of children in diverse urban settings in South Africa.

Beyond the reaches of Cape Town's green-lung suburbia, the roads are flanked by an uneven collection of government housing projects and informal settlements. And each season brings with it a host of problems: flooding in winter, explosive heat in summer.

And now, a UCT researcher has also brought to light the specific household living conditions in these areas, which determine where a child will land on the scale of nutritional inequality.

Living in a rural area is also an important determinant when it comes to things like stunting and being underweight.

Winnie Chepeng'etich Sambu, from the Children's Institute at UCT, says that stunting among children is at 14% in urban areas, and 20% in rural

areas. Interestingly, stunting in urban areas is highest amongst the so-called coloured communities, and overall, males suffer more from malnutrition than do females. A staggering 43% of children in informal settlements do not have access to adequate sanitation whereas in urban areas it is at 6%.

Almost a third of children in informal urban areas live in overcrowded spaces, and overcrowding has a direct link with malnutrition, she explains.

Sambu was one of several researchers presenting their work at the colloquium on Healthy Cities for Children, presented by the Children's Institute and the African Centre for Cities in Cape Town on 20 and 21 January.

The importance of looking at children's rights as a cross-cutting issue is highlighted by some of Sambu's eye-opening statistics: Globally, there

are over 1 billion children living in an urban setting. Every year the world's urban population increases by 60 million, and authorities are increasingly unable to provide for basic infrastructure and services.

As a result, she says, things like "poor housing and sanitation, inadequate access to water, and overcrowding" play a significant role in increasing the number of children with poor growth.

Poor growth, in turn, leads to an increase in child morbidity and mortality. Other research presented at the colloquium included, among others, a focus on child neglect in the context of poverty and substance abuse in a new urban settlement; the impact of flooding of informal settlements on child health; and "Open Streets" and the role of children in South African street design and use. ■

Baker's asthma no cakewalk

HELEN SWINGLER

Lids for industrial dough mixers, dust masks for bakers, and vacuum cleaners to suck up flour residue on work surfaces. These were just some of the improvements introduced in a national supermarket chain's bakeries thanks to Dr Roslynn Baatjies' intervention study on baker's asthma, a serious manifestation of occupational allergy among bakery workers.

Baatjies' study was the first of its kind in South Africa and the backbone of her PhD, arising from an interest in environmental health (she has a Master's in Environmental Health from the Cape Peninsula University of Technology, and a master's in Public Health from Wits).

Not long ago her PhD supervisor, Professor Mohamed Jeebhay (School of Public Health and Family Medicine), conducted a study in the fish-processing factories along the West Coast, where workers and fish processors developed allergic reactions after being sensitised by continuous exposure to fish products.

Similar symptoms, caused by cereal flour allergens, were seen among bakery workers. But the problem was largely undetected, and poorly managed as a result.

Bakers produce antibodies as a result of inhaling flour dust allergens. The first signs of allergy are sneezing and rhinitis, associated with exposure to the flour dust, followed by full-scale allergic asthma. Many bakers were taking time off to visit clinics and doctors for medical relief.

This trend was initially reported by Professor Rodney Ehrlich at Groote Schuur's Occupational Medicine Clinic, who recommended a detailed investigation of the problem. Taking up the challenge, Baatjies

determined to find out the extent of the disease burden; the level of dust exposure; and importantly, what could be done to safeguard the health of bakers who produce much of the country's specialty breads, rolls, cakes and other baked goods.

"Bakers are highly skilled specialists," Baatjies said. "This supermarket chain needed to address this problem or lose their bakers to allergic illness."

With aid from the company, who were keen to support and fund the research, Baatjies conducted a cross-sectional study of over 500 bakery workers in 31 supermarkets in the Western Cape Metropole and surrounding area.

She measured the flour dust levels of all the main jobs including those of bakers, confectioners, counter hands, supervisors, and managers. This proved to be quite taxing work, among the mixing bowls and ovens, often starting in the early hours with the 02h00 shift.

Baatjies also learnt "a lo-o-o-t" about baking (plenty of butter goes onto the shaggy dough that emerges from the oven as a golden, flaky croissant).

The results of her survey demonstrated that bread bakers had the highest dust and allergen exposures, and had the highest risk of developing allergy and asthma from inhaling the flour dust.

To counter this, Baatjies introduced lids on mixer tubs, dust masks for 'dusty' tasks, and better housekeeping routines to minimise flour dust.

Her messages were simple: don't throw flour around like a celebrity chef, use a sieve instead; use oil instead of flour to prevent dough sticking to the kneading board during bread baking (unless it's ciabatta, sourdough bread or Portuguese rolls); and use a vacuum cleaner or sprinkle water on the floor when sweeping, to prevent the flour dust becoming airborne.

Working with the company, Baatjies also developed a dust control manual and a training



Picture by Michael Hammond

Bread winner: UCT's Dr Roslynn Baatjies of the Centre for Occupational and Environmental Health Research (School of Public Health and Family Medicine) conducted the country's first study of occupational allergy and asthma among commercial bakery workers.

DVD to educate bakers on how to reduce the dust levels in their work.

But her greatest challenge was to evaluate the effectiveness of the controls introduced. A year later Baatjies reassessed, to see if the interventions had delivered.

It was good news: there was a 50% reduction in average flour dust, wheat and rye allergens in the bakeries. And in bakeries where the lids had been used on the giant mixer tubs, the reduction was even more remarkable – up to 80%.

The supermarket chain will now make mixer tub lids a standard feature in all bakeries, and use the DVD to train all new bakers as part of their induction programme.

Baatjies' study has also provided further insights into the adequacy of airborne flour

dust exposure standards to protect worker's health – South Africa has a grain dust standard level 10 times higher than international norms for flour dust.

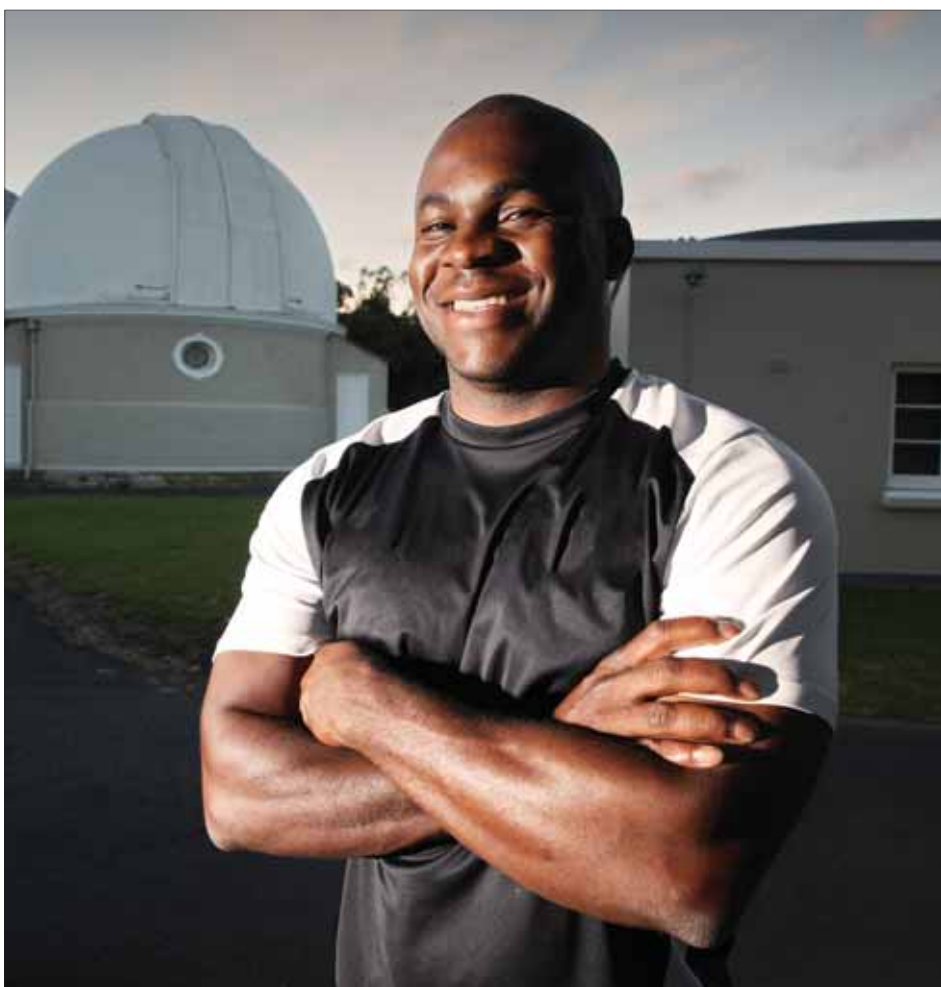
Baatjies plans to make recommendations to the Department of Labour to revise the current "grossly inadequate" flour dust exposure standard, bringing it in line with international best practice.

