December 2017 Faculty of Engineering & the Built Environment University of Cape Town Vol. 13 Issue 4

Faculty Newsletter



Message from the Dean

We have come through another year that was filled with challenges, but there was also a lot to celebrate. At a celebration event held on 5 December, I was delighted to celebrate the achievements of both staff and students. We truly can be proud of our Faculty.

In 2018, there are a number of changes in the Deanery. A/Professor Brandon Collier-Reed's term as deputy dean for undergraduate studies comes to an end, and A/Professor Sunetra Chowdhury will be taking up this position from January 2018. Brandon has played an incredible role in the faculty, and I have been incredibly grateful for his support and input over the past couple of years. Professor Pilate Moyo stepped down in June as deputy dean for research and internationalisation, and A/Professor Azeem Khan now holds this portfolio. A/Professor Tanja Winkler will continue in her role as deputy dean for transformation and social responsiveness. I am pleased to announce that Professor Jack Fletcher will be the new deputy dean with the portfolio of strategic initiatives. I look forward to working with the new team in 2018.

The Faculty staff is hard at work ensuring that all students who are eligible to graduate in December can do so, as well as finalising all the conditional offers for our new intake in 2018. EBE orientation starts on Wednesday 7 February, and the first day of lectures is Monday 19 February 2018.

I encourage staff to attend the graduation ceremony on 20 December. It is an important ceremony which marks a significant accomplishment for both staff and students.

Thank you to everyone for your amazing commitment and contribution to the Faculty in 2017. It is now time to go and enjoy some well-deserved rest with family and friends during the holiday season. Travel safely if you are on the roads.

NRF ratings

Congratulations to staff who received their NRF ratings. The ratings identify researchers who count among the leaders in their fields of expertise and gives recognition to those who continuously produce high-quality research outputs.

We are delighted that their hard work has been acknowledged and thank them for the contribution that they have made to the Faculty.

Professor George Ekama	A2	A/Professor Brett Cohen	C2
Professor Sue Harrison	B1	Dr Amit Mishra	C2
Em/Professor Mark Alexander	B2	Professor Iain Low	C2
Professor Dee Bradshaw	B2	Professor Ed Boje	C3
Professor Arnaud Malan (new)	B3	A/Professor Nic Coetzer (new)	C3
Professor Patricia Kooyman	B3	Dr Nico Fischer (new)	Y1
A/Professor Jenny Whittal (new)	C2	Dr Britta Rennkamp (new)	Y2

Ad hominem promotions

Congratulations to the academic and technical staff members who received their ad-hominem promotions. Their achievement is testimony to the many hours of hard work and dedication that they have put in to their teaching and research, and their involvement in socially responsive scholarship and professional activities.

Lecturer to Senior Lecturer

Mrs Anita Campbell (ASPECT)

Mr Saul Nurick (Construction Economics and Management)

Mr Simon Hull (Geomatics)

Dr Mohohlo Tsoeu (Electrical Engineering)

Mrs Kehinde Awodele (Electrical Engineering)

Dr Malebogo Ngoepe (Mechanical Engineering)

Senior Lecturer to Associate Professor

Dr Pieter Levecque

Dr Denis Kalumba (Civil Engineering)

Dr Sebastian Skatulla (Civil Engineering)

Dr Steeve Chung (Mechanical Engineering)

Senior Research Officer to Associate Professor

Dr Nico Fischer (Centre for Catalysis, Chemical Engineering)

Dr Megan Becker (Centre for Minerals Research, Chemical Engineering)

Associate Professor to Professor

A/Professor Azeem Khan (Electrical Engineering)

A/Professor Paul Barendse (Electrical Engineering)

Research Officer to Senior Research Officer

Mrs Jenny Wiese (Centre for Minerals Research, Chemical Engineering)

Dr Kirsty Carden (Future Water Institute, Civil Engineering)

Technical Officer promotions

Technical Officer to Senior Technical Officer

Ms Chantal le Roux (Centre for Catalysis Research, Chemical Engineering)

Mr Gideon Kaufmann (Centre for Catalysis Research, Chemical Engineering)

Chief Technical Officer to Principal Technical Officer

Mr Joachim Macke (Chemical Engineering)

2017 Geneva challenge win

Boitumelo Dikoko, a master's student in the Department of Electrical Engineering, and a team of South African students won the 2017 Geneva Challenge, which encourages interdisciplinary teams of master's students to propose solutions to the world's development problems. This year, the challenge was to explore employment's role in fostering social and economic development. A total of 135 project entries were submitted by teams from around the world.

Three projects made it to the final: Umvuzo, a skills-centred mobile application for the South African labour market; Delala, an online job-matching system to mitigate urban youth unemployment in Colombia; and NetworkEffect, a solution to connect small businesses and freelance service providers in Pacific Island communities.

The first prize went to the Umvuzo team who consisted of Boitumelo Dikoko, Fuaad Coovadia and Sakhe Mkosi, who graduated from UCT's Commerce Faculty and are now at Oxford University, and Kabelo-Keitumetse Murray from the University of Witwatersrand.

"The problem in South Africa is that job seeking is time-consuming, costly and inefficient", said Fuuad Coovadia.

"Umvuzo is a mobile application that links job-seekers with employers, allowing job-seekers to upskill themselves through training modules delivered in a gamified process, and employers to access the job characteristics of the app users to make better judgements about who to employ."

