

Faculty Newsletter

Message from the Dean

This month, in celebration of Women's Day, the Faculty has organised a series of events. A video has been made to acknowledge some of the amazing women in EBE. You can watch it [here](#). On 7 August, we have partnered with EWB UCT to screen the movie *Hidden Figures*. The film tells the story of three women who were the brains behind the launch into orbit of astronaut John Glenn. The Transformation Committee is also organising a talk. They will send an invitation soon.

One of our really exciting new events is a "Girls in Engineering" workshop, which Mary Hilton, together with the postgraduate and undergraduate student councils, has organised for EBE. The workshop will be taking place on Saturday 17 August. The Grade 11s will be spending the day with postgrad and undergrad students finding out more about the exciting world of EBE.

I am delighted to inform you that A/Professor Fred Nicolls will be the new HoD for the Department of Electrical Engineering from 1 January 2020. Professor Ed Boje's term comes to an end in December 2019. On behalf of the faculty, I would like to thank him very much for his stewardship of the Electrical Engineering Department over the last 5 years.

On 31 July, undergraduate applications for 2020 closed. The Faculty has received 9660 applications, which include first and second choices for EBE. 1636 conditional offers have been made to excellent candidates, 630 of whom are female students. There will still be some applications to be captured and more offers made. We will be engaging with these applicants to build a relationship to encourage them to accept their offer at UCT.

Over the past year, the Faculty has been discussing how we can pull together and boost the variety of energy research that is happening across departments and the university. One of our options is to create a Future Energy Hub so that researchers can collaborate and work more closely together. The Energy Research Centre has been a big part of the energy work done at UCT, but has recently had several difficult years financially. To ensure that the critical energy research continues, we are in discussion with active researchers from the ERC about hosting them and their research in other cognate research units or departments at UCT where they will be able to continue their excellent work.

There is so much to celebrate in the newsletter.

International Award—a global mark of excellence

Emeritus Professor Dave Dewar, a senior scholar in the School of Architecture, Planning & Geomatics, received an International Architecture Award from the Chicago Athenaeum: Museum of Architecture and Design and the European Centre for Architecture Art Design and Urban Studies, the oldest annual public celebration of global architecture that sees practices around the world compete for the title of "Global Building of the Year."

Dewar's practice, Piet Louw and Dave Dewar Architects, Urban Designers and City Planners, was awarded in the category of urban planning/landscape architecture for the Agulhas National Park project which is centred around the primary gateway into the park where the second-oldest lighthouse in South Africa has been graded as a provincial heritage site.

"Following a rigorous process from a record number of international submissions, this year's 2019 shortlist of 350 projects from 41 nations, highlights the amazing work done by the talented architecture visionaries whose talent and innovation have created talking points that will span generations." states Christian Narkiewicz-Laine, Museum President, The Chicago Athenaeum, "

The projects on the shortlist were judged against a range of criteria including design vision; innovation and originality; capacity to stimulate,



engage and delight occupants and visitors; accessibility and sustainability; how fit the building is for its purpose, and the level of client satisfaction.

"Shaping the built environment is a tough challenge for anyone, and the architects and innovators here from across the architecture market have an important role to play in transforming the way we see the world," adds Narkiewicz-Laine.

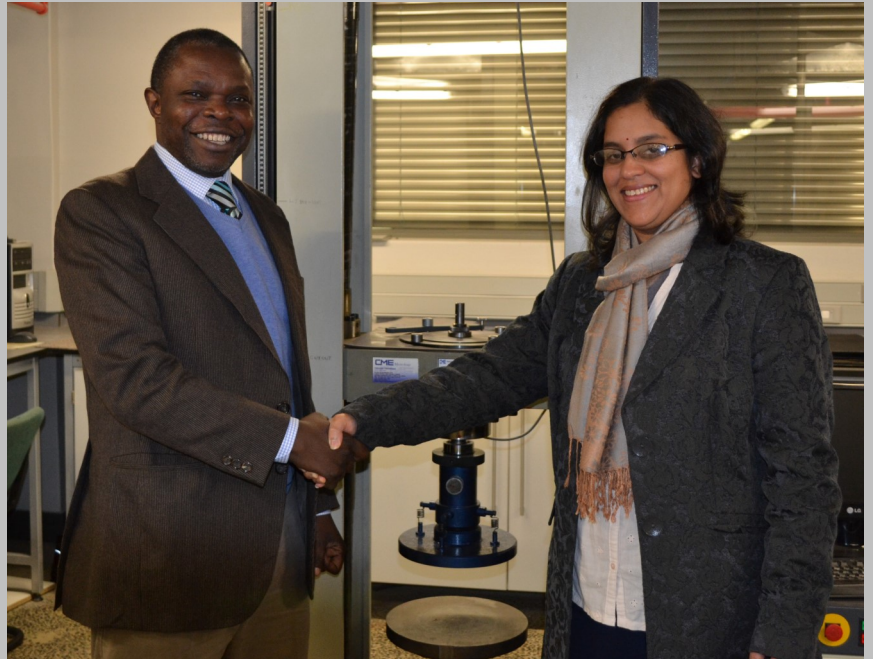
Find out more about the [Agulhas National Park project](#).