On the back of this work is a new, allied project: an investigation into rye flour.

"The bakers complained more about rye flour, which has similar allergens to wheat. We need to investigate to see if there is a difference in effects."

Baatjies hopes to study the long-term impact of how these interventions reduce the asthma disease burden. ■

Namibian astronomer reaches for exploding stars



Picture by Michael Hammond

Star-gazer: Eli Kasai hopes to determine the nature of dark energy by measuring the distances between supernovae (exploding stars) and Earth.

ABIGAIL CALATA

His enthusiasm for astronomy is unmistakable as he speaks on a matter that leaves most of us quite literally in the dark.

UCT doctoral student Eli Kasai's interest is in dark energy – a force in the universe that we cannot detect, but the effects of which we can observe. Dark energy appears to act against the force of gravity, and is thought to be the reason why the expansion of the Universe is accelerating and not slowing down.

Kasai is one of only two Namibians studying astronomy, despite the country's growing popularity among the astronomical fraternity as a host for increasingly powerful telescopes. Isak Davids – his brother in arms, so to speak – is a doctoral student at the University of the North West, and his area of interest is high-energy astrophysics.

Namibia hosts the world's largest gamma-ray telescope. It's also the frontrunner in the race to host the Cherenkov Telescope Array – the Square Kilometre Array's (SKA) rival in the gamma-ray or high-energy regime. Kasai's home country is set to host four stations of the SKA.

However, interest in the subject is low among his countrymen, and therefore Kasai, who has sufficient background knowledge in five areas of astronomy, is planning to join an astronomy outreach programme in Namibia later in this year.

"We received funding from the International Astronomical Union. We want to expose students to the field of astronomy, in the hopes of piquing their interest."

Kasai is from the northeastern town of Rundu – about 700km from Windhoek, the capital.

"Until Grade 11 I wanted to be a medical doctor. Then one day during study time I found myself staring at the globe, thinking of the effect of day and night and the speed at which the earth travels on its own axis, and the fact that it revolves around the sun."

From then on his focus shifted from medicine to astronomy.

"I majored in physics and mathematics at the University of Namibia, because that's what my high-school career book indicated I had to study to become an astronomer."

He worked for five years at NamPower, the electricity supply company that funded his tertiary education. In 2010 he came to UCT for the National Astrophysics and Space Science Programme, and graduated last year with a master's in astrophysics.

For his doctoral thesis he is studying exploding stars – supernovae.

"With the help of SALT (the Southern African Large Telescope) we are able to measure the exact distance from Earth of an exploding star. From many of these distance measurements done for many supernovae, we can infer the nature of dark energy."

His dream is to contribute to efforts to establish an astronomy research team at the University of Namibia, but for now he is focused on completing his PhD at UCT, the institution with – in his opinion – the most advanced astronomy training programme in the country. ■

Psychosocial support crucial for caregivers in AIDS-ravaged communities

ABIGAIL CALATA

Psychosocial support should be a key element of mental health interventions for caregivers of children in HIV-endemic communities.

This recommendation by Dr Marisa Casale follows her doctoral study into the protective role of social support for caregiver's mental health. Casale, who has been a researcher at UKZN's health economics and HIV and AIDS research division (HEARD) for the last nine years, found that caregivers who receive more emotional and tangible support from their friends, family members and communities are less likely to experience anxiety and depression.

To establish the relationship between social support and caregiver health, Casale surveyed 2 477 adult caregivers of children aged 10 to 17 years in a rural and urban site in KwaZulu-Natal. She also interviewed 24 male and female caregivers – half of whom were HIV-positive – who had participated in the survey, to investigate how they perceived social support to be influencing their mental health.

Survey results show that caregivers living with HIV were about four times more likely to experience mental health problems than healthy caregivers, while others in the group with chronic illnesses, such as diabetes and hypertension, were twice as likely to experience anxiety and depression when compared to their healthier counterparts.

Casale believes that social support can protect caregivers from mental health problems in several ways: by “providing an opportunity to communicate problems and receive advice, boosting self-esteem, confidence and hope, and encouraging caregivers to tackle problems more directly”.

“It prevents rumination, in other words the repetitive and negative thoughts about the causes of their illness and their imminent death, which



has been shown to lead to worse depression,” she explains.

Before her doctoral studies at UCT, Casale obtained a degree in economics and banking science from the University of Siena in Italy. Her master's is in rural development studies from the University of Padua, Italy. She was a visiting scholar at the University of Natal (1998) and at Cambridge University (1999). Her previous professional experience includes working as a credit analyst for an Italian development bank, as well as lecturing and working in micro-finance.

Explaining her move from finance to psychology via development studies, Casale spoke about her abiding interest in human development and development-related issues in southern Africa.

“My move was motivated by an increasing realisation of the importance of – and my growing interest in – what motivates and explains people's behaviour and decision-making. I believe that being



Picture by Andrew Naysmith

Care for the carers: A participant (right) in a study into the effect of social support on caregivers in HIV-endemic communities conducted by Dr Marisa Casale (insert) and a family member she cares for, outside their home in the greater Manguzi area in the Umhlabuyalingana municipality in KwaZulu-Natal.

able to link the economics and systems questions with the social science behavioural questions is particularly important in the current southern African context, where health service uptake and health equity remain key challenges.”

Casale is currently a project manager and co-investigator at the Young Carers KwaZulu-Natal project, which identifies the needs of AIDS-affected families. The Young Carers project interviewed 6 000 children and 2 500 adult carers across six urban and rural sites. Casale's doctoral study was part of this larger project.

Her involvement with Young Carers presented her with an opportunity to co-produce a

documentary film that – with the help of various multimedia platforms – highlighted lived experiences of caregiving and illness in rural KwaZulu-Natal.

Titled *Raising Children in Rural South Africa*, the film illustrates a unique collaboration between the caregivers, film-makers, a community-based NGO, and researchers like Casale. It is available on YouTube (<http://www.youtube.com/watch?v=KnOAVf9iAY4>).

“Since the documentary has been uploaded, it has recorded over 6 500 hits, highlighting the effectiveness of film and multimedia products to disseminate information, research findings and important social messages,” adds Casale. ■

HELEN SWINGLER

A unique gene thought to have originated among the San people has been linked to salt-sensitive hypertension in black and coloured South Africans, making them highly susceptible to strokes and heart disease.