Fuaad Coovadia, Boitumelo Dikoko, Sakhe Mkosi and Kabelo-Keitumetse Murray

The teams received their prize from former United Nations Secretary General Kofi Annan at the Graduate Institute, a prominent university in Geneva.

Sportsperson of the Year for ChemEng master's students

Mpumelelo Mhlongo receiving the UCT Sportsperson award from Dr Max Price

Sprint sensation Mpumelelo Mhlongo won his third consecutive UCT Sportsperson of the Year prize at the university's annual sports awards dinner on 3 November 2017. It is the first time in history that an athlete has taken home the top trophy three years in a row. Mpumelelo is doing his first-year master's in chemical engineering.

The T44-division sprinter was given a standing ovation as he made his way to the podium in apparent disbelief. The fastest athlete at UCT, Mhlongo excels in three events: 100 m, 200 m and long jump. Mhlongo was particularly impressive at a University Sports South Africa (USSA) 100 m race, where he was up against non-disabled athletes, tripped on his blade at the start, fell, picked himself up and finished sixth with a time of 11.7 seconds. A list of his notable performances in 2017:

2017 World Para Athletics Championships: London

- 4th long jump
- 5th 200 m
- 7th 100 m

Nedbank National Championships for the Physically Disabled

- 1st long jump
- 2nd 100 m

World Para Athletics Grand Prix events

- 1st 100 m: Nottwil, Switzerland
- 2nd long jump: Nottwil, Switzerland
- 1st 100 m: Berlin, Germany
- 1st long jump: Berlin, Germany
- Overall, 1st in 100 m and long jump for Grand Prix

Mhlongo represented UCT at Varsity Athletics in the team that won the B section and has been invited to participate in the International Wheelchair and Amputee Sports Federation World Games in Portugal in December 2017. All this while battling knee and back injuries.

EBE triumphs in environmental innovation

For the third year running, a UCT team from the Department of Construction Economics and Management (CEM) was named the winners of the Greenovate Award. CEM also took second place, and this year for the first time there was a Greenovate Engineering Award which went to a UCT civil engineering student

The awards programme is an exciting initiative by Growthpoint Properties in association with the Green Building Council South Africa. The prestigious awards recognise innovative solutions for the property industry to environmental challenges. The students were challenged to come up with ideas for any property-related project that makes the way we live greener and our environmental footprint lighter.

A total of eight universities competed for both awards this year. UCT was the only one to take up the challenge in both award streams. Groups from each of the participating universities competed internally first, and the top two projects from each were chosen as finalists. This year the awards adjudicated a record of 16 finalist teams.

The CEM team of Nicholas Tennick, Daniel Navarro and Mark McCormick supervised by Karen le Jeune, was named the winner of the Greenovate Award 2017. Their submission was titled *Upgrading existing medium-density residential buildings with strategic green building features and initiatives holds the key to increasing affordable housing in Cape Town.* They took home R30 000 in prize money, as well as numerous other awards.

Tarryn Coles, Anthony Testa and Gemma Watson were the CEM team who took second place. They were supervised by Saul Nurick and were investigating the viability of using self-sustaining shipping-container homes as an affordable and sustainable approach to student housing.

For the inaugural Greenovate Engineering Award, Craig Flanagan, supervised by Dyllon Randall from the Department of Civil Engineering, took top honours with a focus on the development of an on-site nutrient recovery urinal for buildings. The award came with a R30 000 prize.

Werner van Antwerpen of Growthpoint Properties said, “Together, we can inspire environmentally innovative thinking among even more of South Africa’s future leaders. Everyone wins when we show and grow innovation for a greener, healthier, and more sustainable environment.”

“We are happy to see that our efforts in building the necessary skills required to transform the built environment are bearing fruit and we can happily look forward to a greener, more sustainable future,” added Dorah Modise, CEO of the Green Building Council.

Saul Nurick and Karen le Jeune with all the UCT winners and UCT alumni who were mentors for the competition

CeBER outreach programme

On 13 October, members of the CeBER outreach team, in conjunction with partners Zeiss Microscopy, visited Siyazakha Primary School in Philippi for the CeBER's annual community outreach programme.

This year, the grade 6 learners were treated to views under three specialised microscopes with prepared slides, along with multiple displays that demonstrated scientific concepts using everyday objects. In addition to the firm favourites of erupting volcanos and home-made rocket launchers, some new attractions were added to the experimental exhibitions – including a cardboard-structured Robocop with mobile arms!

The diverse CeBER team encouraged cross-cultural engagement with the scholars; the most pivotal and mutually-beneficial interaction of the day.

Zeiss Microscopy sponsored the state-of-the-art microscopes, and contributed financially to the event.

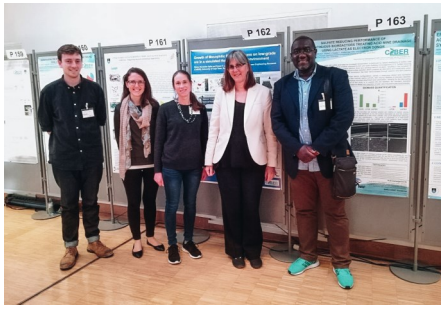
Toastmasters win for CeBER PhD student

On 7 November, Durga Iyer, a PhD student in CeBER, won the 2017 Toastmasters District 74 Division D Humorous Speech Contest. Durga progressed through three gruelling rounds of the competition that featured Toastmasters from twelve different clubs based in Cape Town. Throughout the rounds, Durga showed passion and near-impeccable comic timing. Those who listened to his speech titled "Game of moans" – inspired by the popular TV series, *Game of Thrones* were left in stitches as Durga took them on a hilarious journey into the world of an

amateur athlete chasing after the ever-elusive goal of completing a marathon in a respectable time. The judges and audience agreed that his confidence, showmanship and story were the right combination for a winning recipe.

