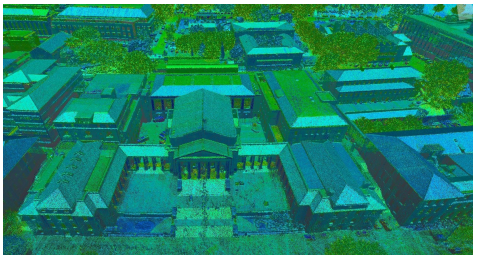
October 2018 Faculty of Engineering & the Built Environment University of Cape Town Vol. 14 Issue 3

# Faculty Newsletter



## Message from the Dean

The end of year is fast approaching with exams around the corner. The EBE graduation ceremony for all qualifiers who are on the system by 31 October is scheduled for Friday 14 December @ 18h00. I encourage academic staff to be part of the procession to celebrate the achievement of our students.

The closing date for undergraduate studies in 2019 was 30 September. We received 13 697 applications and the Faculty Office has made 2413 conditional offers. The Faculty office staff have done a remarkable job in capturing all the applications and making the early offers.

Professor Sunetra Chowdhury has put together a task team with representatives from each department to follow up on the outstanding issues and to coordinate the EBE supplementary exams, which will be taking place in 2019.

You are invited to attend Professor Neil Armitage's inaugural lecture, which will be taking place on 17 October at 17h30 in Kramer Lecture Theatre 2. The title of his lecture is After the Water Crisis: How to turn Cape Town into a water-sensitive city.

Congratulations to all the staff who have received their ad hom promotions. The promotion recognises the significant contributions each one of you has made to the faculty and the university. The Scientific and Technical Officers' ad hom promotion process is still underway, as well as the exceeds awards for PASS staff.

It is great to see the new energy in the Transformation Committee, under the chair, Dr Mohohlo Tsoeu. They have so far organised events on violence against women, and curriculum change, and worked with the student councils on the Heritage Day event. Please support their efforts in working towards an inclusive EBE.

The newsletter is full of great stories of academic and PASS staff and students' achievements. Well done to everyone.

## 2018 Elected UCT Fellows

UCT's Council established fellowships for members of permanent academic staff in recognition of original, distinguished academic work that merits special recognition.

Professor Aubrey Mainza from the Department of Chemical Engineering and Professor Edgar Pieterse from the African Centre for Cities (ACC) have recently been elected as Fellows of the University.

Professor Mainza is the Deputy Director and Head of Comminution and Classification Research in the Centre for Minerals Research, which is a large multi-disciplinary research centre.

Professor Pieterse is the South African Research Chair in Urban Policy & Director of ACC, an interdisciplinary research and teaching programme.

This is a deserving acknowledgement of their achievements, and the honour they bring to UCT.

There are now 12 Fellows in the Faculty: Emeritus Professor Mark Alexander, Professor George Ekama, Professor Sue Harrison, Professor Alison Lewis, Emeritus Professors Gerald Nurick and Cyril O'Connor, Professor Daya Reddy, Professor Eric Van Steen, Professor Vanessa Watson and Professor Alphose Zingoni. There are two Life Fellows: Professor Dave Dewar and Professor Heinz Ruther.

# Interpreting Kigali, Rwanda,

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

The description of the book on the University of Arkansas Press's website is below:

Rwanda, less than a generation removed from the 1994 Genocide, is experiencing a period of economic ascent and population growth. Its capital city, Kigali, is expected to triple in size within a generation, and is positioned to become a premier hub of commerce in central and eastern Africa. Amidst this optimism, however, is limited land and material resources. Food security is in tension with environmental concerns, and government aspirations are often in friction with daily, individual struggles for subsistence.


*Interpreting Kigali, Rwanda* explores the pressing challenges and opportunities to be found in planning, designing, and constructing a healthy, equitable, and sustainable city. Asking "what is an authentic-yet-modern, prosperous-yet-feasible African city, Rwandan city?" Smith, Berlanda, and colleagues conducted research on Rwandan activities of daily living and how these routines are connected to space-making practices and the Kinyarwanda terms that describe them.

Through a culturally informed view of urban and rural lifestyles and spaces, *Interpreting Kigali, Rwanda* presents principles and proposals for neighborhood development in the challenging context of Kigali's informal settlements. With one billion people living in informal settlements worldwide, a number expected to double by 2030, the lessons learned in Rwanda provide a complex, fascinating, and urgent study for scholars and practitioners across disciplines and around the world.

# Best paper award

In July, Chris Plano, a PhD student in the Department of Civil Engineering, received the best paper award at the 37th Annual Southern African Transport Conference (SATC) held at the CSIR in Tshwane. The conference is the longest running transport conference, and this year the theme was 'Towards a desired transport future: Safe, Sufficient and Affordable'.

Pilano's paper was titled 'Towards a stated choice methodology to determine minibus-taxi drive willingness to provide off-peak feeder service'. The award was the SAICE Transportation Engineering Division – Best Paper by a Young Professional at SATC 2018. His supervisors are Professors Roger Behrens and Mark Zuidgeest from the Centre of Transport Studies.

In the abstract, Pilano says 'The City of Cape Town has now signalled its intention to use minibus-taxis as feeder services to scheduled trunk services within a hybrid public transport network.

Earlier research in Cape Town has indicated that a potential problem within a hybrid system is a mismatch between the service spans of minibus-taxi feeders and those of trains and large buses. This study seeks to determine the viability of interventions to address such a mismatch by assessing individual minibus-taxi operator willingness to provide service. Interventions would have varying implications for minibus-taxi business operations and driver remuneration.'