The kidney is an engineering marvel, retaining careful balances of salt and water, and is described as the ‘Swiss watch among organs’.

But a genetic abnormality in these groups (and more prominent in black South Africans) means they don't excrete salt as effectively, says specialist nephrologist Professor Brian Rayner, who heads the Division of Nephrology/Hypertension in the Department of Medicine at Groote Schuur Hospital.

“Hypertension in Africa has a different pathophysiology, and the genetics may have to do with Africa's salt-depleted environment,” notes Rayner, whose research into the genetics of salt-sensitive hypertension underpinned his recent PhD research.

As a clinician scientist, Rayner has been investigating the causes of severe

Salt in the wound

South African blacks, coloureds genetically wired for salt hypertension

hypertension for the past 15 years.

South Africa has one of the highest rates of hypertension worldwide; 70% of men and 65% of women, according to the Medical Research Council.

“Hypertension is a huge load on hospitals and on the state,” says Rayner from his office at GSH.

It's no longer a disease linked to age, weight, or a sedentary lifestyle. Fifty percent of hypertension is based on genetics; therefore, only half on environmental factors.

But the underlying genetics of salt-sensitive hypertension are poorly understood.

Working with a computational bioinformatics team and under the supervision of his colleague Professor Raj Ramesar (Division of Human Genetics), Rayner's task was to search for candidate genes that could be responsible for the variation: those genes with significant variability between the populations.

A novel search engine was developed, and predicted two top



Picture by Michael Hammond

“Hypertension in Africa has a different pathophysiology, and the genetics may have to do with Africa's salt-depleted environment.” – UCT nephrologist Prof Brian Rayner, whose PhD examined genes that predispose black and coloured South Africans to salt-sensitive hypertension.

candidates: parathyroid hormone precursor (PTH), and AGTR1, a type-1 angiotensin II receptor.

The full sequence analysis of the

genes revealed several unique variants not previously described. These will be studied further.

Rayner had also worked with Ramesar on another gene candidate, GRK4, an enzyme involved in salt excretion from the kidneys.

“It will be difficult to translate the latest findings into a therapeutic intervention until the underlying genotype is better understood. However, we do know that this gene is linked to response – or lack of response – to certain blood-pressure medication, and it may become a novel site for the development of new antihypertensive drugs.”

The rise in hypertension over the past 10 years has also changed referral patterns at the hospital's renal clinic.

“Now we're seeing many people under the age of 30 with hypertension,” notes Rayner.

They're also seeing many patients with uncontrolled blood pressure as a result of hypertension, despite medication. And salt itself works to

counteract the effects of hypertension medication.

Diet is a major concern.

“Up to 70% of our salt intake is through food,” notes Rayner. “A reduction of only 10% in the average South African will have an impact on hypertension.”

He is fully behind the Department of Health's proposed legislation to lower the salt content in foods (bread is a leading culprit, followed by margarine, butter and cereals). But this should be coupled to public education about the dangers of salt-laden processed and fast foods, and the use of discretionary salt (the salt you sprinkle on your breakfast eggs).

In the background is another threat: HIV and hypertension. While people on ARVs are living longer, the two epidemics are on a collision course.

“There is great concern that HIV and hypertension will interact to increase the risk of complications,” adds Rayner.

“Our initial research shows that subjects with HIV infection have lost their circadian rhythm in relation to BP, and this is not restored by treatment with ARVs. This suggests that people living with HIV are at increased risk of cardio-vascular disease.” ■



Picture by Raymond Boiha

Renosterveld champion: Dr Odette Curtis has dedicated her life to preserving one of the most diverse and threatened ecosystems in the world.

Saving the Renosterveld, one hectare at a time

YUSUF OMAR

The deep tan tells the story. For Dr Odette Curtis, working ‘in the field’ means just that – actually applying sunblock and toiling in the sun.

The conservationist and botanist, who graduated with a doctorate from UCT in 2013, has made her home in Napier in the Overberg, about two hours outside Cape Town, where she puts in the hard yards to preserve the delicate Renosterveld ecosystem.

Renosterveld – literally translated from Afrikaans as ‘rhinoceros field’ – is a term used to describe one of the major and most diverse plant communities and vegetation types of the Cape Floral Kingdom. Human activities such as farming have decimated these fertile fynbos havens, and Curtis is hard at work trying to preserve the critically endangered survivors.

“It’s estimated that there’s less than between four and six percent of the Renosterveld left,” says Curtis. Even this is an optimistic estimate; the true figure could be significantly lower, she says.

Such is the diversity of the Renosterveld that Curtis discovered six new species of plants in 2012, and two were named after her.

Not a bad compromise for someone who wanted to be a game ranger while growing up.

Instead of the game ranger route, Curtis pursued a BTech in Nature Conservation (UCT didn’t offer the specialised programme she sought at undergraduate level) and an MSc in Zoology from UCT. Her master’s research focused on how two raptors – the black harrier and black sparrow hawk – responded to the fragmentation of their habitats, both individually and as a population.

When an opportunity arose to do a PhD in the United States on birds of prey, Curtis decided against it, being reluctant to be limited to specialised raptor research.

“I was more interested in general ecology than just focusing on one

or two bird species,” she says. “My research into black harriers had taken me into the Overberg, where I spent a lot of time looking for black harriers in the Renosterveld.

“Being out in the veld, being out in the Renosterveld and seeing how many farmers were not correctly managing [the environment] from a grazing and fire perspective, I got back to what I was really interested in: veld management. That got me into the plants and away from the birds, and to thinking more about saving their habitats.

“So [I got into] saving the habitats of lots of things, not just plants or one or two birds.”

Curtis’ CV is enviable. In addition to her degrees, she has co-authored eight scientific papers; managed UCT’s Black Harrier and Black Sparrowhawk Projects from 2000 through to 2006; was invited as a Leadership Intern to Hawks Mountain Sanctuary, Pennsylvania, USA, for two months in 2005; and was contracted by CapeNature’s Stewardship Programme from 2007 to 2011.

She has also been a board member of the Fynbos Forum since 2009 and served as a committee member of the Botanical Society, southern Overberg branch, from 2009 to 2011.

Curtis now directs the Overberg Lowlands Conservation Trust, whose vision is to work with local farmers to secure the long-term conservation and management of the remaining fragments of threatened natural vegetation in the lowlands of the Overberg.

It’s a tough ask getting farmers to change decades-old habits, but Curtis’s eyes light up when she speaks about their successes. Little by little, farmer by farmer, she and her colleagues are changing mindsets and ensuring the survival of the region’s fynbos.

Much of the farmers’ thinking revolved around the frequency that the veld needed to be burned. Curtis’s doctoral research explored how often the veld needed to burn, whether it needed to burn at all, and how best to manage grazing in the region.

The results were surprising.

“We found that Renosterveld does respond favourably to fire; which is known, but not really written up properly,” she says. “What was concluded was that Renosterveld shouldn’t burn as frequently as was believed. Previously, ecologists have advised burning it every three years. I concluded differently – it should be more like fynbos-burning, which is between eight and 15 years.

“So, 10 would be the average. The reason for that is just to use a precautionary approach, and because there are also some slower-maturing plants that probably need time to develop properly. If you burn it a lot, you’ll turn it into grassland.”

Which leads to “probably the biggest chapter” of Curtis’s thesis: debating whether the Renosterveld was a grassy shrub land or shrubby grassland.