First woman PhD in geotechnical engineering

“I had a vision in high school, and that was to be a civil engineer. I came to UCT in 2006 to study for my bachelor’s degree in civil engineering,” said Laxmee Sobhee-Beetul, the first woman PhD graduate in geotechnical engineering at UCT. “On completion of my degree, I thought I would work as a site engineer.” Laxmee met and married her husband during her undergraduate degree as she assumed that she would be finishing her tertiary education soon. “However, I did not know that there would be a turning point on this journey.”

In her third year of study, she discovered geotechnical engineering, which is a branch of civil engineering. In her final year of undergraduate studies, Laxmee approached her supervisor, Associate Professor Denis Kalumba, to explore the possibility of doing her final-year thesis in geotechnical engineering. That was the turning point. A/Professor Kalumba exposed her to opportunities in research and academia and told her how few women there were in this field. This made her mind up.

Laxmee graduated with her BSc in civil engineering in 2010 and her master’s degree in 2012. In 2013, she



A/Professor Denis Kalumba congratulating Dr Laxmee Sobhee-Beetul

enrolled for her PhD and, in the second year, she gave birth to her now five-year-old son. She said, “It was not easy being a mother and studying, but I kept going, using all the support I received around me. Every day was a challenge, but today, my dream has become a reality. I feel even more content to be the first woman to graduate with a PhD in geotechnical engineering in the department of civil engineering at UCT.”

The title of her thesis was ***Ground improvement using PET bottle waste as a potential reinforcement material for granular columns: an experimental approach.***

Prof Kalumba said, “Not only is she the first woman, but it is also only the second PhD in Geotechnical Engineering in the history of UCT. It is a landmark achievement, and I wish her all the best in her career ahead.”

2019 Great Places Award

Interpreting Kigali, Rwanda: Architectural Inquiries and Prospects for a Developing African City has been named the winner of the 2019 Great Places Award by the Environmental Design Research Association.

The Environmental Design Research Association is dedicated to promoting research, teaching and practice that furthers the understanding between people, their built environments, and natural eco-systems.

Professor Tomá Berlanda, from the School of Architecture, Planning & Geomatics, co-authored the book with Professor Korydon Smith from Architecture at the University of Buffalo. The volume contains reflections from Professor Berlanda’s teaching and research time in Rwanda.



Collaboration with University of Zambia



A cohort of 28 students from the University of Zambia attended the Research Methodology and Communication course convened by Minerals to Metals in the week of 22 to 26 July as part of the postgraduate degree programme on Sustainable Mineral Resource Development. This programme is delivered by both UCT and UNZA on a decentralised basis, and is part of a much broader mining and minerals-based collaboration between the Department of Chemical Engineering at UCT and Zambian academic institutions. Course convenors included Professor Sue Harrison, Associate Professor Jennifer Broadhurst and Dr Elaine Govender. Guest lecturers included Associate Professors Kate le Roux from CHED and Helen MacDonald (on the right in the photo) from Social Anthropology.

Keeping the water in the city

Professor Neil Armitage, Deputy Director for the Future Water Institute at UCT, has been leading South African research into the design, construction and maintenance of permeable interlocking concrete pavement (PICP) since 2015.

With the level of interest in green infrastructure, and in “keeping the water in the city”, Professor Armitage organised a seminar series on PICP and bio-retention cells in seven cities across South Africa. His co-presenter is Professor Ryan Winston from Ohio State University, who has undertaken extensive research on the design, operation and maintenance of permeable pavements, bio-filters and other green infrastructure. Over 500 people from a wide range of backgrounds, from civil engineers, to landscape architects, and government and municipal staff signed up for the seminar series.

“These are key aspects of the changing nature of cities, so it is important that we share our knowledge of managing stormwater in urban areas,” said Professor Armitage. “PICP has been successfully used all over the world; however,



installations in South Africa are failing. Bio-retention cells are an alternative that take up some space but at a lower risk of failure.” The seminar will include best practice for the design, construction, operation and maintenance of PICP and bio-retention cells in South Africa, and drew on the extensive use of both in the USA.

NEW BOOK SHINES A SPOTLIGHT ON THE MURKY BUSINESS OF MANAGING CLIMATE CRISES

The three-year drought that hit Cape Town was a local expression of the unfolding global climate breakdown. As climate change impacts intensify and these types of events become more common, it is important to understand the different roles government, private sector, academia and civil society play in managing and mitigating the effects.

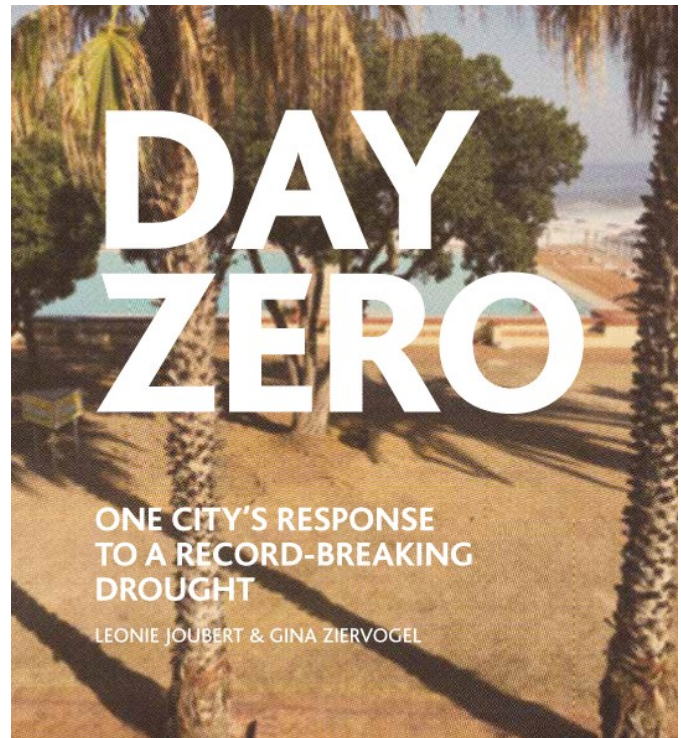
Day Zero – One city's response to a record-breaking drought by Associate Professor Gina Ziervogel, University of Cape Town, and science writer Leonie Joubert, captures some of the perspectives and experiences of the various sectors as the Cape Town water crisis played out. This serves as a case study from which lessons about climate adaptation can be drawn that are relevant globally.