Durga has developed his public speaking and leadership skills as an active member of UCT Toastmasters since the club's inception in August 2016. Durga attributes his success to his research in plant microbial fuel cells within CeBER, and the exciting challenges associated with the journey of a PhD student, as helping him see the funny side of life and building his comedic persona.

International Biohydrometallurgy Symposium



Tomas Hessler, Marijke Fagan-Endres, Marriette Smart, Sue Harrison and Emmanuel Ngoma

In September, a group of CeBER researchers attended the 22nd International Biohydrometallurgy Symposium held in Freiberg, Saxony. This biannual conference is a hub for both academia and industry which is involved in the fields of biomining, bioleaching and bioremediation. Professor Sue Harrison delivered two talks: "Inhibition kinetics of iron oxidation by *Leptospirillum ferriphilum* in the presence of thiocyanate in bioremediated cyanidation tailings waste water" (authored by Catherine Edward) and "Analysis of microbial communities associated with bioremediation systems for thiocyanat-laden mine water effluents" (given on behalf of Dr Robert Huddy). These were complemented by a total of seven posters presented by CeBER members Emmanuel Ngoma, Tomas Hessler, Dr Marriette Smart and Dr Marijke Fagan-Endres. An additional highlight of the visit was a post-conference trip 150m underground to see the in-situ bioleaching test-facility at the Reiche Zeche mine.

Book launch for A/Professor Vanderschuren

Thursday 23 November saw the launch of *Non-Motorized Transport Integration into Urban Transport Planning in Africa,* a book co-edited by Professor Marianne Vanderschuren of the Centre of Transport Studies in the Department of Civil Engineering, Winnie Mtullah, an associate research professor of development studies at University of Nairobi, and Meleckidzedeck Khayesi from Tanzania, a teacher by profession, conducting research in Human Geography with a focus on transport and road safety.

Research for the book started in 2008 with funding from the Volvo Foundation. There was collaboration with partners across the African continent and many contributors who were instrumental in shaping the book. Based on in-depth research conducted in Cape Town, Dar es Salaam and Nairobi, the book explores the following questions. What challenges do pedestrians and cyclists face in cities of the developing word? What opportunities do these cities have to provide for walking and cycling? The book demonstrates that transport and urban planning remains situated in a logic of automobile-dependent transport planning and global city development.

The launch was attended by guests from government, City of Cape Town, industry, NGOs, staff and students. The guest speaker was Professor Phakeng, the Deputy Vice-Chancellor for research and internationalisation. She said she was delighted to see real research and collaboration happening across Africa and not just people talking about it.

Contributors to the book attended the event. From left to right: Gail Jennings, Jennifer Baufeldt, Roger Behrens, Marianne Vanderschuren, Mark Zuidgeest, Edward Beukes, Rahul Jobanputra

2017 SAIA Architectural Writers and Critics Award

Kevin Bingham, outgoing president of the SA Institute of Architects, Professor Iain Low and Public Works Minister Nkosinathi Nhleko.
(Photograph credit: Lesiba Kgwele – spokesperson to the Minister of Public Works)

Professor Iain Low from the School of Architecture, Planning & Geomatics received the 2017 South African Institute of Architecture Architectural Writers and Critics Award at an event held on Thursday 23 November. The award is made in recognition of a distinguished contribution to architectural criticism and/or writing.

Public Works Minister Nkosinathi Nhleko was the guest speaker at the event and in his keynote address, he said, "The profession has a critical role in preserving and ensuring that our architecture reflects our African identity, its evolution as well as who we are as a people." He added that as our society transforms politically, socially and culturally, architects need to be at the forefront of trying to imagine what our future could be, based on the interpretation of our past.

Iain Low is the editor of *Annual Digest of South African Architecture.* In his acceptance speech, he encouraged architects to engage critically with what constitutes African Architecture. He said, "Essentially each of us have the unique obligation of writing ourselves and our collective communities back into the world through the disciplines that we have come to practise. And nowhere can this be a more potent task than in architecture - through the transformation of the spatial legacy that the many centuries of colonial over-writing has wrought on the earth."

Dragon Boat

On Saturday 7 October, first-year students and staff from the Department of Electrical Engineering set off from campus to the Waterfront for a day of Dragon Boat racing. The day was organised for staff to get to know the first-year students and to build a community. Each boat holds 22 people, 20 paddlers, a steersman and a drummer. Staff, including Marlene Hyland and her husband John, participated and had an awesome experience.

"It was great fun as even inexperienced paddlers were able to participate. It was good exercise and a good teambuilding experience," said Rachmat Harris, who was responsible for organising the day.

CPD course in Machine Learning

A/Professor Amit Mishra (front left) and Jarryd Son (standing left back) with attendees of the workshop

In November, A/Professor Amit Mishra ran a CPD course on Introduction to Machine Learning which was attended by academics, postgraduate students and members from industry. Amit was assisted by Jarryd Son, a research scholar at UCT working in the domain of cognitive robotics.