“It probably sounds very arbitrary, but it affects how you manage it. If you’re managing it as grassland, you’re burning every two or three years. If you’re managing it like shrub land, you’re treating it like fynbos.”

While some of the farmers have come on board with her recommendations – in fact, the chairperson of the Overberg Lowlands Conservation Trust is a farmer – Curtis is prepared for more hard slog.

“It’s a long road that we have to travel to change mindsets on a scale that means we can actually change things. There are not enough people alerting farmers to the beauty on their lands, and these are the same farmers who will pay thousands of rands to sit in a game reserve.”

Her passion for her cause is easy to see, and she admits that her work comes at a price.

“It’s emotionally draining. It’s exhausting. It’s too close to my heart. I can’t separate my work from my feelings. When I see something go wrong, when I see a piece of land being ploughed or something terrible happening, I can’t deal with it.”

Don’t expect Curtis to be discouraged, though. ■

Lifeline for non-English-speaking web users

YUSUF OMAR

Although increasing numbers of people are taking their multilingual practices into their online communication, search engine technology had not kept pace with this trend – until UCT-trained computer scientist Dr Mohammed Mustafa Ali came up with a solution.

Ali, who hails from the Sudan and whose mother-tongue is Arabic, became acutely aware that technology driving internet search engines had not kept up with the online practice of continually switching between two languages – a habit that is particularly prevalent in the non-English-speaking world.

So during his doctoral studies he put his computer science skills to work and devised algorithms that, he argues, can create “language-aware” search engines, able to recognise searches made in multiple languages. These algorithms could also potentially empower search engines to throw up mixed-language results, opening up new worlds of information to non-native English-speakers.

“The algorithms proposed in this thesis address the Web searching needs of such non-English speakers, who often need the most relevant information rather than just retrieving documents containing exactly their query terms,” says Ali. “The proposed algorithms could empower and present a direction for future search engines, which should allow multilingual users (and their multilingual queries) to retrieve relevant information created by other multilingual users.

“Thus, it could have significant outcomes for languages with limited modern vocabulary, mostly those non-English ones, in developing countries.”

Language-mixing, or code-switching, as it is known, is common in multilingual communities in which the barrier between cultures is porous, with people using more than one language in their everyday interactions.

“In such communities, natives are able to express some keywords in languages other than their native tongue or vice versa,” Ali says. “From personal experience, the typical Arabic speaker speaks a mixture of tightly-integrated words in both English and Arabic, and in various slang variants.

“Hong Kong speakers typically speak Cantonese with many English words. Capetonians speak English with many scattered Afrikaans words, and/or local slang.”

Current search engines and traditional Information Retrieval (IR) systems perform poorly when handling multilingual querying, because in most cases they fail to provide the most relevant documents, explains Ali. This, he says, is due to two reasons.

“First, the underlying assumption in IR is that users post queries in their native tongues. Second, most traditional IR systems depend primarily on similarity ranking methods that are based solely on monolingual computations and statistics, without taking into account the multilingual text in multilingual queries.

“Ignorance of this feature causes the most dominant documents on the ranked retrieval list to be those documents that contain exactly the same terms as in the multilingual query, regardless of its languages.”

Ali maintains that his algorithms will enable non-native English speakers to access large swathes of online knowledge previously difficult to find.

“With information globalisation and moving towards an international community, it becomes essential not to constrain non-English-speakers, such as Arabic users, to single languages,” he says. “There are many problems introduced by the explicit handling of multiple languages, but the algorithms and experiments conducted demonstrate that these problems can be adequately resolved in an IR system.

“The evidence suggests that language-awareness and mixed-language solutions are feasible for IR systems, without diminishing the quality of results.” ■



Opening access: Dr Mohammed Mustafa Ali has developed a way to create ‘language-aware’ internet search engines that can process queries in multiple languages, and even throw up mixed-language results.

San communities will care for returned land, says PhD graduate

YUSUF OMAR

In the emotive and fractious battlefield that characterises land restitution in post-colonial and post-apartheid South Africa, the notion that restoring land to its historically rightful owners could damage the environment is often cited by those reluctant for the process to go forward.

Now, new research has shown that – at least in the case of the land claim by the Khomani San and Mier communities in the Kgalagadi Transfrontier Park – fears that these communities would be unable to maintain the health of the environment have proved baseless.

Johane Dikgang, who graduated with a PhD from UCT at the end of 2013, explored the delicate balancing act that characterises the Kgalagadi claim: “How to balance conservation and beneficiaries’ rights to land and natural resources,” he said. As last year marked the centenary of the Natives’ Land Act of 1913, which formalised the dispossession of black South Africans’ land at the hands of colonial rulers, Dikgang’s thesis is particularly relevant.

Dikgang says that the Kgalagadi land claim, unlike some others, was not characterised by a tussle over competing commercial interests. His research explored three core issues: first, whether land restitution helps reduce poverty; second, the value that the Khomani San assign to modern conservation under various land tenure



Eco-warriors: from left, Dr Johane Dikgang, Jacobus van Wyk (a Khomani San resident of the Kgalagadi popularly known as ‘Patat’), Dr Gladman Thondhlana (a research collaborator from Rhodes University), and Lelani Mannetti (a research collaborator from the University of Stellenbosch).

arrangements; and finally, whether there was scope to generate additional revenue through conservation efforts, which could then be shared between the Khomani San and the national parks.

“We conducted face-to-face surveys in the Kgalagadi area, comparing 100 Khomani San households who used restituted land with another 100 households who did not. These 200 households were drawn from the 320 registered beneficiaries of the Khomani San land claim. Thus, the research restricted the sample to the Khomani San who could plausibly

have taken up the offer to use the restituted land.”

The data collected included detailed information on household income, consumption expenditure, access to nature, housing services, farming activities, and land use and migration patterns.

The results indicated that land restitution does not necessarily have any impact on poverty reduction. However, the Khomani San can be trusted to be good environmental stewards, and there is indeed scope to generate revenue for sharing between them and the national

parks. Dikgang’s thesis concluded that the Khomani San must be involved if conservation schemes in the Kgalagadi area are to be successful.

“Given that the project involved a land claim inside a national park, we collaborated with South African National Parks,” says Dikgang. “The research project’s findings are important because they may provide useful, policy-relevant information that will help well-informed decision-making with regard to sustainable resource use, equity, and poverty alleviation.”

“The primary objective here

was to investigate the value that the Khomani San assign to modern conservation under various land tenure arrangements, and to assess whether they may generally be expected to be good environmental stewards,” explained Dikgang. “To assess their attitudes towards biodiversity conservation, our study used the contingent valuation study of a plant conservation programme in the Kgalagadi to investigate the values assigned by the Khomani San and Mier communities to biodiversity conservation under three land tenure arrangements: communal land, municipal land, and parkland.

“Ninety-two percent of the Khomani San respondents supported implementation of the proposed biodiversity conservation programme on communal land, while 79% of these respondents supported implementation of the same programme on either municipal land or inside the park.” Given that more Khomani San respondents support than oppose the implementation of the proposed biodiversity conservation programme on any one of the land types, Dikgang concludes that the Khomani San people generally derive net positive benefits from the proposed biodiversity conservation programme, and that as a result, the majority of them would vote for its implementation.

“In contrast to the San, the Mier community were mainly interested in the economic benefits -- job creation and business venture opportunities -- that come about because of owning land.” ■

PUBLIC TALK

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Galactic gas distribution may provide clues on dark matter

2013 was a “crazy year” for UCT astronomer Dr Bradley Frank. He took 25 flights, married, graduated, became a taxpayer, and is now a postdoctoral fellow at the Netherlands Institute for Radio Astronomy (ASTRON). Here Bradley provides unique insights into his recent PhD research on gas distribution in the galaxies as a clue to elusive dark matter. He spoke to **Helen Swigler** via email.