“The Cape Town drought impacted everyone living in the city. But during the course of the drought and its aftermath it was often hard for citizens to understand what the city government was doing in response,” explains Ziervogel. “This book reflects on some of the different responses, from the perspectives of the water managers, those who needed to communicate with the public, to the politicians who were trying to balance voter interests with the challenges of the water crisis.”

Working collaboratively, Ziervogel and Joubert structured the book around these stories that collectively highlight the complexity of managing a climate crisis like the drought but also the wider challenges of urban governance and climate change.

Ziervogel advocates for a change in attitude from relying solely on local government to recognising that everyone needs to play a role in reducing climate risk.

“Although citizens often like to rely on government to provide services, it became clear during the drought that water security is everyone’s responsibility”, says Ziervogel. “Climate change adaptation cannot be the responsibility of one actor alone. Cape Town managed to avoid the taps running dry due to the remarkable collective achievement



of halving water consumption. This was only possible to achieve through changing citizens’ and businesses’ water-use behaviour along with the numerous water-demand management measures implemented by the City.”

The authors hope that *Day Zero – One city's response to a record-breaking drought* will encourage citizens to not only hold government accountable but also provoke a sense of civic responsibility in adapting to and managing climate change.

The book is available for free download from www.dayzero.org.za, Hard copies can be purchased from The Book Lounge, CapeTown.

We would also like to hear what you learnt from the drought. Share your stories at www.dayzero.org.za

Selected to a prestigious international committee

John Okedi, a postdoc in the Department of Civil Engineering, was elected a member of the Joint Committee on Urban Drainage (JCUD) of the International Water Association and the International Association of Hydro-Environmental Engineering and Research for a period of three years (renewable once). There are only 12 members on this prestigious committee, and John is the only representative from Africa. John graduated with his PhD on 12 July. He is waiting for his work permit to be issued so that he can take up the position of senior lecturer in the department.



NRF RATINGS

Congratulations to all the academic staff who received their NRF rating. NRF-rated researchers help to position the Faculty as a research-intensive faculty, and the rating benchmarks the quality of our researchers against the rest of the world.

Re-evaluation



A/Professor Olabisi Falowo
Electrical Engineering
C2

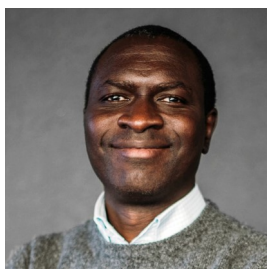
A/Professor Kirsten Corin
Chemical Engineering
C2



Professor Komla Folly
Electrical Engineering
C2

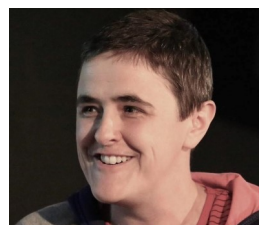


Professor Jochen Petersen
Chemical Engineering
B2



A/Professor Adeniyi Isafiade
Chemical Engineering
C2

Professor Vanessa Watson
Architecture & Planning
B1



Professor Genevieve Langdon
Mechanical Engineering
B3

New Ratings

Dr Patroba Odera
Geomatics
C3

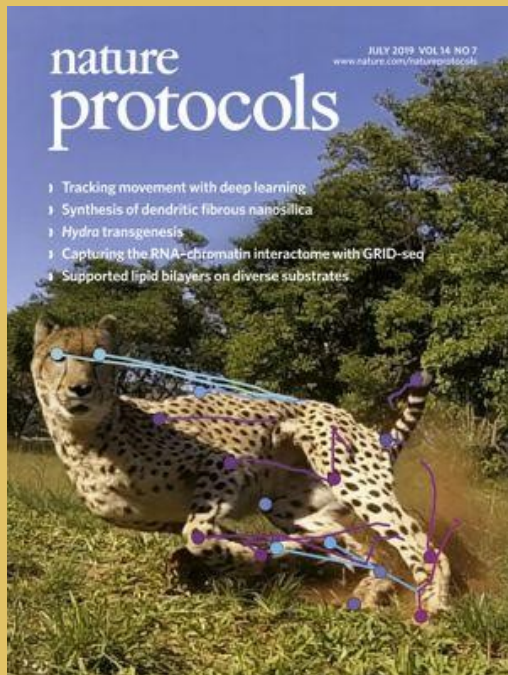


Dr Marijke Fagan-Endres
Chemical Engineering
Y1

Dr Elaine Opitz
Chemical Engineering
Y2



Front cover of Nature



Dr Amir Patel's research is on the cover of the July issue of *Nature Protocols*. Amir and his final-year student, Ms. An Chi Chen, collaborated with Harvard's Adaptive Motor Control lab on this algorithm and their contribution extended it to 3D skeletal tracking.