Over the last few years the field of machine learning has become very active mainly because of two major innovations, namely the invention of deep learning algorithms and the development of echosystems which made users able to program parallel computational platforms with greater ease. Currently people are trying to use machine learning in a range of uses from space data analysis to farming. New start-ups are venturing into interesting uses of machine learning and established industries are investigating how they can benefit as well.

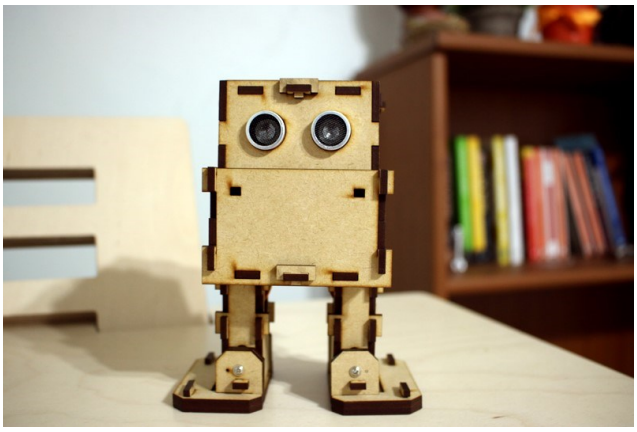
The course exposed the audience to the basics of machine learning and got them started on using one of the powerful tools available, namely Google's TensorFlow.

Machine learning of a different kind

MiiA is the first innovation of RD9 Solutions, a start-up created by Tyrone van Balla and Ridhaa Benefeld. Tyrone graduated with his BSc in Electrical Engineering in 2014, and registered for his master's degree in 2016. Ridhaa graduated with a BSc in Mechatronics in 2014. The business aims to tackle societal problems using technology in creative ways.
"Currently we're focusing on the education sector, looking at how we can use technology to introduce kids to programming and electronics from an early age, while at the same time making learning more fun, engaging and stimulating," explained Benefeld.

The robotic platform walks learners anywhere between grades 8 and 11 through the major tasks and processes required to build a robot. Learners are introduced to key electronics and programming concepts before applying these new skills to building and programming MiiA.

"MiiA's goal is really to lay the foundation for the careers of future scientists and engineers. We want to make students excited about technology and the ways in which they can use it," said Van Balla.



"We want students to realise that they can do all these amazing things they hear about. We want to empower the masses to be able to employ technology innovatively and creatively to solve not only their own problems, but the world's as well."
Read More

Community Engagement workshop

On 28 November, Dr Mohohlo Tsoeu hosted a community engagement forum on South African languages empowerment and intellectualisation. Attending the forum were speakers from the Pan South Language Board, a leading multilingualism technologies research group of the North West University, and language experts from UCT. The forum provided a platform for constructive and robust discussions, among stakeholders from different community sectors, on problems of language diversity and how they can be solved with a focus on technology, supported by transformative legislation and policy frameworks.

Dr Mohohlo Tsoeu, centre, with delegates attending the community engagement forum

The forum was followed by two hands-on tutorial workshops where delegates were introduced to aspects of speech production and perception in humans, recording of speech, pre-processing, basic estimation theory and machine learning using computer hardware and software. During the second workshop, they were introduced to the theory and tools for language modelling, machine learning and automatic language recognition using existing South African language resources.

The forum was sponsored by IEEE Circuits and Systems Society , the Department of Electrical Engineering and the Faculty.

R1 million for the BYG programme

BYG – Black, Young & Gifted, an initiative driven by students from within the Department of Civil Engineering to support and encourage South African students of colour who would like to pursue postgraduate studies, has received R1 million in funding from Gautrain Management Agency. Zain Bana, one of the founding members of BYG, and a 2016 UCT civil engineering graduate said, "We are excited for the opportunity that this funding will bring. We hope that it will attract more funding, so we can start to see real transformation of the postgraduate environment in engineering at UCT." Since the launch in 2016, BYG, a group of passionate young civil engineering students and alumni, has established a support structure around mentoring and motivating undergraduate students in their academic studies. It has recruited postgraduate students and members from industry to mentor the young BYG students. Professor Hans Beushausen, who is part of BYG, said, "There has been tremendous progress in the past year, and a lot of excitement has been created around BYG. All that was missing was sufficient funding to carry on with our main initiatives. The support from the Gautrain Management Agency will make an enormous difference to our initiative to support South African students of colour in their academic careers."

Founding members of BYG, Back left to right: Zain Bana, Chad Ludwig, Kelly Blair, Hans Beushausen, and Nyasha Chitate.
Front : Manoj Gihwala, Nabeel Omar and Itumeleng Ragoleka

William Dachs, COO of Gautrain Management Agency, said, "The GMA is proud to be associated with UCT and the BYG programme. We look forward to a successful partnership with them with the goal of developing postgraduate students of colour in their engineering careers."

SAIEE overall prize for final-year student

Kiuran Naidoo, a final-year electrical and computer engineering student, received the overall prize at the South African Institute of Electrical Engineering's annual national undergraduate project competition which took place at UKZN in Durban on 23 November.