HS: What did your PhD research set out to explain?

BF: It focused on the distribution of molecular gas in nearby galaxies. These galaxies formed part of a sample for which we have the some of the best multi-wavelength data available, ie we had observations of different phases of the environment of these galaxies, from the stellar content (the stars), to the neutral hydrogen and the molecular gas. Observations of each of these phases forms a comprehensive picture of the evolution of these galaxies. I worked on calculating the contribution of the molecular gas to the overall mass of the galaxy, using an analysis of the motion of the neutral and molecular gas to deduce

the dynamical effect of the dark matter potential in each galaxy, by using different models for the dark matter halo.

HS: What sorts of questions will be answered when the nature of dark matter is identified?

BF: The current picture of our cosmos is that there are three main constituents to our universe: dark energy (about 75%), dark matter (about 20%), and baryonic matter (about 5%). Dark energy is responsible for the evolution of the Universe on very large scales; the physics of dark matter defines how galaxies form and how they evolve. Baryonic matter, ie the stuff that we can see and touch, which stars and planets are made of, comprises a small fraction of the universe. The existence of dark matter poses some serious questions for physics. There is either this exotic form of matter that only interacts gravitationally, or our idea of gravity is incomplete. Either way, the existence of dark matter is a puzzle that challenges our understanding of the Universe. Solving the mystery of the missing ‘dark’ matter could revolutionise physics.

HS: What are the biggest challenges to determining its nature?

BF: At the moment, the only way we can deduce the nature of dark matter is to look at the effect that it has on the matter around it. Dark matter doesn’t interact electromagnetically (as far as we know), so we need the next generation of telescopes to peer more closely at the galaxies around us, and at the most distant blobs of radiation being released from the first structures of the universe. To do this we need to develop more sensitive telescopes, but this isn’t as easy as building them bigger and better. Radio frequency interference generated by cell phone towers, GPS satellites and other devices is making it increasingly difficult to detect the faint astronomical radiation from the booming man-made signals. It’s like trying to listen to a whisper while a Boeing 747 flies past on the runway. These issues, coupled with the genuine complexity of operating a large radio telescope, make for a tough challenge. Luckily, we have some very smart people working with us to overcome these challenges; and of course, we have an excellent site for radio astronomy in the Karoo. ■

Victims of sexual assault denied access to compensation

ABIGAIL CALATA

Although compensation for victims of sexual assault is available within the criminal justice system, complainants are often denied access to compensation as a result of court officials' bias.

This was among the main findings of Dr Bryant Greenbaum, whose doctoral thesis investigated why sexual assault complainants – unlike their counterparts in commercial and violent crime cases – did not benefit from forfeiture proceedings, or from compensation attached to suspended sentences and correctional supervision orders.

Greenbaum also found that by not informing complainants of social relief and distress grants, and by not assisting them to apply for such grants, court officials denied the victims of sexual assault access to much-needed funds to help them get back on their feet.

"Court officials' bias stems from the assumptions that victims don't want compensation; that their losses are not quantifiable; and that they would abuse social grants," explains Greenbaum. His research rebutted these assumptions, as sexual violence victims surveyed acknowledged they wanted compensation and could provide receipts to prove their losses.

Complainants also have to contend with gender bias, he says, adding that, "Due to the composition of the judiciary, national prosecuting authority and state attorneys, and the fact that their institutional overseers are overwhelmingly male, they lack a full understanding of the financial losses of sexual violence victims."

Greenbaum, a Canadian lawyer, worked for a government compensation fund for victims of violent crime in his home country. While there he observed the following: "The compensation greatly assisted the victims in getting their lives back in order. They (the victims) also welcomed the chance to tell government officials of their hardships."

In South Africa, Greenbaum worked for the National Treasury and oversaw the budget of the

security cluster, where he was confronted with the reality that there was "enough money in the fiscus to assist victims through compensation, (and) it's more a case of maladministration and bias in the criminal justice system" that blocks their access to these funds.

In his study Greenbaum interviewed 27 criminal justice role-players, reviewed eight court file case studies, and asked 47 victims to complete a survey to substantiate his findings.

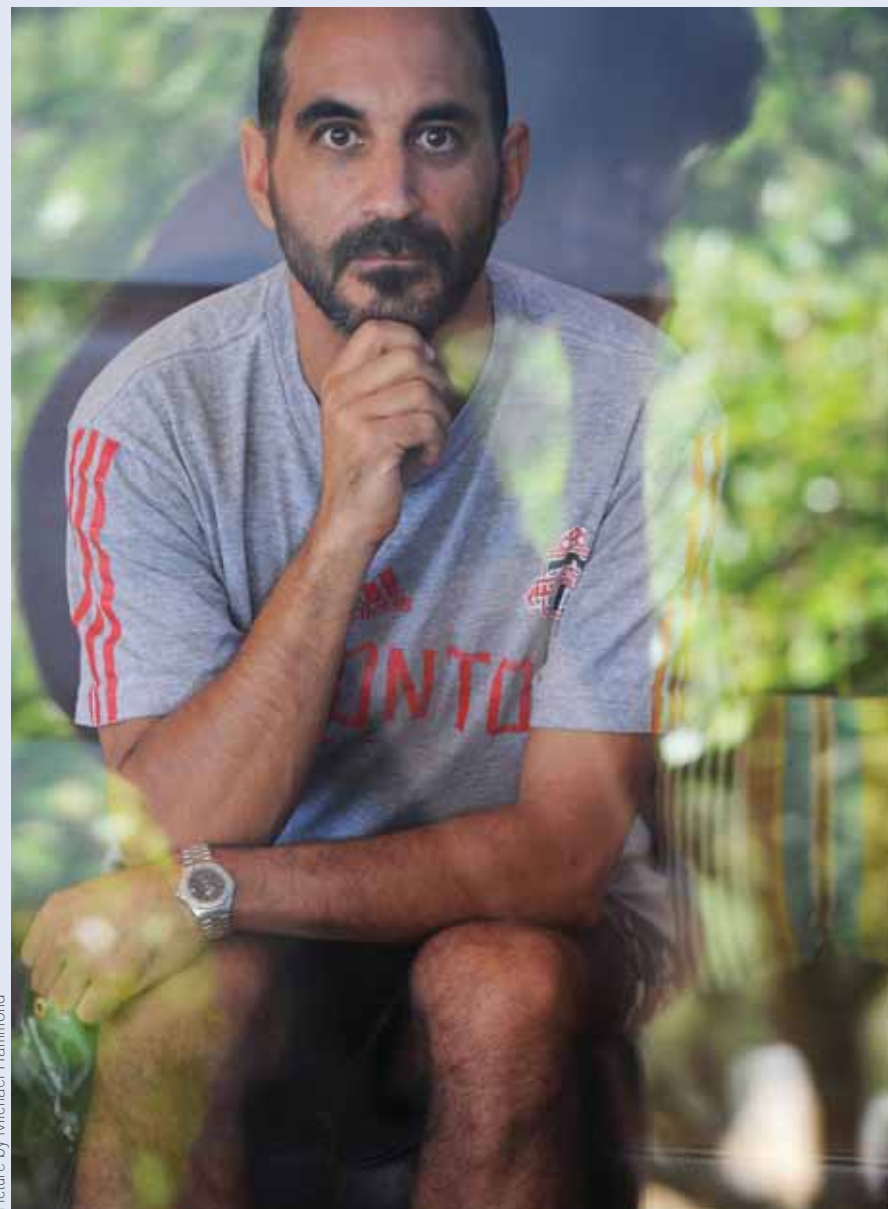
In an unprecedented move, Greenbaum entered into proceedings to prove court officials' bias. The case, which at the time was still before the court, concerned a German paedophile (eventually convicted) who lured township children into his house, where he sexually assaulted them. His house and car were seized by the state.