Link to the paper can be found [here](#).

100 Young Mandelas

According to Adriaan Basson, News24's editor-in-chief, these 100 young people, chosen from hundreds more nominations, remind South Africans that the characteristics which former president Nelson Mandela embodied – compassion, creativity, leadership, vision and resilience – are still thriving today.

The news site launched the 100 Young Mandelas list in 2018, to coincide with the centenary of Mandela's birth.

Their readers help by nominating inspiring South Africans from all walks of life, all 35 years and younger. Then, from a shortlist, News24 journalists choose the top 100 inspiring young people, categorising them under one of the five "Mandela characteristics".

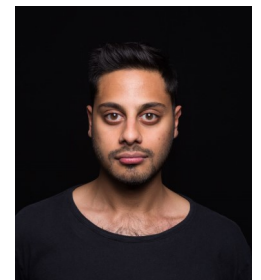
The following four from EBE were among the 100 chosen.

Vision



Thapelo Nthite - fourth-year mechatronics student, activist and co-founder of [Bothlate-AI Solutions](#), an Artificial Intelligence company that aims to increase the application of AI systems in South Africa.

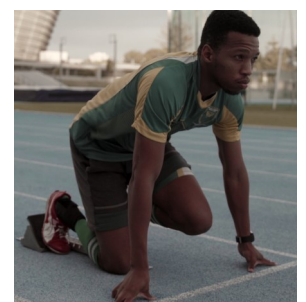
Zain Bana - 2016 civil engineering graduate. Co-founder of an NPO called Black Young and Gifted (BYG) which he started with Kelly Blair in 2016. With funding and mentoring, BYG supports South African students of colour entering postgraduate studies in civil engineering.



Dr Dyllon Randall - a multi-award-winning senior lecturer in water quality who led UCT teams to pioneer two world-firsts: [a waterless urinal](#) that produces fertiliser and [a bio-brick grown from human urine](#).

Resilience

Mpumelelo Mhlongo— [Paralympian athlete](#) and pursuing his PhD in chemical engineering.



Three and a half years to complete PhD

Malibongwe Manono is an extraordinary young man. He grew up in Khayelitsha with his family and went to school there except for a short stint from Grade 3 to Grade 9 when he attended school in Willowvale in the Eastern Cape. He returned to Cape Town in 2003 and joined the Joe Slovo Engineering High School for Grade 9 to Grade 12.

The school only offered maths and physical science on standard grade and in the last term of Grade 11, Malibongwe started teaching himself higher grade maths and physical science. It was thanks to his Physics teacher, Mr Managa, who introduced Malibongwe to SAILI which offered Saturday classes, and by the end of Grade 11 he was the top maths and physics student. In Grade 12 he was the top SAILI achiever in Physics and 2nd in Mathematics, and for his final matric results, he got 93% for Higher Grade Physics and 87% for Higher Grade Maths with most of the work having been self-taught.

In 2006, he started his BSc in Chemical Engineering at UCT in the ASPECT programme, as he came from a disadvantaged school. He received an Yvonne Parfitt bursary which covered his tuition fees and Financial Aid for his accommodation and living costs. During his first semester, he approached the head of department, Professor Eric Van Steen, to ask him if he could please go into the mainstream programme, and at the end of his first year, he was on the Dean's merit list.

In his second year, he got a Chevron bursary and thought that his career would be in petrochemicals. However, for his fourth-year project, his thesis partner was from Lesotho and persuaded Malibongwe to do their project in mineral processing. He completed his undergraduate degree in May 2010 and, due to the economic downturn in the global economy, he was released from his Chevron bursary, which left him without a job to go to.



A/Professor Kirsten Corin from the Centre for Minerals Research offered him a part-time job in a lab, and in August 2010, he registered for his master's degree.

At the end of 2011, during his thesis review, he was advised to upgrade his master's degree to a PhD. He felt he was very young and decided he needed to go out into industry and earn some money and gain some experience. He started working in 2012 as a candidate engineer for ArcelorMittal in Saldanha Bay, and two and half years later he was formally appointed as an engineer and moved to the Vanderbijlpark plant.

During this time, the PhD idea was still in the back of his mind, and he applied for a teaching job in the Department of Metallurgical Engineering at VUT. During his interview, he asked about doing a PhD, and his HOD was very supportive and encouraged him to enrol for his PhD. In June 2015, he emailed A/Professor Kirsten Corin about his idea for his PhD, and she had just been granted some funding for research in the area of water recycling in mining. The topic of his PhD is 'Investigating Electrolyte-Reagent-Mineral Interactions in Response to Water Quality Challenges in the Flotation of a Platinum Group Minerals ore.'

He enrolled in June 2015 and thanks to the very supportive environment at VUT, and working together with a group of young staff members who were also registered for their PhDs, he managed to complete most of the work before he joined UCT in June 2016 on a three-year MQA contract teaching position.

He knew it was a risk that he was taking, giving up a full-time position for a contract position. He also had just lost his father and his grandmother, so it was a difficult time, but he returned to Cape Town, and has completed his part-time PhD in three and a half years, a tremendous achievement.

When people ask him how he has achieved this, he says, "It is about setting a goal. I had a three-year contract, so I made sure that in those three years, I would complete my PhD, and this is what I have done." He added, "The block teaching in the Department of Chemical Engineering gives you the freedom to work hard on your research goals for the year."