All the major universities in South Africa are invited to select one final-year student to present their final year project. Kiuran's project was entitled *Classification of Recyclable Materials on A Conveyor Belt* and focused on creating a low-cost machine that can classify various recyclable materials on a conveyor-belt system. The system is called the Conveyor Learning, Analysis, and Recognition Environment. It utilises machine vision and machine learning to classify materials in real time, so they can be sorted with visual and depth images. The major benefit of this system is the low complexity and cheaper implementation associated with the system compared to the current single-stream recycling machines which require expensive multi-million-dollar facilities.

Collaboration between universities and industry

Left Back: *Brandon Collier Reed (Deputy Dean), Frans Waanders (Professor and Director School of Chemical and Minerals Engineering, NWU), David Dorrell (Specialisation Centre Coordinator, HVDC, UKZN), Stephan Heyns (Specialisation Centre Coordinator Asset Management - UP), Bradley Oaker (EPPEI Consortium General Manager), Christo van Niekerk (Senior General Manger Group Technology Acting - Eskom), Ian Jandrell (Dean: Faculty of Engineering and the Built Environment – Wits);*
Left Front: *Morakanele Thipe (EPPEI Senior Manager Acting - Eskom), Sumaya Nassiep (General Manager Research Test and Development Acting- Eskom), Elsie Pule (Group Executive Human Resources - Eskom), Titus Mathe (EPPEI Programme Director - Eskom), Louis Jestin (Interim Consortium Director - Eskom), Professor Mamokgethi Phakeng (Deputy Vice-Chancellor research - UCT), Ouma Bosaletsi (Manager Project Engineering - Eskom)*

The Eskom Power Plant Engineering Institute (EPPEI) hosted by UCT's Department of Mechanical Engineering held its 3rd EPPEI Board meeting at a hotel in Newlands, Cape Town, on Friday 17 November 2017. The EPPEI programme enables collaboration between South African universities and industry participating in applied research and course delivery to develop skills for the electric power industry.

EPPEI has more than 250 students conducting master's and doctorate research at academic institutions across South Africa.

It also has more than 120 master's and doctorate graduates since inception in 2012.

Strong commitment and support for the EPPEI programme was received from the EPPEI Board for the 2018 budget which was approved for new initiatives for each of the EPPEI streams (research, postgraduate qualifications and operation, maintenance and engineering practitioner training) and for collaboration with universities of technology.

50th reunion for 1967 civil engineer graduates

Five civil engineering graduates from the class of 1967 got together on Friday 17 November to celebrate their 50th reunion. The day started with a lunch at Rhodes Memorial with Professor Neil Armitage and then an interactive afternoon in the Department of Civil Engineering where various students and staff spoke to them about their research work. The Dean started off with a brief overview of the Faculty, followed by Neil, who gave an update on the civil engineering department. John Okedi, one of Neil's PhD students, gave a presentation on the work he is doing on stormwater collection. Dyllon Randall, a senior lecturer in the department, spoke on urine being the new liquid gold and this was followed by a tour of the Geotechnical Lab and a talk by Dr Kalumba and a number of his postgraduate students.

Nigel Mudge said "I enjoyed meeting all the old students, and I found the presentations very interesting. I must say, you are in a really nice building, and I got the impression that engineering is in a good space in spite of what the media feeds us."

Back left to right*: John Okedi, Nigel Mudge, Kevin Wall*
Seated left to right: *Alan Shelley, Eric Lowe and Alex Visser*

The reunion ended off with a dinner at the Wild Fig. On departing, the group decided that couldn't wait for their 60th reunion so would be back in five years' time.

Resignations

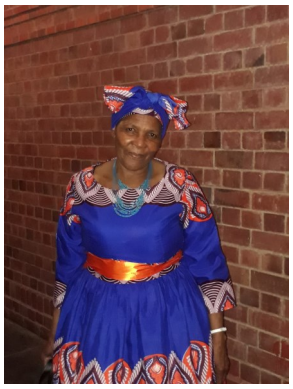
Kyle Hauslaib, Chief Technical Officer & Electronics Workshop Manager in Chemical Engineering

Stephanie La Grange, Laboratory Manager, Analytical Laboratory in Chemical Engineering.

Long Service Awards

Thomas Slingsby	EBE: IT	15 years
Isabel Ncube	Civil Engineering	15 years
Elveno Witbooi	Civil Engineering	15 years
Nicole Moodley	Electrical Engineering	15 years
Carol Koonin	Electrical Engineering	15 years
Fazlin Harribi	ERC	15 years
Marlene Joubert	ACC	15 years
Charles Nicholas	Civil Engineering	25 years

Retirement



Gladys Sturrman (Mama) will be retiring in December after 20 years at UCT. Gladys has been a cleaner in the Menzies Building. In her retirement, Gladys will be helping her daughter, who has four-month-old twins.

Goodbye

Mrs Ka Wai (May) Cawood resigned from the postgraduate section in the Faculty office and from 1 December will join UCT's Student System Support (SSS) as an End User Support Officer.

Isha Dilraj, the manager of the postgraduate section, said, "May joined the PG team in 2014 and since then has become a valuable member of our team. All those who have had the fortune of interacting and working with her would bear testament to May's efficiency and diligent work ethic. May has played a pivotal role in helping us move some of our processes online and has always offered a fresh and innovative approach to her tasks. It has been an absolute pleasure to have May on my team, and she will be sorely missed. "

May's leaving leaves a gap in the PG section and her position should be filled in the new year. In the meantime, the remaining staff will be rotating tasks.