*Friedrich Slabbert of SAICE Transportation Division and Chris Plano*

# "Who we are" Macassar community exhibition

As part of a community outreach initiative and a design-build experiment, Clint Abrahams, a lecturer, and John Coetzee, a principal technical officer from the School of Architecture, Planning & Geomatics, curated an exhibition entitled "Who We Are" in Macassar, a township 38 km from Cape Town. The two worked with Studio Light a non-profit youth development organisation consisting of ten participants from the area. In 2015 Studio Light wanted to alter the distorted mental image of the Macassar community, a perception tarnished by crime, poverty and other social ills they believed hindered meaningful engagement from locals and those visiting. The objective was to alter perceptions and to install a new appreciation of the place Macassar and its people. Workshops and discussions held on Friday evenings in living rooms revealed that the reproduction of an alternative image could serve as a potential antidote to the negative perceptions. It was decided to do this using the one common tool that all the participants had access to, the cell phone.

In June 2016, after a photographic workshop, the group embarked on street photography fortnightly, armed with cell phones, tablets and one camera. They reconnected with their neighbours by developing trust as they captured people amidst everyday settings. After two years the group produced a series of images that brought into view a new picture of hope and promise. To display the visual work, the group then embarked on developing their own display system comprising of found objects. Metal connectors that enabled a variety of display configurations were designed and manufactured with one of the parents, a boilermaker. As no space was available for their operations, the backyards of their parents were used to prepare timber pallets donated by Afri-pallet. These ordinary spaces were transformed into extraordinary places by the imagination of these young people as they consistently considered why, what and how to display the work. In July 2017, the group attended a frame-making workshop at the School of Architecture, Planning & Geomatics presented by John Coetzee and Shafiek Matthews. The youth produced frames from reclaimed timber which were then used to frame the images.

Read more

# Best paper award

Mochelo Lefoka in collaboration with Associate Professor Abimbola Windapo wrote a paper which received the Singapore Institute of Building Limited Best Paper Award at the 42nd Annual Australasian Universities Building Education Association conference held in September.

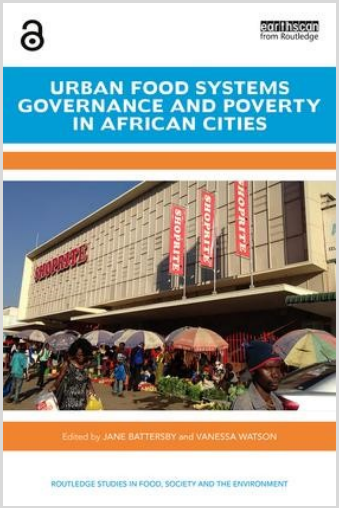
The conference was hosted at the School of Design and the Built Environment of Curtin University. The theme 'Educating Building Professionals for the Future: Innovation, Technology and Sustainability in the Global Market" looked at collaborative efforts between industry and universities and the efforts to drive the build profession in an environment that culminates in innovation, technology and sustainability.

*Mochelo Lefoka and A/Professor Abimbola Windapo*

Mochelo's paper titled 'Causes of Variation between Estimated and Actual Labour Productivity Output in the Construction Industry' explored the methods utilised in the estimation of labour productivity and analysed these against factors that emanate from a construction development stage.

Mochelo joined the Department of Construction Economics and Management in January 2017 and is completing his MPhil in Construction Management.

# Consuming Urban Poverty




The Consuming Urban Poverty academic book edited by Jane Battersby and Vanessa Watson is now available.

You can download the book free from the website, on Kindle and on iBooks (but not in all countries). Visit the book's page on the Routledge website

Description from the Routledge website on the book: As Africa urbanises and the focus of poverty shifts to urban centres, there is an imperative to address poverty in African cities. This is particularly the case in smaller cities, which are often the most rapidly urbanising, but the least able to cope with this growth. This book argues that an examination of the food system and food security provides a valuable lens to interrogate urban poverty. Chapters examine the linkages between poverty, urban food systems and local governance with a focus on case studies from three smaller or secondary cities in Africa: Kisumu (Kenya), Kitwe (Zambia) and Epworth (Zimbabwe).

# Three best presenters awards for ATProM students

The fifth Eskom Power Plant Engineering Institute (EPPEI) student workshop was held in August at the Eskom Academy of Learning. The workshop provided the opportunity for the students from the eight EPPEI centres to present the results from their research to the larger Eskom community. This allowed for interaction between the students from the different centres and for feedback to be given to the EPPEI management which ensures that the programme continues to provide Eskom with value from the research being done by the students.


*Left to right: Robert Temlett, Jean-Pierre du Preez, Priyesh Gosai, Pieter Rousseau, Daniel Louw (Stellenbosch), John Clark, Geoff Raikes*

Five students from the ATProM research group in Mechanical Engineering presented on the work that they had done for their master's projects. Three of the students won the best presenter award. Robert Temlett, supervised by Prof Pieter Rousseau, presented on the dynamic modeling of the HPS2 CSP molten salt test facility. Geoff Raikes, supervised by Hennie Mouton & Prof Wim Fuls, presented on the furnace exit gas temperature measurements using acoustic pyrometry. Jean-Pierre du Preez, supervised by Prof Pieter Rousseau, presented on the steam temperature and flow maldistribution in superheater headers.