Malibongwe's three-year contract came to an end at the end of June 2019, and as from 1 July 2019 he is a permanent senior lecturer in the Department of Chemical Engineering.

Studio Adapt! Rwanda

In March this year, *Studio Adapt!* (which is one of four studios in the BAS honours year) was invited to take part in a five-day workshop in Kigali, Rwanda, and in the two-day International Forum *Cultural Spaces for Kigali*. The objective of the workshop and the forum was to test the adaptive potential of latent built fabric close to the Kigali city center and to evaluate whether disused buildings like the Kigali Central Prison and the *Ecole Belge* could be adapted for use as cultural precincts.

The project was initiated by the Rwanda Arts Initiative (RAI) and arranged by RAI, African Architecture Matters and Bozar Brussels. The creation of spaces for the production and performance of art and culture in adapted buildings was the primary objective, and the workshop's aim was to present a variety of options or possibilities using methods of visualisation that could clearly communicate this.



Kigali prison

Stella Papanicolaou and Michael Louw from UCT, together with staff from African Architecture Matters, Ghent University and Uganda Martyrs University, were the instructors for the workshop.

The participating students consisted of eight honours students from BAS *Studio Adapt!* (Zach Hendrix, Katya Krat, Andries Mathee, Thelishia Moodley, Treven Moodley, Lwazi Ncanana, Stephani Perold, and Anna Stelzner), ten master's students from Uganda Martyrs University and eight second



Eight BAS honours students

and third-year students from the University of Rwanda.

The students were divided into four groups that consisted of at least six students each, with at least two students from every participating university. Each group had to produce an initial design proposal for both the Kigali Central Prison (also known as Nyarugenge Prison or simply "1930") and the *Ecole Belge* (the former Belgian School), and a number of these proposals were then selected for further development.

The students presented their work to a panel of international experts, who gave them feedback which they incorporated into their final presentation. They presented their work at the International Forum: Cultural Spaces for Kigali where the audience was government officials, international experts, academics from across Africa and beyond, architects, artists, fellow students and interested members of the public.

The students from Uganda Martyrs University and UCT continued to work on the projects for the remainder of their semester. An exhibition for *Studio Adapt!* was held at the gallery of the

Cape Institute for Architecture in April and included the projects developed at the workshop, and their subsequent developments.

The response from students (and staff members) was overwhelmingly positive and can best be summarised by the student reflections.

Anna Stelzner said, "I have taken so much from the student workshop. The group work was rewarding and fascinating to see the different dynamics between the students from Uganda, Rwanda and South Africa. The process was rapid, with quick thinking and quick decision-making. We strove for equal contributions and a delegation of workload and soon discovered what everyone's strengths were. It was a great exercise in the process of idea-making."

"Being part of the Forum and engaging with the different professionals and delegates emphasises the potential that we all have irrespective of our position as students. I believe many constructive ideas were imagined and my hope is that at least one of them materialises," said Lwazi Ncanana.

Mail & Guardian Top 200

Business and Entrepreneurship

Bradwin Roper (34) is the chief executive of First National Bank in Lesotho. He holds a degree in chemical engineering from UCT.

Maanda Tshifularo (33) is head of Dialdirect Insurance. He holds a chemical engineering degree from UCT.

Education



Mochelo Mackson Puleng Lefoka (30) is a lecturer in the Department of Construction Economics and Management at UCT. He holds a BSc (Hons) from the same institution.

Politics and Government



Thando Mthimkulu (27) is a transport practitioner for the South African Cities Network. She is working on completing her master's degree in transportation studies from UCT.

Sport

Mpumelelo Mhlongo (25) is a Paralympian athlete who has competed in the 100m, 200m and 300m long and high jump events. In June he set a new world record for long jump at the Grosseto Grand Prix in Italy. UCT named him Sportsperson of the Year in 2015, 2016, 2017 and 2018. Mhlongo is currently completing his PhD in chemical engineering at UCT.



Excellence Award for research into plastic marine pollution

An engineering approach to the issue of plastic marine pollution has received the 2019 Excellence in Academia PETCO Award.

Takunda Chitaka, a PhD student in the Department of Chemical Engineering at UCT, is the first recipient of this award, which recognises the importance of having peer-reviewed research underpinning strategic interventions into the broad areas of recycling, waste minimisation and sustainability.

Since 2016, Takunda has been gaining an understanding of what the marine plastic waste situation is, based on empirical evidence, which was something she found lacking in the discussion about potential solutions. To bring a more grounded approach to the search for solutions, she used a beach accumulation survey to estimate the litter flows into the marine environment.

"On day one, you clean the beach of all the litter. The next day you return

and pick up all the litter again, which gives you 24 hours of litter that has washed up onto the beach. Academically this is generally acknowledged to be a good proxy of



what is flowing into the ocean," Takunda explained.

One of the most interesting observations Takunda made was how different each beach is. She looked at five beaches and found one beach had around 36 items per 100 metres per day, where the other beach had 3000 items. Another important thing she noticed was how the composition of the

litter has changed. "Ten years ago, everyone was concerned about plastic bags," she said. "In my litter collection, I found very few plastic bags across all the beaches. Lots of polystyrene packaging, snack packets and straws were found. A mitigation approach focused on items associated with food consumed on the go may address a third to a half of marine litter sources in Cape Town."