- Bianca Cleenwerck will be taking over May's role and will handle the master's examination process and the Ethics process.
- Lisa Williams will be taking over Bianca's role and will handle the PhD process and applications.

Retirement

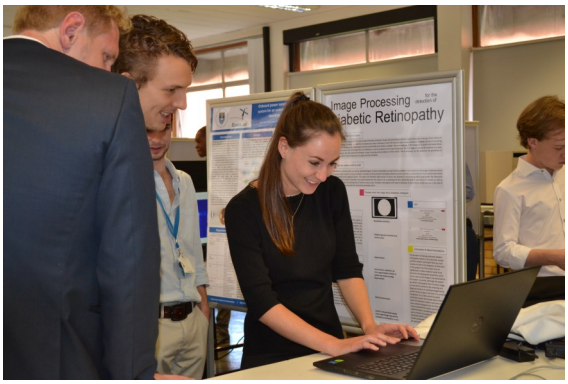
After 37 years at UCT, Marlene Hyland will be retiring at the end of December. Marlene joined UCT in 1980 as a receipts and payment cashier in the Bremner Building. At that time, most of the service departments were housed in Bremner – student housing, admissions, communications, alumni – everyone was there. Marlene can tell you stories about what went on in the corridors of Bremner.

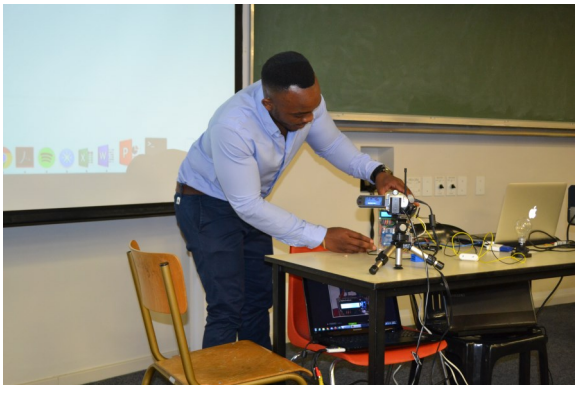
She moved up to be the Senior Bookkeeper in 1990, before joining the Research Support Services office in 1992 as the admin assistant. In 1999 she took up the admin assistant position in the Humanities Faculty before joining EBE in 2000 as the Finance Officer, and in 2008 she got the position of Senior Finance Officer.

Marlene's incredible work ethic, enthusiasm and energy to do the job effectively is well known throughout the faculty and she is going to be missed. Her willingness to jump in and help, especially with catering events, was always greatly appreciated in the faculty.

Electrical Engineering Open Day

A great display of final-year electrical engineering projects was seen in the newly refurbished foyer on the 3rd level of the Menzies Building, as well as in the White Lab and the Machines Lab. It was great to see students, parents, 2018 applicants and staff interacting with one another and celebrating with the final-year students the completion and presentation of their projects. The project demonstrations were followed by three student presentations and a prize giving. Electrical Engineering has not held a final-year open day since 2014 owing to the disruptions on campus.





Mandela Rhodes Scholarships for two Chemeng students

Two final-year students in Chemical Engineering, Tafadzwa Kwaramba and Gcinisizwe Dlamini have been awarded the Mandela Rhodes Scholarship for 2018. To qualify for the scholarship, applicants need to have a history of well-above-average academic results, and reflect in their character a commitment to the four principles of education, reconciliation, leadership and entrepreneurship.

Tafadzwa Kwaramba and Gcinisizwe Dlamini at their final-year project poster session

Tafadzwa Kwaramba who comes from Zimbabwe joined UCT in 2014. "I'm the last born of a single mother of four and for my undergraduate studies I was fortunate to be funded by the KJB leadership programme. I am passionate about leadership and its influence on the wider society, particularly on how quantitative skills and tools can be used to make a socially sensitive and measurable difference in society." Tafadzwa served as Secretary-General for the 2016 EBE student council, and in 2017 he held the position of Public Relations Officer for UCT-ZIMSOC.

"The Mandela Rhodes scholarship is a great confidence boost for me as it reminds me of the difference I am capable of making in society. Even though I thought the difference I was making through EBESC and UCT-ZIMSOC was small, it would be noticed. The leadership workshops of the Mandela Rhodes Foundation are events I am certainly looking forward to help polish up my leadership abilities. The scholarship is also an opportunity for me to grow my sphere of influence as more people will look up to me and I hope to use this influence positively."

Tafadzwa and Gcinisizwe will both be doing their master's degrees at UCT.

Best oral student presenter award for MechEng

Patrick Akpan, who is doing his PhD with the Eskom Specialisation Centre in Energy Efficiency, was awarded the best oral student presenter award at the recent Conference on Sustainable Development of South Africa's Energy Resources. The conference was hosted by the Fossil Fuel Foundation. His presentation titled, "Understanding heat rate and emissions of coal fired plants operating due to renewable energy power generation induced cycling", gave the audience a clear understanding of his PhD study. As the global energy mix moves from fossil-based to renewable sources, it is expected that the existing fleet of coal-fired power plants will be used to meet the residual electricity demand. The aim of his study is to quantify the expected heat rates and emissions from coal-fired power plants when being expected to ramp up and down. This presentation followed a two-week site visit where Patrick, together with John Clark, participated with a team of local and international specialists on a project to determine the minimum load power plants can achieve. Patrick is entering the third year of his PhD.