The other two students were Daniel Louw, supervised by Dr SJ van der Spuy, who presented on the investigation into the effect of wind on fan performance in an ACC, and John Clark, supervised by Prof Wim Fuls, who presented on the modelling of a steam turbine stage by stage using a nozzle model with minimal geometric inputs. The session chair complimented John's presentation for having a research topic that has a direct influence in the turbine engineering division he works in on the power plant.

All in all, a very good showing of the quality of work and students that ATProM is producing.

# EBE Ad hominem promotions

Congratulations to the following staff members on their ad hominem promotions which will become effective on 1 January 2019.

**Lecturer to Senior Lecturer**

Dr David Oyedokun (Electrical Engineering)
Dr Simon Winberg (Electrical Engineering)
Ms Robyn Verrinder (Electrical Engineering)
Ms Stella Papanicolaou (Architecture, Planning & Geomatics)

**Research Officer to Senior Research Officer**

Dr Jiska de Groot ( Energy Research Centre, Mechanical Engineering)

**Senior Research Officer to Associate Professor**

Dr Kirsten Corin (Centre for Minerals Research, Chemical Engineering)

**Associate Professor to Professor**

A/Professor Brandon Collier-Reed (Mechanical Engineering)
A/Professor Mark Zuidgeest (Civil Engineering)
A/Professor Marianne Vanderschuren (Civil Engineering)

# Another win for ATProM

PowerGen Africa is an industry-driven conference which brings together stakeholders in the power sector. This year, a paper from UCT titled "A methodology for quantifying anomalies which lead to capacity limitations on induced draught fans" was recognised as the first runner up in the best paper awards. The paper was authored by Priyesh Gosai, Rendani Khobo, Professor Pieter Rousseau, Pravin Moodley (Eskom) and Ravendra Govindsamy (Eskom), based on the work being done by Rendani for his master's degree.

The topic was identified through close interaction with Eskom subject-matter experts. In resource-constrained operating environments, power utilities need to understand the benefits of intended repairs and, where necessary, prioritise efforts during outages. The aim of this tool is to aid plant engineering practitioners to quantify the effect of plant anomalies on the induced draught (ID) fan. Using this tool, it is envisaged that the impact of anomalies can be ranked or, in some cases, faults diagnosed based on their impact on the ID fan.

The model developed uses the Flownex Simulation Environment to model the flue gas path through the boiler. It is linked to a pre-configured Virtual Plant model that forms part of the EtaPro Performance Monitoring Platform used in Eskom for plant diagnostics to model the steam cycle. Combustion calculations in the boiler are done using the Boiler Mass and Energy Balance developed by Eskom and rigorously verified through this project. The paper presented the results for two cases: one for abnormal leakage in power plant air heaters and one for operating conditions where condenser pressure deteriorates.


*Priyesh Gosai, principal technical officer in ATProM, presented the paper at the conference and received the award from Dr Willie De Beer , chairperson of the POWER-GEN & DistribuTECH Africa advisory board.*

This research was enabled through the Eskom Power Plant Engineering Institute (EPPEI), which established the Eskom Specialisation in Energy Efficiency at UCT in 2012, which was accredited as the Applied Thermofluid Process Modelling Research Unit (ATProM) in 2017.

# Exposing high school learners to possibilities in energy and engineering

A group of 30 female learners from Thandokulu High School in Mowbray were invited to participate in a Women in Energy event at the Institute of Electronic and Electrical Engineers (IEEE) PowerAfrica Conference which was held in Cape Town on 26 June 2018.

An all-female panel consisting of engineers, scientists and an economist, and 60 conference attendees engaged with the learners over lunch. The discussion themed Women in Energy covered the role of mentorship, support mechanisms in industry, sensitising colleagues in creating an engineering workplace that is female-friendly, career development and progressions, and leading a successful professional career as a mother.

The learners were told of the myriad opportunities that are available for women in the fields of energy and engineering. Mrs Khayakazi Dioka, a professional engineer from Eskom, encouraged the learners to consider engineering and said they had taken the first step by attending the event.


*Dr Joyce Mwangama, Dr Melissa Densmore, Ms Tara Caetano, Dr Jiska De Groot, Mrs Joyce Mtimkulu and Mrs Khayakazi Dioka*


*Dr David Oyedokun with learners from Thandokulu High School*

The learners were introduced to Women in Engineering and Women in Power, two structures within IEEE which support the career advancement of women in the field and create networking opportunities.

Dr David Oyedokun, a lecturer in the Department of Electrical Engineering and a member of IEEE UCT, said, "We have had a long-standing relationship with Thandokhulu High. In 2009 we built a model wind turbine with learners from the school. This wind turbine is still in use for demonstration during the university's annual open day." He added that he would be spearheading a project where the learners will be invited to participate in developing a renewable energy centre at the school. The project will showcase both vertical and horizontal axis wind turbine technologies as well as solar PV. The objective of the project is to create a platform through which the learners can interact with renewable energy technologies, electrical design, programming, and energy economics. It will also build a relationship between the learners and the Department of Electrical Engineering, with the hope that they will develop an interest in electrical engineering.

The learners enjoyed the event and said that they would like to see the panellists visiting their school and other schools in the community so that more learners can benefit from the wealth of knowledge and the information that was shared.

Representatives on the panel were Dr Joyce Mwangama (lecturer in the Department of Electrical Engineering), Dr Melissa Densmore (Senior Lecturer in the Department of Computer Science at UCT), Ms Tara Caetano and Dr Jiska de Groot (researchers in the Energy Research Centre at UCT), Mrs Joyce Mtimkulu (Director at Motla Consulting Engineers ), and Mrs Khayakazi Dioka (engineer at Eskom).