Takunda's supervisor, Professor Harro von Blottnitz, said, "This type of work brings clarity to a hyped-up public discussion and can help stakeholders to develop evidence-based solutions. It is great that a scheme which manages to recycle 65% of all PET bottles in South Africa has decided to make an award for supporting academic research."

Takunda added, "My hope for my research is that it helps to inform the way forward for the plastics economy in South Africa."

Watch a [PETCO video](#) of Takunda and her research.

EBE graduate wins the prestigious Africa Prize

Neo Hutiri, a 2010 UCT electrical engineer graduate, has won the Royal Academy of Engineering's 2019 Africa Prize for Engineering Innovation. He is the first South African to win the prestigious Africa Prize.

He is presently registered for a MPhil at the UCT Graduate School of Business. He is the founder of Technovera, a technology start-up developing smart solutions. "Coming from an engineering background and having worked in an automation space has definitely influenced the kind of technologies that Technovera has developed," says Neo. "We are constantly asking questions on the role of technology and how it can help us shape some of the most challenging issues in health care."

Neo and his team developed Pelebox, a smart locker system designed to dispense medicine to

patients with chronic conditions. Pelebox is used at public healthcare facilities in South Africa, cutting down on long queues and easing pressure on



the healthcare system.

Pelebox is a simple wall of lockers, controlled by a digital system. Healthcare workers stock the lockers with prescription refills, log the medicine on the system, and secure each locker. Pelebox then sends

patients a one-time PIN, which they use to open their locker and access their medicine.

Neo wins the first prize of £25,000. Four finalists from across sub-Saharan Africa delivered presentations at an awards ceremony in Kampala, Uganda, on 4 June 2019, with the Africa Prize judges and a live audience voting for the most promising engineering innovation.

The Africa Prize for Engineering Innovation, founded by the Royal Academy of Engineering in the UK, is Africa's biggest prize dedicated to engineering innovation. Now in its fifth year, it encourages talented sub-Saharan African engineers, from all disciplines, to develop innovations that address crucial problems in their communities in a new and appropriate way.

NSTF-South32 Awards

Professor Alison Lewis received the NSTF-South32's Engineering Research Capacity Development Award, which recognises her outstanding leadership in increasing the participation of young engineers and technologists in their fields.

The other EBE finalists were Professor Eric Van Steen, Dr Dyllon Randall and A/Professor Abimbola Windapo.

Two mechanical engineering first-year students attended the NSTF-South32 awards ceremony as part of the NSTF Brilliants programme for future innovators. The programme recognises the top male and female in each of the nine provinces for their outstanding performance in their 2018 matric physical science and mathematics subjects.

The students are:

Mr Vuyo Nogqala from the Eastern Cape, who is in first year Mechanical and Mechatronics Engineering.

Mr Londonani Tshikhudo is from Limpopo, who is in first-year Mechanical Engineering.



Welcome to new staff



Mrs Gillian Williams joined the Continuing Professional Development unit as an admin assistant in June.

Catherine Edward has joined the Department of Chemical Engineering. She is doing her PhD with CeBER. She will be responsible for the CHE2005W project and Bioprocess Engineering courses.



As from 1 June, Dr Malibongwe Manono is a permanent senior lecturer in the Department of Chemical Engineering. Malibongwe had previously been on a three-year contract.

Resignations

Mrs Abby Street resigned from the Department of Construction Economics and Management and left on 14 June. Abby was the Academic Development Lecturer in the department.

Mr Gideon Kaufmann, a senior technical office CAT: lab operations, has resigned and will be leaving at the end of August. Gideon joined the Department of Chemical Engineering in 2007.

Ms Rene Carlse, postgrad admin assistant in the Faculty Office, has resigned and will be leaving at the end of July.

New HoD for Electrical Engineering

Professor Ed Boje's term as HoD of Electrical Engineering comes to an end on 31 December 2019.

A/Professor Fred Nicolls has been selected as the new HoD for three years, from 1 January 2020 to 31 December 2022.

Congratulations

Congratulations to Bianca and Chad Stephenson who were married at a civil union ceremony on Thursday 25 July 2019.



Chad, Bianca's mother, Trish Jones, Chad's mother, Shan Hulbert, and Bianca.

Charley V. Wootan Award for transport paper

Professor Marianne Vanderschuren and her co-authors, Sekadi Phayane and Alison Gwynne Evans received the Charley V. Wootan Award from the Transportation Research Board based in Washington DC. The award was for a paper titled *Perceptions of Gender, Mobility and Personal Safety: South Africa Moving Forward*. This award is given each year for the best paper in the area of transportation policy and organisation.

Sekadi is a Honorary Research Affiliate with the Department of Civil Engineering, and Alison, a lecturer in Professional Communications, has been assisting on some Transport projects.



Top three spots for EBE students at Falling Walls Lab

Hlumelo Marepula, a fourth-year student in civil engineering, took first place for her presentation on “Breaking the Wall of Synthetic Urea Production”,



which has huge implications for food security, sustainable energy production and global warming mitigation. Hlumelo is part of Dr Dyllon Randall’s group which has conducted highly innovative work on resource recovery from waste waters, particularly urine.



Resoketswe Manenzhe, a PhD student in the Centre for Minerals Research, was second with a project to reprocess mine water: “Breaking the Wall of Mine Waste Retreatment”.