Greenbaum brought a complaint to the Cape Law Society against the State Attorney, who was taking instructions from the National Prosecuting Authority (NPA). Greenbaum took the position that the NPA was being unreasonable by not ensuring that money from the sale of seized assets could be used to compensate the paedophile's victims.

"The NPA finally acknowledged that there was bias among court officials, but it only did that upon threat of legal sanction." Furthermore, the NPA admitted in submissions to the Cape Law Society that they had the power to assist victims of sexual violence in forfeiture proceedings.

Greenbaum believes this type of action – what he terms 'legal activism' – should as a matter of course be part of doctoral studies undertaken by postgraduate law students, who are often certified lawyers.

"Academia undertaken by lawyers should have a real-life component. Most (law students) who do PhDs are legally trained, and it is wasteful not to use those skills. By not tapping in to the legal skills of doctoral students, (South African) institutions are not fulfilling their commitment to post-apartheid South Africa," he believes. ■



Picture by Michael Hammond

Legal activist: Dr Bryant Greenbaum proved his thesis by entering into court proceedings, and persuaded the National Prosecuting Authority to admit its officials were biased when it came to compensating victims of sexual assault.

UCT study into psychological impact of rape a first for SA



Picture by Raymond Botha

ABIGAIL CALATA

Considering the high prevalence of rape in the nation, it is remarkable that until recently there has been no research into the psychological impact of rape within the South African context.

South Africa has the highest number of rapes per 100 000 people compared to 13 other countries with similar economic profiles. In 2010 the figure stood at 132.4 per 100 000, compared to Botswana, where the figure was 92.9. In 2011/2012 a total of 64 514 rapes were reported to the police. Given that rape is a highly under-reported crime, multiplication of that figure by three gives a good estimation of the total number of rapes in that year.

Dr Anastasia Maw, a clinical psychologist employed at UCT's Child Guidance Clinic, saw the gap in understanding the psychological impact of rape on South African women following her work at the Trauma Centre for Survivors of Violence and Torture, Rape Crisis, and the Thuthuzela Care Centre. Thuthuzela is a one-stop facility for survivors of rape in Manenberg. It is also the site at which Maw's research was conducted.

Sixty-four female rape survivors

were recruited and interviewed at one, four, 12 and 24 weeks, post-rape. A psychiatric assessment was done at each interval. Maw found that over half of the women taking part in the study merited a diagnosis of post-traumatic stress disorder (PTSD). This is more or less in line with international findings, where just under half of rape survivors suffered from PTSD.

Maw maintains the reason South African researchers had not investigated this area previously is because interest in South Africa has traditionally centred on understanding the context within which rape happens, as well as the medical and legal aspects of rape. "South African researchers have also piggy-backed on international research on psychological impact – especially US researchers, who have been particularly prolific within this field," explains Maw.

Despite the evidence in both Maw's study and international studies of high levels of psychological distress in the aftermath of rape, she points out that professional intervention in the immediate aftermath of the event might not be helpful for the survivor's recovery.

"There's enough research to show that it's best to hold off on psychiatric or psychological intervention from

professionals, until such time as there's been opportunity for the person to recover in and of themselves.

"There appears to an innate recovery process that kicks in automatically after the trauma. In the immediate aftermath, there appears to be a rather strong reaction resulting in a very high level of distress. People would automatically turn to those they trust the most – not strangers and professionals, but their friends and family. If such support isn't forthcoming, or it isn't enough over time, then you might have to start considering the need for help from a mental health professional."

Although the women interviewed by Maw expressed a strong need for counselling, "...they didn't take up the offer of counselling; or if they did, they would only come for one session.

"A lot of practical needs were expressed, like getting help with child support and disability grants, finding jobs, help with completing education, help with safe housing. These are social development needs, not psychological needs, although they impact greatly on psychological well-being. When you ask women what they actually need, it's not a space in which they can talk. They need to create a life that is safer and more stable," Maw states. ■

New brooms sweep in the digital age at UCT libraries

ABIGAIL CALATA

The new deputy directors of UCT libraries have very different roles, yet they seem to have a lot in common – including a love of reading.

Drs Dale Peters and Reggie Raju, deputy directors of technical and client liaison services respectively, both hail from Durban, obtaining their doctorates in library and information science from the University of KwaZulu-Natal (UKZN). They also share a fondness for Louis L'Amour's Westerns. Raju has the entire collection of L'Amour's novels, while Peters' brother, who was "crazy about L'Amour" handed his books on to her when she was a child.

Both have been involved with academic libraries for 30 years or more. Peters is a compulsive reader with a penchant for South African literature, while Raju – when he's not reading research documents – rereads his L'Amour novels or books by Frederick Forsyth.

Raju is married to Associate Professor Jaya Raju, head of the library and information studies centre (LISC), with whom he has co-written numerous research articles, chapters in books, and a book.

Like Raju, Peters got into library services by chance. She originally wanted to be an archivist, but needed a foreign language to study that. "So I defaulted to library and information science, which was really lucky, given the opportunities afforded me to develop new strategies that ensure the relevance of the library in the digital age," she adds.

In 1984 Raju found employment as a messenger at UKZN's library. He worked his way up to subject librarian and headed up UKZN's Law Library from 1994 to 2008. From 2008 to 2013 he was director of client services at Stellenbosch University's library, before coming to UCT.

Peters started out in library acquisitions at UKZN, progressed to preservation – where she was responsible for the conservation of books and works of art – before moving into the digital realm. "Collections were increasingly becoming digitised in order to preserve the originals," she explained.

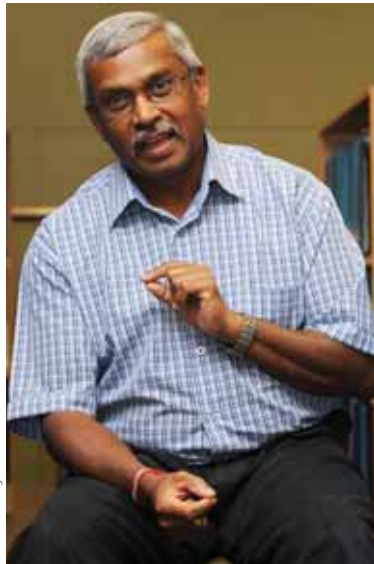
For two years she worked at the University of Goettingen in Germany as scientific technical manager, and spearheaded an EU-funded e-infrastructure project called DRIVER (Digital Repository Infrastructure Vision for European Research). She returned to UKZN and worked in their IT department until she joined UCT towards the end of 2013.

Peters and Raju speak passionately about the move from information management to data management. They are involved in different aspects of this trend in library services. "I came here with the distinct purpose to formalise research data management," says Peters. Some of Peters' responsibilities revolve around developing policy, architecture and services in the digital library infrastructure.

Raju looks at ways that library users can be better accommodated in the increasingly digitised library environment. "A library is far more than just the physical entity. It is now the virtual as well as physical the entity." Another trend that influences library services is the greater emphasis on collaborative learning – where students are required to work in groups instead of individually. "Hopefully my appointment here would see the (knowledge) commons taking on a different flavour – becoming a space where debate is encouraged and where peer-to-peer learning takes place," adds Raju.