The panel discussion was sponsored by IEEE South Africa Section and SAIEE and facilitated by Ms Estee Amana , Dr David Oyedokun and Mr Thato Semoko, chair of UCT IEEE SB.

# GirlEng Technovation Challenge

In celebration of women's month and to recruit young women into engineering, the EBE Faculty hosted 60 Grade 11 and 12 girls at a GirlEng Technovation challenge on Saturday 18 August. The event was arranged to build a relationship with the Grade 12 girls who have been made a conditional offer to study engineering in 2019 and to create a pipeline of Grade 11s who have shown an interest in engineering and are doing well in maths and physical science at school.

Thandokhulu High School learners with the VC, Professor Phakeng

The Faculty partnered with WomEng, and Aditi Lachman, the WomEng programme coordinator, facilitated the day. The VC, Professor Mamokgethi Phakeng, gave an inspiring talk and welcomed the girls to UCT. Aditi spoke about what the future of work may look like and the role of the engineer. They were introduced to the concept of smart cities before being divided into groups where they had to come up with a problem they wanted to solve in their community, brainstorm ideas and come up with a solution and then build a model. The projects ranged from a toilet-water-saving gadget to smart apps for hospitals, robots catching people who litter and an app for a transformed taxi system. 20 EBE engineering mentors were on hand to assist the learners with their projects. The groups then presented their project to the judges and the toilet-water-saving gadget was declared the winner.

Over lunch, the girls got to spend time with the mentors, engaging with them around their journeys and any tips for studying engineering at UCT. The Dean wrapped up the event and encouraged the girls to consider engineering as a study option, so they too can make a difference in their community, nationally and globally.

# #BreakingTheStereotype

*Prof Phakeng, Robyn Farah, Apiwe Hotele, Iman Malaka, Lorrita Christelis and Regina Kgatle*

On 20 August, IEEE UCT, together with Apiwe Hotele, an electrical engineering alumna, organised the third annual #BreakingTheStereotype event. Successful women from different industries in science and engineering were invited to share their experiences through a panel discussion. The Vice-Chancellor, Professor Phakeng, was the guest speaker and shared her experiences, and her passion for mathematics and promoting STEM careers to women. The other panellists were Robyn Farah, Founder of KATO, Iman Malaka, co-founder of TIC-IT Telecoms, Regina Kgatle, founder and MD of Educade and 67 games, and Lorita Christelis, a systems engineer at a space advisory company. The venue was packed and the students attending made the most of the evening by really engaging with the panellists about their career journeys.

# Welcome to new staff

Dr Ryno Laubscher joined the EPPEI Energy Efficiency Group in the Department of Mechanical Engineering on 1 September.

Mr Neil Hassan joined the African Centre for Cities as a Junior Research Fellow from 1 July.

Ms Carlyn Hewitson joined the EBE Faculty Office as an Undergraduate Administrator on 6 August.

Ms Yolanda Amsterdam joined the Department of Chemical Engineering on 17 September as the Finance & Admin officer in the Catalysis Institute. Yolanda was the HR administrator in Bremner for the EBE Faculty.

Mr Yule Banda is the new HR Practitioner who will be working in the Faculty. Nurunisa Hendricks, who was in the acting position, left on 1 October to join the Health Sciences Faculty.

# Resignations

Anastacia Haddon resigned from the Department of Construction Economics and Management and left on 31 August. She was the administrative officer for undergraduate and honours students. She joined the department in May 2013. Previously she had worked in the Department of Chemical Engineering and in the Faculty Office. Anastacia has decided to take time out to spend more time with her five-year old daughter, Mia.

Dr Matteo Fraschini resigned from the School of Architecture, Planning & Geomatics.

Mrs Debby Chuter has resigned from the EBE Faculty Office and will join the Faculty of Humanities on 1 December as the Deputy Faculty Manager.

# Obituary

Julie Broadley died in the early hours of 19 July, at the Life Vincent Pallotti Hospital in Pinelands, after a car accident on 29 June 2018.

Julie joined the Department of Chemical Engineering in 2009 and worked as a secretary in the department. At the time of her death, Julie worked for the HOD, Professor Eric Van Steen. He said, “She cared deeply for the department, ensuring that all things were being done correctly. She was persistent in getting her job done and was a driving factor behind a lot of the social events in the department. She was frank in her opinions but had her heart in the right place.”

Julie is survived by her mother, whom she had been visiting in the UK the week before the accident.
A memorial service was held on 24 July in the Claremont Methodist Church, and the Department of Chemical Engineering held a memorial for her on 25 July.

She was well loved by the staff and students in the department and will be remembered for her wonderful character.

# New HR administrator

Ms Nicolene Balfour is the new HR Administrator for the EBE Faculty, replacing Yolanda Amsterdam, who has joined the Department of Chemical Engineering.
Nicolene has been with the HR Department for seven years and will be relocating from her current portfolio. She will be available to EBE from Friday 28 September via email: nicolene.balfour@uct.ac.za or telephone: 0216505182. She is based in Room 126, Bremner Building.

# Retirements

## Paul Bowen

Professor Paul Bowen's academic career spans some 40 years after graduating at the University of Natal with a BSc in Quantity Surveying *cum laude*. In 1990, Paul joined the Department of Construction Economics and Management as Associate Professor. After obtaining his PhD in 1993, Paul received *ad hominem* promotion to full Professor. In 1998 he was appointed to the position of Head of Department, a role he has undertaken for the periods 1998 to 2000, 2001to 2003, and 2004 to 2006. Paul also served as a Deputy Dean, and Senior Deputy Dean, in the period 2008-2010.