Civil engineering master’s candidate Vukheta Mukhari was placed third. His proposal explained how the nutrients in urine can be recovered to make fertiliser as well as sustainable building materials using microbiological processes.

[Read more](#)

Falling Walls Lab is an international forum for outstanding young innovators and creative thinkers in all fields, whether science, technology or medicine. The link is to the Berlin Wall, which fell in 1989 after having separated East and West Berlin for nearly 28 years. The intention is to create a platform for young innovators and bring their “breaking walls” ideas to the public.

UCT in top 20 globally for mining & mineral engineering

The recently released ShanghaiRanking’s Global Rankings of Academic Subjects (GRAS) 2019 has placed the University of Cape Town (UCT) among the top 50 in two academic subjects: mining and mineral engineering (20th) and oceanography (36th).

“These rankings help to affirm UCT’s excellence. They show that our researchers and the excellent work they do can hold their own on the world stage,” says UCT Vice-Chancellor Professor Mamokgethi Phakeng.

“But ultimately, rankings can’t reveal the full picture. And at UCT, we strive to see our excellence deliver real research impact for the benefit of our country, the rest of Africa and the world. In fact, all four of our top performing subjects are exemplars of this impact.

“For instance, UCT’s focus in the area of mining and mineral engineering is enabling countries to mine the minerals society needs in ways that are sustainable for communities and the planet.”

The ShanghaiRanking’s GRAS ranks institutions according to the number of papers, citations (compared to the world average), international collaboration, papers in top journals



and staff winning significant awards.

UCT performed best in mining and mineral engineering, placing 20th in the world. The top three universities in this subject were the Central South University, China, followed by the China University of Geosciences (Beijing), China, and the University of Queensland, Australia.

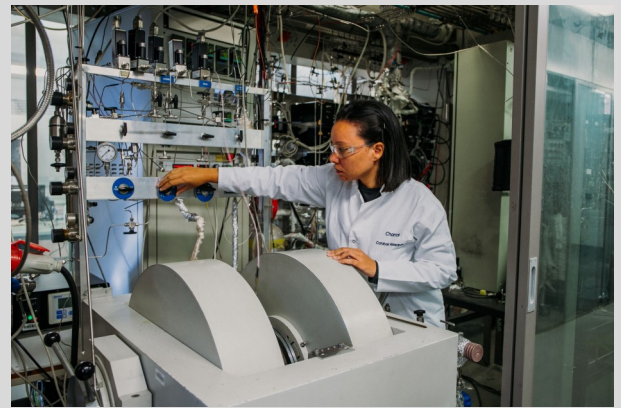
[UCT News](#)

Sasol's partnership saves UCT water

In 2008, a partnership between Sasol and the University of Cape Town's Catalysis Institute yielded the invention of the Magnetometer, a device that adds significant value to research in a variety of fields, including nano-technology.

The device is fully computer-controlled and was the first of its kind in the world. It was invented by Professors Michael Claeys and Eric van Steen of UCT and Jan van de Loosdrecht and Kobus Visagie of Sasol Technology. Sasol and the Catalysis Institute have a longstanding collaboration in the field of catalysis research. In addition to the first Magnetometer, which is used for the collaboration with Sasol, a second such device for student projects, funded mostly via a grant under the National Research Fund's National Nanotechnology Equipment Programme, was constructed and commissioned in 2013.

The Magnetometers can analyse ferromagnetic materials under actual operating conditions, including high temperature and pressure (900°C, 50 bar) with the ability to control gas and liquid flows through the material. This makes it an indispensable tool for advanced research and industrial catalytic process optimisation. It comes with a price – that it requires a lot of water daily to cool it down, and during the



Chantal Le Roux, senior technical officer from Catalysis with a Magnetometer

drought in Cape Town, this was very problematic.

Sasol came to the rescue and made a contribution of R450 000 towards the installation of a chiller, with Professor Claeys' research income paying the balance. It has been well worth the investment as now, instead of water been used from the City of Cape Town, the water is continually recycled through the chiller, saving the university a lot of water daily.

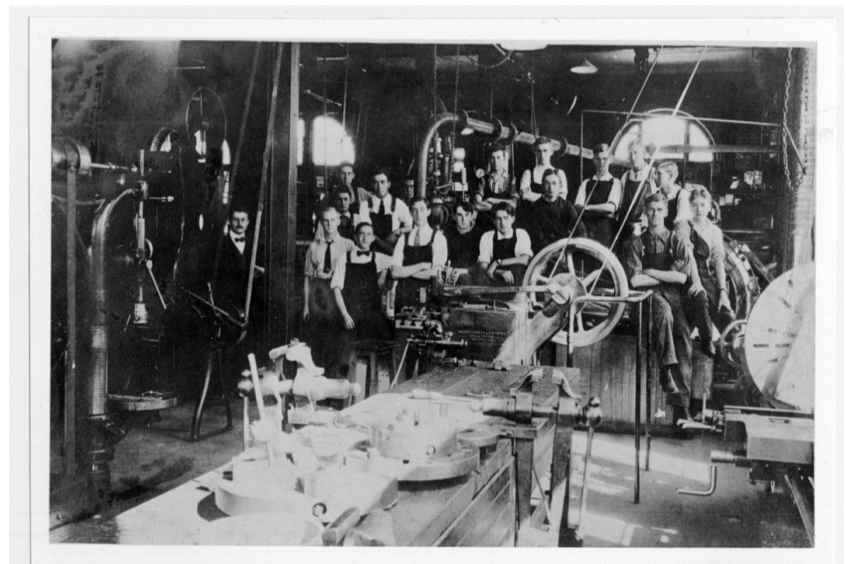
Mechanical Engineering celebrates its centenary

The Department of Mechanical Engineering is celebrating its centenary this year.