Staff development is firmly on the agenda for these deputy directors. "Having come through the ranks, I have a passion for getting colleagues to exploit the environment they find themselves in – you can't be in an academic environment and not engage in academic learning," believes Raju.

Peters has been involved in digital libraries for 20 years, having led a programme named Digital Innovation SA (DISA), which was funded by the Andrew W Mellon Foundation. She finds it gratifying that DISA bore fruit, as the UCT Libraries now has a dedicated digitisation unit. "It's very satisfying to come back to find that the work you did 10 years ago has actually taken root and is growing," adding that to her knowledge, UCT is the only university in South Africa to have operationalised such a unit. ■



Pictures by Michael Hammond

Change agents: Drs Dale Peters (left) and Reggie Raju, newly appointment deputy directors at UCT libraries, have their fingers on the pulse of the latest trends in academic library services.



Picture by Michael Hammond

Frontline researcher: Emer Prof Robin Wood (Department of Medicine) has been awarded an A-2 rating by the National Research Foundation, pegging him as a world leader in his field: HIV/AIDS and tuberculosis.

A-rating for international HIV, AIDS pioneer

HELEN SWINGLER

Emeritus Professor Robin Wood first came across 'slim disease' as a doctor in Zambia in the early 1980s, before the Human Immunodeficiency Virus had been identified, or anyone knew that Acquired Immunodeficiency Syndrome was the result.

He had no idea it would one day become a global pandemic – and that it would shape his career and research.

That body of work, nearly two decades of pioneering HIV/AIDS research, has earned the Oxford-trained specialist physician and infectious disease expert an A-2 rating from the National Research Foundation (NRF).

Part of the 2013 round of NRF ratings, it pegs him as a world leader in the field and brings UCT's tally of A-rated academics to 34.

Wood is director of the Desmond Tutu HIV Research Centre at UCT. Attached to his work is a raft of accolades and honours. The South African Medical Society gave him a lifetime award for services to HIV research. He was also a member of the governing council of the International AIDS Society, and a founding member of the Southern African HIV Clinicians Society. He has led the production of several South African national guidelines on the use of antiretrovirals.

In short, he's been at the vanguard of scientific leadership in HIV treatment and infectious disease research for many years, with over 350 papers published in peer-reviewed journals.

It was while working at Stanford University as a fellow (infectious

diseases) in 1993 that things began to heat up on the HIV front. His subsequent research looked at early HIV therapies in San Francisco, a city that had borne the early brunt of the epidemic.

It's anecdotal that among Wood's patients was *San Francisco Chronicle* journalist Randy Shilts, who penned *And the Band Played On: Politics, People, and the AIDS Epidemic*, published in 1987. It was a searing indictment of (mainly) US government indifference and political infighting around what at the time was considered a disease that affected only gay men. Shilts died of AIDS complications in 1994.

When Wood returned to South Africa, it was to head the New Somerset HIV clinic, the Western Province's only such resource at the time. He continued his research into ARVs and collaborated in early studies on combination therapy.

He also established one of the few HIV natural-history cohorts outside industrial countries.

"I expanded access to ARVs by developing the first community HIV clinic, at Gugulethu in 2002," he explains, "and this well-characterised treatment cohort documented the impact of ARV therapy on morbidity and mortality of South African patients at a time when treatment in Africa was considered impractical."

Operational research in Gugulethu led to the development of national HIV protocols, implemented in 2004.

As a recognised expert on HIV, Wood has served as a medical advisor and expert witness for the Treatment Action Campaign in the South African Constitutional Court and Competitions Tribunal.

"It's nice to have the acknowledgement," he says of the A-rating. "I'd like to do the same with

TB, and try to turn that around."

Wood's focus has now moved to the very high rates of TB infection, particularly among South Africa's children, and the intersection of TB and HIV.

What has perhaps been lost in the HIV/AIDS landscape, he says, is that "TB is an unmitigated disaster".

"There is more TB in Cape Town than in Canada, the US, France and Germany put together. And it's getting consistently worse.

"It's what gets me up in the mornings," he says wryly. "We need a new approach to understanding TB transmission."

A small black box may hold the answer.

Working with colleagues in the Faculty of Engineering & the Built Environment, Wood has developed a machine with a geo-positioning capacity that measures how much air has been rebreathed from others and helps researchers estimate TB transmission probabilities in high-risk areas: buses, trains and indoor settings.

But beneath Wood's history of exploring scientific and medical *terra incognita* is another story, of a nomad and adventurer.

As a student medical officer in 1973 he worked in a jungle hospital in Pucallpa, Peru. Three years later he served as medical officer for the British Hindu Kush expedition in Afghanistan.

From 1979 to 1985, Wood was general practitioner and medical officer to the US embassy and British High Commission in Zambia. He was also medical officer at a game park in that country, where he sometimes treated people who'd been mauled by leopards and the like (his partner was killed by a crocodile). A trained scuba diver, Wood worked in underwater salvage, as many ferries capsized on Lake Kariba. ■

EVENTS

ACDI ADAPTATION

SEMINAR SERIES Where: Environmental and Geographical Sciences, Studio 5, Upper Campus, University of Cape Town. When: Every Wednesday @ 1pm

Date: 19 February 2014. Speaker: Sarah Hayden and Nicola Kuhn. Title: Research findings in the context of the Bergriver interdisciplinary project

Date: 26 February 2014. Speaker: Res Altwegg (Department of Statistics, UCT and ACDI). Title: Decision making in the face of uncertainty and why stats is fun

Philosophy Society Meeting:

Date: Tuesday 25 February @ 20h00. Speaker: Dr Tom Angier. Title: The Ethics of Leadership. Venue: Lecture Theatre 1, Humanities Building

VACANT POSTS

EXECUTIVE AND ACADEMIC POSTS:

Senior Lecturer x 3, (1) Economics; 2) Strategy; 3) Values Based Leadership – Allan Gray Centre, 4.5-year contract, Graduate School of Business, Closing date 21 February 2014

Director: First Year Experience Project (Senior Lecturer/Associate Professor Level), Centre for Higher Education Development, Closing date: 24 February 2014

Research Fellow/Senior Research Fellow, Collaborative Adaptation Research in Africa & Asia (CARIAA), (full time 4.5-year contract), African Climate and Development Initiative (ACDI), Faculty of Science, Closing date: 28 February 2014

Deputy Vice Chancellor, Office of the Vice Chancellor (Professor Level), Closing date: 28 February 2014

Senior Family Physician, Department of Public Health & Family Medicine, Faculty of Health Sciences, Closing date: 2 March 2014

Lecturer: Psychology, Department of Psychology, Faculty of Humanities, Closing date: 2 March 2014

Lecturer: Asian Religions, Department of Religious Studies, Faculty of Humanities, Closing date: 10 March 2014

RESEARCH, PROFESSIONAL, ADMINISTRATIVE AND SUPPORT POSTS (PASS)

Cancer Research Development Coordinator, Cancer Research Directorate, Faculty of Health Sciences, Closing date: 19 February 2014

Registered Psychiatric Nurse (1-year contract), Department of Psychiatry and Mental Health, Faculty of Health Sciences,

Closing date: 21 February 2014

Communications and Marketing Manager (3-year contract), SATVI (South African Tuberculosis Vaccine Initiative), Faculty of Health Sciences, Closing date: 21 February 2014

POSTS FOR UCT STAFF ONLY:**EXECUTIVE AND ACADEMIC POSTS:**

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Putting UCT in your pocket

YUSUF OMAR

For some, browsing library shelves in search of that book is half the fun; but with deadlines looming and Jammie Shuttles to catch, who really has the time?