Paul holds a B2 rating with the National Research Foundation of South Africa (NRF) and is a member of the South African Academy of Science. His research interests embrace the psycho-social aspects of HIV/AIDS in the South African construction industry, and Workplace stress experienced by construction professionals. Research outputs include a book, and some 200 peer-reviewed journal and conference papers. He is currently Visiting Professor to RMIT University in Melbourne, Australia.

Post retirement Paul hopes to continue his research projects and contribute to the research profile of the department. Other than that, time will be spent undertaking woodwork projects, devoting time to family, and "smelling the roses".

## Kathy Evans

Kathy joined the Department of Construction Economics and Management in 2000 as a senior lecturer, where she has served as the programme convenor for Construction and Property Studies undergraduate and honours programmes and coordinator for the master's degree in Property Studies. She is a registered professional quantity surveyor.

When Kathy talks about her time at UCT, she bubbles over with enthusiasm when talking about all the students whom she has taught over the years. She keeps in touch with the department's alumni and loves to hear their stories about where they are and what they are doing in the workplace. Through her work in industry, Kathy has a wide network of companies that she works closely with, and they keep her up to date with the needs of industry. She has a knack of matching graduates with industry needs.

Kathy is looking forward to retirement to create the beautiful garden she has always wanted. She is also going to volunteer at the Riding for the Disabled, which provides the opportunity of therapeutic and recreational horse riding for disabled people so that they might benefit in all aspects of their mental, physical and social lives.

# 2018 Retirees

## Jill Rumbelow

Jill Rumbelow joined the Professional Communication Unit in 2005 as the administrative officer. Jill has loved her time at UCT and especially enjoys the interactions she has with students.

Her husband, Andy, is a UCT civil engineering graduate and is a Rotarian, so through him, Jill has become an honorary Rotarian. Jill has been involved with GROWSmart, an educational programme aimed at addressing educational development in maths, science, literacy, and story writing in schools across the Western Cape. When she retires, Jill has planned a visit to her son and his wife and her four-year-old grandson who live in Sweden. She has a daughter living in Cape Town with a four-year son who will keep her busy.

On returning from her travels, Jill is going to be part of the Guide-Dog Association's Puppy Raiser programme where she will take a puppy into her home for 11 to 18 months. She will be responsible for training the puppy and has a strict programme which she needs to follow to ensure the puppy will turn into a good guide dog. When the puppy has developed into a well behaved and mature dog, it is given back to the Association.

## Charles Nicholas

In 1992, Charles Nicholas joined the Department of Civil Engineering as a senior technical officer in the workshop, where he worked with Eike Von Guerard. He came from industry as a qualified tool-dye and jig maker. His sister-in-law alerted him to the position available at UCT, and he said the attractive benefits that UCT offered helped him decide to move to UCT.

In 1994 he was promoted to chief technical officer. In 2009, he left Civil Engineering to join the Department of Mechanical Engineering as the chief technical officer in the departmental workshop. He wanted to explore and experience the different workshops on campus. After Charles left the civil workshop, Eike Von Guerard resigned, and Charles started helping Civil Engineering over the weekends. In 2011, after being persuaded to come back, Charles joined the Civil workshop again as the principal technical officer. Charles has enjoyed working at UCT for over 26 years. He said, "UCT offers a lot of personal development." He served on committees, including selection committees, and was the head of the EE working group for a while. He has been responsible for the Civil socials which helped create a collegial atmosphere.

Charles will not be idle when he retires. He has been offered a contract with Victoria Engineering in Kampala, Uganda, where he will establish a workshop for them, on the standards of the Civil Engineering workshop. The CEO of Victoria Engineering had visited the civil workshop and was so

impressed by the high standard that he asked Charles to help them up their game. Charles will also help Civil Engineering on an ad hoc basis until the central faculty workshop is up and running.

He has a love for avocado trees and is busy nurturing 16 trees. He lives with his wife and has two daughters and two granddaughters. He said, "I am going to enjoy spending time with them and instilling the good old-fashioned principles that so many children of today lack." Charles admitted that he loves cooking and makes the best homemade ginger beer and loves to braai fresh snoek.

If this is not enough, Charles helps at police stations as a victim support volunteer, where he offers emotional support and advice to victims of crime.

# Anamaré Burmeister

Anamaré joined UCT in 1993 as a senior secretary in the Department of Psychiatry. She spent some time in the Commerce Faculty and the English Department before joining Electrical Engineering in 1995 as an administrative officer. At that time there were only three admin staff who dealt with undergraduate, postgraduate, enquiries and HOD's work. In 2005 she decided to leave UCT and ventured overseas before returning to UCT in July 2006, when she joined the Faculty Office as an administrative assistant. She was mainly responsible for the architecture applications. Looking for a change, she applied and got the position of assistant finance officer in the faculty. During her time in the faculty, Anamaré has continually studied part-time through UNISA. She has completed her BA and her LLB, as well as completed modules in Linguistics, French and English. This year she is doing a proofreading course through the Writers College of South Africa. Annamaré will be retiring at the end of December and she is looking for

something in the line of teaching English or proofreading to keep her busy during her retirement.