Minerals to Metals (MtM) celebrates 10 years

Chosen specially to symbolise Molly Blackburn's role as a change agent, MtM's ten-year celebration was held on 16 November with a dinner in the Molly Blackburn Hall.

The guests were welcomed by the VC, Dr Max Price, who noted that UCT has always had a close relationship with the mining industry, with significant investments by the diamond and gold industries dating back to the late 1880s and, more recently, by the platinum industry, amongst others. Mining has a critical role to play, with minerals and metals being essential to modern life, particularly in the transition to a carbon -neutral economy.

Professor Dee Bradshaw engaging with Emeritus Professor Martin Hall

Former UCT Deputy Vice-Chancellor Emeritus Professor Martin Hall, an archaeologist by training, was the guest speaker, and talked about his early work experiences in Hluhluwe and St Lucia in KwaZulu-Natal, where traces of iron working and smelting highlight the importance of metals and mining in early economies and their sustainability. The problem, he said, is not that mining and sustainability are inherently at odds with each other, but rather the "age of greed" that started with the Industrial Revolution. Part of the solution is redistributing the knowledge and expertise required to add value to primary commodities, which include access to education.

The former Dean of EBE, Emeritus Professor Cyril O'Connor, noted that the Minerals to Metals Initiative was established at UCT as one of five 'Signature Themes' in 2007. The aim was to build on the existing strengths in different research groups in the Department of Chemical Engineering, and address the challenges facing the minerals industry in an integrated, comprehensive and holistic manner. He stressed the critical role that Professor J-P Franzidis played when he returned to South Africa and took up the NRF SARChI chair in Mineral Beneficiation and the Directorship of MtM.

MtM has been distinguished by its inclusive culture and far-reaching connections; it has established a multifaceted research approach that has linked fundamental understanding to systemic analysis; it has generated an ability to support new, often unanticipated, initiatives; and it has produced high-quality graduates who are already impacting the industry.

In 2014, establishing and offering the MPhil programme specialising in Sustainable Mineral Resource Development stands as the flagship achievement of MtM's first ten years. The MPhil encapsulates the synergies between education, research and engagement, pioneering the new frontiers of trans-disciplinary research for the industry that were sought by the Signature Theme initiative. Since 2014, fifty-four students from six countries have registered for the MPhil, with courses delivered at four university campuses in southern Africa.

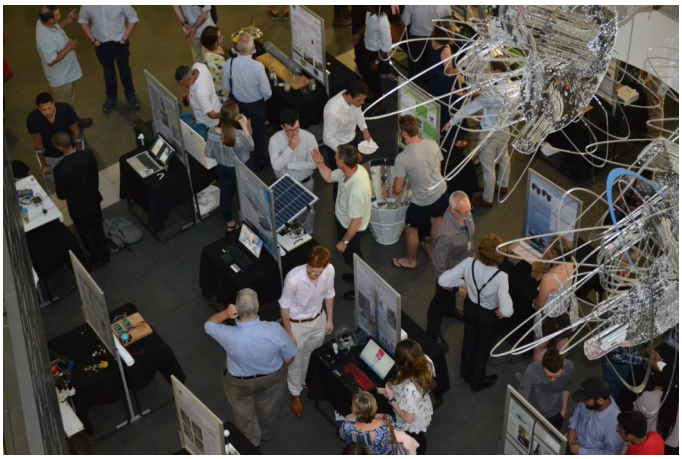
The mining industry faces multifaceted challenges, with difficult legacies and an uncertain way forward, particularly with its "social licence to operate" being at risk. It has been widely acknowledged that "business as usual" is no longer possible.

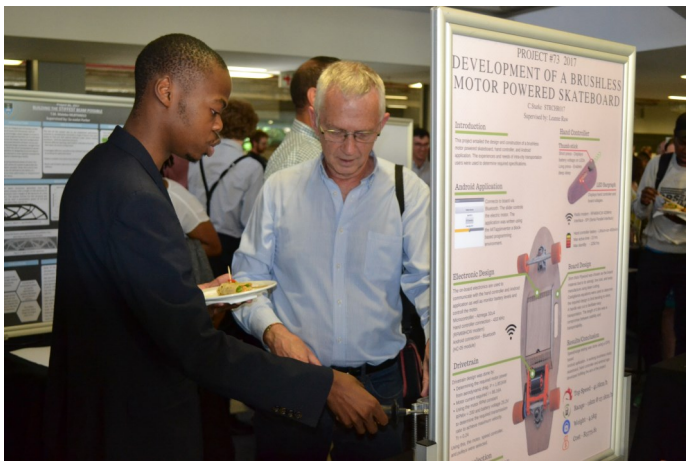
Professor Dee Bradshaw, the Director of MtM and SARChI chair in Mineral Beneficiation since 2016, has been proposing and championing the concept of *green mining* as a focus going forward. *Green mining* depicts the provision of minerals and metals in a way that is not only techno-economically viable but also environmentally responsible, and that contributes to social inclusion and benefitting communities. While it does not necessarily describe the mining industry as we currently know it, it is one we can imagine, aspire to and seek to create.