In 1918 UCT became a university and the School of Engineering was founded with two departments. In 2019, Mechanical Engineering received departmental status. Professor Duncan McMillan was the first Professor in the department.

Staff and students will be celebrating the centenary later in the year.

Chemical Engineering will be celebrating its centenary in 2020.



Class of 1918



Established 1919

Department of Mechanical Engineering

Shortlisted for Short Story Prize



Resoketswe Manenzhe, a PhD student in the Centre for Minerals Research, has been shortlisted for the **2019 Writivism Unbreakable Bonds Short Story Prize**.

Starting in 2015, her poems and short stories have appeared in several online magazines and journals, and in 2017, two of her poems were shortlisted for the Sol Plaatje EU Poetry Anthology, and subsequently published in the anthology of selected poems.

All shortlisted writers will receive \$150 and travel to Kampala for the Writivism festival happening 15-18 August 2019, at the National Theatre, where the winners will be announced. The two winners of the Writivism Short Story Prize will each receive \$500 as well as a chance to work on their manuscript in a one-month residency at Stellenbosch University in South Africa.

Student designs reimagine District Six

The year was 1966 and the apartheid government's Group Areas Act whites-only law had banished more than 60 000 residents from their homes in District Six.

This eviction order signalled the official start of racial segregation in the Mother City, and the birth of the Cape Flats.

Decades later, thousands of former District Six residents are nowhere near to returning to their childhood homes, and the democratic government's restorative justice process has come to a grinding halt.

Despite this, honours students from the University of Cape Town's School of Architecture, Planning and Geomatics in the Faculty of Engineering and the Built Environment have been hard at work under the supervision of Professor of Architecture Iain Low on multiple projects over the past few years.

These explore ways of reconceptualising the area, while accommodating the ongoing restitution process and residents' ultimate return to the neighbourhood.

This year, students participated in the Cape Town Spatial Justice Laboratory: Writing/Righting the City Otherwise, a multidisciplinary



Students study the pop-up exhibition of past architecture honours students' work that was displayed at the District Six Museum Homecoming Centre.

partnership between the School of Architecture, Planning and Geomatics, the District Six Museum, and the Spatial Justice in the Postcolony: Legacies of the *Nomos* of Apartheid Research Project.

The research project is a collaboration led by Professor Jaco Barnard-Naudé, professor of Jurisprudence in the Department of Private Law in UCT's Faculty of Law, along with the project's co-investigator,

Julia Chryssostalis, co-director of the Westminster Law and Theory Lab at Westminster University's Law School.

Other collaborators include Professor Andreas Philippopoulos-Mihalopoulos, director of the Westminster Law and Theory Lab, who delivered the British Academy Newton Advanced Fellowship Lecture in Spatial Justice on 15 July.

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Back from a trip of a lifetime

Xolelwa Kakaza, a cleaner in the NEB, is back from a trip of a lifetime. She is a member of the Langa Methodist Church choir, which was invited to be one of the opening acts at this year's Glastonbury Festival of Contemporary Performing Arts in England. The whole trip was sponsored and it included a tour of Cornwall. Xolelwa was lost for words when she returned. She had never experienced anything like that before and had no idea that the festival was so big.



Multilingual chatbot wins first prize

Thapelo Nthite, a fourth-year mechatronics student, and one of News24's 2019 100 Young Mandelas, returned from the DataHack4FI Innovation competition in Johannesburg as the winner for his start-up Botlhale-AI Solutions. He competed nationally and received the top prize of \$5 000. He will now go to Rwanda on 22 and 23 August to pitch against data enthusiasts and emerging tech companies from Ghana, Kenya, Nigeria, Rwanda, Uganda, and Zambia. They are competing for the grand prize of \$25 000.

The DataHack4FI Innovation Competition promotes the use of data and data analytics to solve challenges experienced by individuals or communities. The competition encourages Pan-African collaboration by creating opportunities for data enthusiasts and emerging tech companies to partner in developing

solutions that address local financial and economic inclusion-related challenges.



Building on the previous seasons of the competition, Season 3 of DataHack4FI serves as a platform for each participating team to showcase the solution they develop to potential

investors, partners and clients. The overall winner will be selected based on engagement with data science in solution design, the viability of the business and the potential impact in terms of financial and economic inclusion.

Thapelo said, "We are very excited. We are currently developing a number of systems to improve people's interaction with technology. One of our most exciting projects is "Naledi", our multilingual chatbot, like Siri but for banking and in South African languages. From the national pitch, some banks were keen to talk to me about the multilingual chatbot."

The other members of Botlhale-AI Solutions are Xolisani Nkwentsha and Sange Maxaku, both doing their master's degrees in Electrical Engineering as well as Bonolo Malebo, who is doing her Postgraduate Diploma in Accounting.

EBE well represented at postgrad showcase



Waste water in civil engineering



Space studies in electrical engineering



Materials Science in Mechanical Engineering



EPPEI in Mechanical Engineering



City and Regional Planning



Geomatics



CoMSIRU in civil engineering



Geotechnical in civil engineering