# Professor Alireza Baghai-Wadji

Professor Ali joined the Department of Electrical Engineering in July 2012. When asked why he decided to come to Cape Town, he said, "I have lived in many places around the world, and I wanted to experience Africa and find out more about the African people." He was also aware of UCT's reputation and heard that Cape Town was a beautiful city. Ali comes from Vienna and says his wife has been very understanding and supportive of his stay at UCT. She has remained in Vienna but comes over to stay and has also fallen in love with Cape Town. Ali says he has developed a deep appreciation of the African people, who he finds are spiritual and have such soul.

When Ali arrived in Electrical Engineering, he was tasked with heading up the curriculum review team, which he did until he went on sabbatical in 2017. He also took up the position as the Assistant Dean for Internationalisation in July 2014 to July 2015, under the Dean, Professor Francis Petersen.

Ali is still deciding what he is going to be doing with his retirement, but he certainly will not be bored. He wants to spend more time in Vienna and revive his connections in the many European universities he has worked with. He has built a good relationship with UCT's D-School and would like to play a role in it, transferring learnings from here to the D-School in Potsdam, and vice versa. He

would also like to know more about the D-School at Stanford. He wants to work with young start-ups and interact with them, and also has some options in China and India.

# Horst Emrich

Horst Emrich was in industry, where he was involved in tool and jig making. A friend told him about an advert for a technical officer position at UCT, which he applied for and was successful. In March 1991, he joined the Department of Mechanical Engineering's workshop. Over the years he was promoted to chief technical officer and ,after waiting 16 years, he was promoted to chief technical officer. Horst says he has learnt a lot during his 27 years at UCT. He said, "The students keep you young."

Horst was an active surfer and has a love for plants. A few years ago, he was diagnosed with a hereditary disease. During his retirement, he is determined to find some plants which will help him with the quality of his life. He will be retiring with his wife and has a son and a daughter and five grandchildren to keep him busy.

# Celebrating EBE staff

Xolelwa Kakaza grew up in Langa in the Western Cape and attended Isilimla High School in Langa. In 1999 she failed her matric and was unable to redo it as she did not have the means. From working at Woolworths, she joined SuperCare at UCT in 2014, and in 2015 she began working on the 2nd level of the New Engineering Building.

With the insourcing of the SuperCare staff in 2016, Xolelwa was determined to make the most of what UCT offered as an employer. In her 40s, through the staff training programme, in August 2017 she registered to rewrite the subjects she had failed in matric. Every Saturday morning, she catches a taxi into town, where she attends classes at the Cape College. She hopes to matriculate in June 2019 and would like to work herself up to an admin position. Xolelwa lives in Langa with her husband and two of her three children.

# Stand-by adviser for rape and sexual assault

Nuraan Hartley from the Faculty Office was one of 11 staff members who recently completed standby adviser training for cases of sexual assault and rape. Their trainer was Rashieda Khan, who heads up the Survivor Support Office in the Office for Inclusivity and Change. Standby advisers, who are paid a nominal fee, are on call when Khan is off-duty. They work after hours, on weekends and on public holidays.

The training covers basic counselling skills and the short- and long-term physical, psychological and emotional impact of sexual assault and rape, and also addresses the myths and attitudes in society pertaining to sexual assault and abuse, says Khan. The advisers are also trained in how to refer individuals who are sexually assaulted or abused to appropriate resources.

Nuraan is passionate about people, and it is especially important to her that survivors don't feel alone. In training for the role, Hartley was able to draw on her personal experience. "I know how it feels to be lost when something happens, and I know the feeling of rejection and loneliness all too well," she said. "When a traumatic event occurs, people are often not in the right frame of mind to act in their best interest. As a standby adviser, it's my duty to remain calm and level-headed, able to provide the correct information or most appropriate channels to follow."

Sometimes that means accompanying the survivor to the police station or hospital. But it's also important to respect the survivor's boundaries. Some people don't want to report the perpetrator. "Empathy is an absolute must," Hartley said, adding that standby advisers need to be respectful, trustworthy, friendly, calm and welcoming. "You must also know how to remain neutral and not pass judgement. We must remain neutral, as we don't only deal with the survivors."

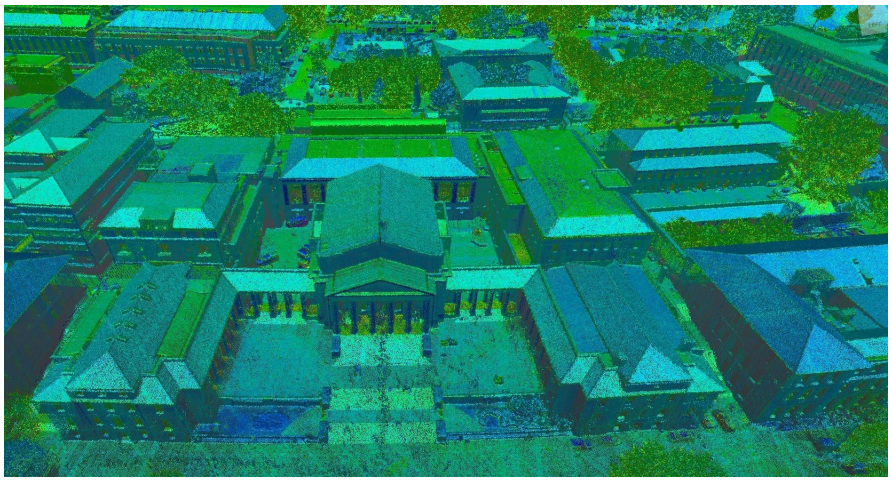
This work is part of her commitment to building more robust, educated and empowered communities. She rues the general lack of education – for males and females – about different forms of abuse. "I believe we must raise awareness about assisting victims to become victors. There should also be more education for young people about what appropriate behaviour is, and what it is not."