Now, the nifty new UCT Mobile application for smartphones and tablets allows students to – among other things – access the online catalogue, search for and reserve books, and even check fee account balances. Along with library access, UCT Mobile zips every conceivable bit of information a time-pressed student might need to navigate a semester at the university into a handy package available in the palm of a smartphone user's hand.

Developed by the Information and Communication Technology Services (ICTS) in partnership with the Communication and Marketing Department, the app seeks to eliminate the sense of foreboding that sometimes goes with having to manage one's diary.

From course timetables and Vula access, to course results and the Careers Service portal, UCT Mobile promises to be a one-stop-shop for students' administrative requirements.

The app has been designed for – and will work optimally on –

touchscreen devices, be they of the Android, IOS or BB10 varieties. With that in mind, UCT Mobile will work on any phone running Android or IOS, and the free download can be found in each platform's app store. The app can also be downloaded from www.icts.uct.ac.za/uctmobile

"We built the UCT Mobile app with our students in mind, by looking at their everyday needs and requirements," says ICTS's Dave Heyns. "Our goal was to provide a platform that would enhance their integration into campus life and make it easier and more convenient to access the tools they use every day. We hope that they will benefit from the app and that they will assist in its further development and improvement by sharing their experiences with us."

That will come as music to the ears of students who need to check their lecturers' latest notifications on Vula, but find themselves far from a computer lab. App users can skip the notorious lines at the Fees Office, too. A glance at your device is all you need to discover your fee account balance. Alternatively, if a student is determined to brave the queue in the Kramer quad, he or she can pass the time by streaming UCT Radio, using the same app.

The vast expanses that are UCT's campuses can be a maze for those new to the university, which is where the comprehensive map function comes in handy.

"The app is the first step in a number of steps that we want to take around improving the online

experience of our students, the public, our alumni, and anyone interested in UCT," says Kylie Hatton, deputy director of UCT's Communication and Marketing Department.

"Although the app focuses primarily on students, looking forward we know that mobile is where everybody is moving to. So, for me, the most exciting part of the app is that it's going to push us to look at all of our online offerings and question how they look and work in the mobile space.

"Another exciting thing is that we are not reinventing content – just taking existing content and packaging it so that it's more user-friendly."

This means, for example, that the 'Libraries' function will direct students to the UCT Libraries website, where they can go about their business.

"One of the things that the app is trying to do is to answer the highest-priority needs of students in terms of their user-experience," says Hatton. "So we are reviewing existing products, like Vula and the Jammie Shuttle, and looking at how to make access quicker and easier.

"Ultimately, the ideal is that all of those different services work across multiple platforms, so that it doesn't actually matter where you are or what device you're on, because your experience will be seamless."

While users would still need an active internet connection to awaken the app's full potential, Hatton gives her assurance that the app was designed to be light on data-use.



Appsolute convenience: Now the nifty new UCT Mobile application for smartphones and tablets allows students to – among other things – search for and reserve books, check the Jammie Shuttle timetable, and even check fee account balances. ICTS's Niki McQueen shows students Bobo Mthombeni (middle) and Jennifer Rackstlaw (right), how it works.

"One of the things that we are trying to create is a user-driven experience. We'll ask ourselves: who are the people who use these products? How can we make it better so that we can communicate what UCT needs to give them?"

Hatton praised ICTS for its work in developing the app, which began around the second half of 2013.

"We've had a very nice working relationship with ICTS [on this app]. This project is a forerunner of

other collaborative projects CMD wants to embark on to improve the communication experience at UCT."

While Hatton admits that there were some risks involved in embracing new technology, she describes the approach as "cautiously adventurous".

"It's new technology for all of us. There are always risks with these kinds of things; it's about managing and mitigating those risks, but at the same time being willing to try new things." ■

UCT apps make SA languages easier to learn

Learning an African language is now as easy as switching on your mobile device, with the help of a suite of applications developed at the UCT Samsung Mobile Innovation Laboratory.

The idea for the Learn an African Language Apps (LALA) came to Professor Jean-Paul van Belle while he was attending Dr Tessa Dowling's *Learn Xhosa in 45 minutes* lecture at the UCT Summer School. "I was thinking up projects for our Samsung Mobile Innovation Lab, and thought a simple app would be a perfect way to get people to talk to each other.

"Part of the lab's mission is to create African apps, for Africans, by Africans," explains Van Belle, of the Department of Information Systems.

Dowling is a senior lecturer in African Languages, and her course material – which includes sound tracks of common phrases in Nguni and Sotho languages – was used in the development of the apps. She immersed herself in the Xhosa language and culture during her master's degree, when she spent time at Mqanduli, a rural town in the Eastern Cape. The insights she gained there came in handy later, when she completed her PhD on the forms and functions of Xhosa humour.

Flemish by birth, Van Belle is a linguist of note, being fluent in Afrikaans, English, Dutch, German and French. "This is not including various computer languages such as Python, BASIC, PHP, and so on, which I find a lot easier to learn," he jokes.

A prolific researcher, Van Belle used a semester-long sabbatical last year to produce more than 12 papers. Aside from a keynote address in Dubai, these papers were delivered in the Czech Republic, Turkey, Bosnia, Poland, the



Gaga over LALA: People from around the world are downloading Professor Jean-Paul van Belle and Dr Tessa Dowling's language app.

Philippines, Thailand, India and South Africa.

Despite an extremely busy academic schedule, he wrote the application software over the course of three weekends. "It was really fun coding. It was great to be in the flow of programming. As an academic, I don't get this opportunity much anymore," he adds.

The LALA apps are available free on the Samsung and Google Play app stores at <http://goo.gl/oXem6D>, and if the download statistics are any indicator, they appeal to people from across the world. Aside from significant local interest, users hail from as far afield as South Korea and Germany; while closer to home, downloads have been requested by users from Botswana and Namibia.

The UCT Samsung Mobile Innovation Laboratory aims to increase mobile innovation and skills development. The partners in this joint venture include UCT's Information Systems Department and the Computer Science Department, as well as the Cape IT incubator, the Bandwidth Barn. ■

Medical translator: app and at it

In August last year, UCT medical student Saadiq Moolla launched the Mobile Xhosa and Mobile Zulu websites to help himself and his English-speaking peers communicate with patients in their mother tongue.

That website only worked where there was strong mobile reception and a fast internet connection, which is not the case in rural parts of the country.

So Moolla, under the auspices of his company, NightForge Studios, launched a mobile application to the same effect. Mobile Translate M.D., as the Android-native app is called, can be used fully offline – the only time you need an internet connection is for downloading.

Besides bypassing the need for an internet connection and the data costs that come with it, the app-platform has a number of other benefits, says Moolla.

"It is much faster, and is much more convenient as it is a native (installed on the phone) app so is easier to use than a website which must be accessed via the phone's browser.

"The most exciting feature that we were able to implement because of this move is text-to-speech, where the phone gives the correct pronunciation of the phrase. This is particularly important where users aren't familiar with the language they are translating into, but can also help with learning the new language."

They are also working to include all eleven of South Africa's official languages, while extending the list of phrases available in each module.

"We ask that people contact us about phrases that they commonly use at the doctor, so that we can add them to the list," says Ashraf Moolla, Saadiq's younger brother and chief coder of the application.

Mobile Translate M.D. is currently available on Android and Blackberry devices, but plans are afoot to make it available to Apple and Windows users, too. ■