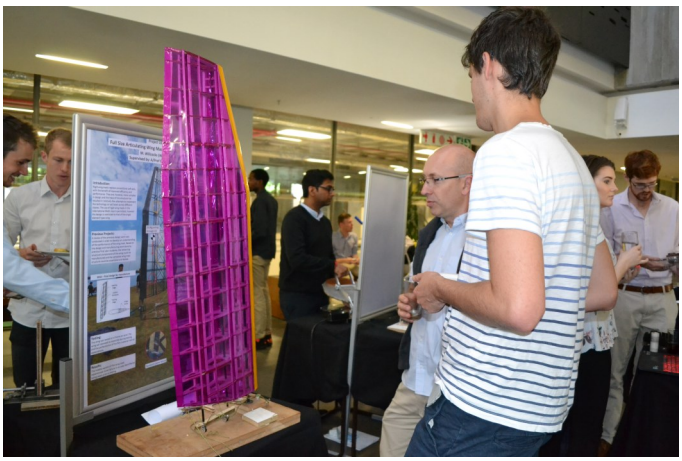
The dinner was attended by past and present staff and students of MtM and their guests as well as representatives from industry who have been supportive of the initiative over the past ten years.

Following the dinner, the 10th annual MtM Research Day was held on Friday 17 November, which showcased current projects and provided an opportunity for students to interact with alumni and industry partners.

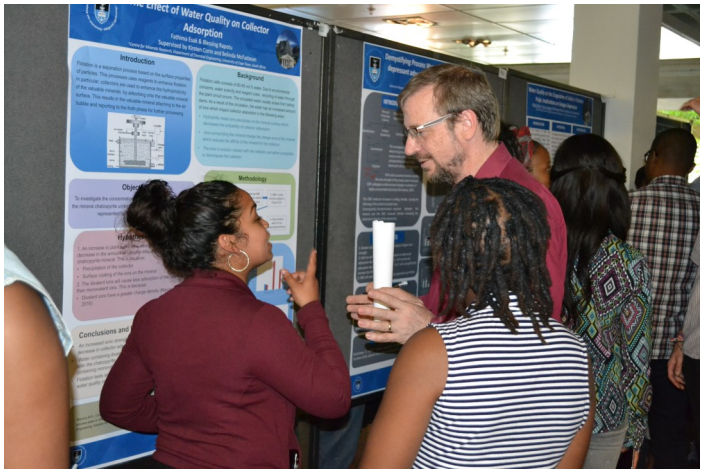
MechEng Open Day

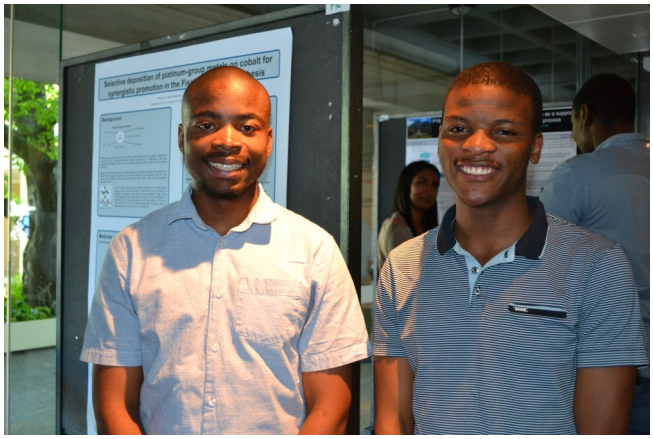






ChemEng poster day





EBE has talent

Student entrepreneur (fashion designer)

Kudzai Zinyengere, a third-year Property Studies student, started a fashion company as a tribute to her late mother. “As art and creativity is a personal journey, it's an unending letter that reflects the memories and experiences that I have encountered and would've wanted to share with her,” Kudzai said.

The fashion company is called MINEstitched - Memories Indescribable Now Eloquently stitched. “In its entirety the brand will always be truth, vulnerability, raw emotions and all the values that my mother and I shared together.”

The new collection, the Self-love series, is a reflection of the brand’s ethos, an ode to self-love and self-awareness. All items from the collection are now available at The Local Designer store in Woodstock and online at www.minestitched.com.

Engineer and artist

Albert Matilya was born in Tanzania and raised in Botswana. He is a final-year student in Civil Engineering as well as a portrait artist. He has been drawing for about 8 years now. Albert said, “Studying in Cape Town, which is one of the hubs of art in Africa, has been a huge inspiration in my journey as an artist.” Within a few months into his first year, he began producing pencil drawings for students and began experimenting with other mediums like pen.

Albert says he has sometimes questioned whether studying an engineering degree was the right decision. However, he has come to believe that everything happens for a reason. “I have gained critical thinking and problem-solving skills that have been and will be valuable in the future. After graduating, I plan to work as an engineer and as an artist, and hopefully one day I can find a way to combine the two professions. Within Civil Engineering, my fields of interest are Green Building and Urban water management,” he added. You can see Albert’s work on:
Instagram: https://www.instagram.com/matilya_art/
Facebook: https://www.facebook.com/ARTiculates/

Obituary

It is with great sadness that we heard of the death of a third-year civil engineering student, Nkosinathi Nkomo. Nkosinathi recently received a lot of media attention around Aquarenu, the greywater company that he had started to raise money to pay his fees. Read the story here. He died on Sunday 3 December, a memorial was held for him in Orlando East on Thursday 7 December, and his funeral was on Sunday 10 December. He was an extraordinary young man whose smile lit up the room when he entered.