Besides making herself available for standby shifts, Hartley provides other forms of support in her day-to-day interactions. "In my role, I deal with students daily and very often they reach out to me. Many of our students are suffering silently, so I am happy to be there for them. We must learn to break the silence," she said.

Full article by Helen Swingler on www.news.uct.ac.za

# Drones add new perspective to Geomatics

**Geomatics is an applied science with its roots in traditional land surveying. With the advent of technology such as global positioning systems, three-dimensional laser scanning and geographic information systems, it was renamed in the 1990s. But, if a recent drone-based survey of UCT is anything to go by, geomatics is set to take off once more.**



*UCT upper campus lidar sample curtsey of A/Professor Julian Smit*

Undertaken on a calm August morning, the Geomatics Division's survey of the UCT's upper campus, using drone-based light detection and ranging (lidar) and aerial imagery, is unprecedented.

Not only were the equipment and techniques used (supplied by (Horts Geo-Solutions) among the most sophisticated of their kind available worldwide, but the data was captured faster, more accurately, and in more detail than that provided by pre-existing surveys of the area. Among other things, the data will be incorporated into the department's ongoing scanning and mapping of the campus, which is built on by fourth year students every year.

Moreover, the drone survey added to the department's knowledge of the advantages and challenges of surveying using drones.

"The exercise gave us an excellent demonstration of the legal and safety issues required by such work," says the department's chief technical officer, Mignon Wells. "We also saw what precision is required by pilots who, on the day, had to navigate airborne dangers by way of large raptors and multiple flyovers by helicopters, with whom the pilots need to maintain radio contact."

The drone survey also provided the Geomatics Division with an opportunity to draw attention to the diverse and evolving world of geomatics.

Strict and cumbersome legislation regarding the commercial flying of drones in South Africa notwithstanding, the value of using the machines to collect spatial and geographic data in digital form is increasingly acknowledged. It's not just that the unmanned vehicles help save time, are less environmentally disruptive than other technologies, and can go just about anywhere and fill important gaps inaccessible to manned aircraft and ground surveyors, it's also that drone technology is helping expedite associated geomatics technology. And this technology, in turn, is helping produce more informative images.

The drone itself does not produce images. This is done by navigational systems, scanners, mapping systems and cameras carried by the machine. Undertaking drone-based surveys and scans right require a licensed drone pilot and (unless the pilot is also a qualified surveyor) a professional geomatics practitioner.

But, explains Prof Whittal, it's what happens and what is done with the data collected that affirms the value of geomatics. And, where geomaticians recognise innovative ways of collecting, analysing, manipulating and presenting data because of new opportunities provided by drones, the value proposition grows. This is one of the reasons companies like Horts Geo-Solutions like to work with universities.

"Our principals are always eager to hear what the UCT Geomatics Division is working on," says Horts Geo-Solutions CEO Francois Stroh. "It's the work done in places like this that helps advance technology and systems."

**Written by Penny Haw**

# CeBER hosts Professor Jill Banfield

*Article and photograph by Candice Mazzolini*

Professor Jill Banfield, CeBER Collaborator and Fellow of the UK Royal Society, returned to CeBER for a research visit from 17 July to 10 August 2018. Prof Banfield is an earth scientist whose lab is based at the University of California, Berkeley. Through genomics, her research group has provided revelation into previously mysterious bacterial and archaeal lineages, leading to a new rendition of the Tree of Life. Prof Banfield provided insight into this research in her seminar delivered on 2 August 2018.

CeBER first hosted Prof Banfield at the end of 2012 when she joined the group for a three-month sabbatical. Since then, there have been multiple research visits and joint investigation towards the effective biological decontamination of mining wastewater through microbial degradation of thiocyanate. CeBER looks forward to many more opportunities for collaboration with the Banfield Lab in the years to come.

*Professor Jill Banfield*

# ANSDAC workshop—call for applications

The DST-NRF CoE in Catalysis c*change would like to introduce its newest project, the African Neutron and Synchrotron Data Analysis Competency (www.ansdac.com) workshops.

The ANSDAC project aims to develop expertise amongst emerging Africa-based **faculty researchers** to engage with and make use of large-scale international institutions such as neutron and synchrotron light sources. Funded by the Newton Fund administered by the Royal Academy of Engineering, as well as through in-kind contributions by the Universities of Glasgow, the Western Cape and SASOL, two workshops on synchrotron and neutron data analysis will be offered in 2018 and 2019. Lectures will be held by researchers from the Diamond Light Source and the ISIS Neutron and Muon Source in the UK as well as South African experts. The first workshop takes place from **28 November to 7 December 2018 in Cape Town**. For more information and to register visit www.ansdac.com. The workshop, as well as accommodation, is free of charge, but the number of attendees is limited to 15 per workshop. Registration closes on 31 October 2018.

In 2019, ten of the workshop attendees of 2018 and 2019 will travel to the Diamond Light Source and the ISIS Neutron and Muon Source in the UK to experience beamtime first hand. This is possible through a collaboration with the UK Catalysis Hub.

# Second-prize laurel for CeBER student

*Article and photograph by Candice Mazzolini*

From 10 to 14 September, representatives from CeBER and MtM joined 350 experts in Pretoria for the 11th International conference on Acid Rock Drainage (ICARD). Three main subjects were covered on the theme — including mitigation, remediation and responsible mine water management— as participants endeavoured to confront the issue of "risk to opportunity" and all that it entails. Of the 25 students who presented their work at ICARD this year, CeBER Student Donald Mjonono was the one to claim the second-prize laurel and €500 which was awarded for the excellent quality of his written paper and oral presentation.

# Distinguished Toastmaster Award

*Article and photograph by Candice Mazzolini*

Durga Iyer, a CeBER PhD candidate, earned the Distinguished Toastmaster Award in August 2018. The award represents the highest level of educational achievement in Toastmasters and recognises the public-speaking and leadership achievements of a member. This journey has helped Durga mature his public speaking and leadership skills. He won the 2017 Toastmasters District 74 Division D Humorous Speech Contest. He is currently the club president of UCT Toastmasters and is part of an enthusiastic team who are eager to help people become the leaders they strive to be. He attributes his achievement to the supportive culture of the UCT Toastmasters club and the encouragement and mentoring provided by Toastmasters in the southern African community. After the DTM, his next pursuit is another three letters – his PhD! CeBER wish Durga the best as he strides towards the completion of his doctorate.

Emeritus Professor Dee Bradshaw, who died in June this year, was the chief instigator and a charter member of the UCT Toastmasters club. She would be so proud of Durga's achievements.

# Awards for young civil engineering graduates

*Shamiso Kumbirai*

Shamiso Kumbirai, a 2012 civil engineering graduate, who has recently completed her master's degree, was the winner of the Consulting Engineers South Africa (CESA) of the Year Award. Shamiso is working for Aurecon and specialises in water engineering involving hydropower schemes, pipelines and irrigation works She has worked on projects in South Africa, Uganda, Swaziland and Rwanda. Earlier this year she was selected to represent the voice of the Southern African youth at the World Economic Forum in Davos. She is also a member of the first class of the Obama Foundation Leaders: Africa – a programme for young leaders across Africa.

In her interview with Aurecon, she said, "I'm deeply honoured to receive this award. Standing on stage, witnessing a dream actualised, was nothing short of an incredible moment. To say this recognition belongs to me alone would be unjust. Thank you to my family, mentors and colleagues who help me grow, innovate and continually force me to think in new, creative ways."

Ntseuoa Motsieloa, also a civil engineering graduate, who completed his undergraduate degree in 2009 and his MSc in 2012, received a Commendation from CESA for the Young Engineer of the Year Award.

*Ntseuoa Motsieloa*

Ntseuoa is working for Nyeleti Consulting in the field of structural engineering. He has been responsible for engineering planning, design, supervision of CAD personnel, liaison with stakeholders and engineering activity management for many large projects.

# International Alliance for Research Universities

Whitney Pailman, a PhD student in the Energy Research Centre, attended the International Sustainable Campus Network (ISCN) conference as part of the ongoing student education initiatives and exchanges of the International Alliance for Research Universities' (IARU). Whitney was one of four students from member universities who helped to facilitate the joint IARU/ISCN special event on the role of academia in advancing the Sustainable Development Goals. The other three students were Elsie Moore from Yale, Rupert Stuart-Smith from the University of Oxford, and Mikayla Tran from the University of California. The four of them are working together to develop a report on the event.

Whitney said, "The 2018 ISCN conference was a dynamic showcase of the integration of the sustainable development goals in teaching, research and campus practices. It brought together innovative case studies from universities across the globe, through robust dialogue, enthusiasm and commitment to advancing solutions to pressing global challenges."

She added, "From the many insightful presentations, Professor Khatharya Um's plenary address, titled Global Refugees: Critical Issues and Relevance to Sustainable Development Goals, really caught my attention. She highlighted the role universities can play in serving society and the need to incorporate community service into a university's core curriculum. She also acknowledged the importance of addressing the systemic issues that lie at the root of many sustainable development challenges, including a lack of access to opportunities, inequality and poverty. This was also echoed in the closing address of Professor Sigbritt Karlsson, President of KTH Royal Institute of Technology."

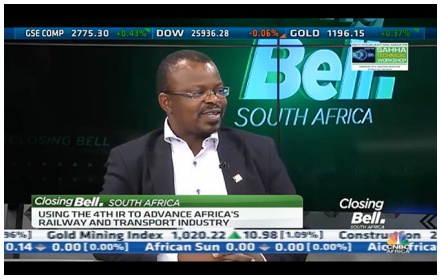
# Best student poster award

Alice Bakera, a PhD student in CoMSIRU, a research unit in the Department of Civil Engineering, received the 2018 RILEM Best Student Poster Award for her work on "Durability Properties of Concrete Containing Metakaolin". Emeritus Professor Mark Alexander supervises Alice. The award was made at the RILEM Annual Week conference which was held in Delft, Netherlands. RILEM is an international organisation concerned with research in materials and structures and has been in existence since 1947 with its headquarters in Paris. In 2012, Emeritus Professor Mark Alexander was the first African president of RILEM.

The conference's theme was Service Life Design for Infrastructures, and was jointly organised by Delft University of Technology and the Tongji University in Shanghai.

*Alice received the diploma from Nicolas Roussel, RILEM TAC Chair at the General Council on Wednesday 29 August 2018.*

# Africa on track for heavy haul railways 4.0




"Embracing the 4th industrial revolution in heavy haul railways – paving the way" was the theme of the workshop at which railway professionals and associates from across the African continent came together to tackle the advancement of the railway and transport industry in Africa. The workshop was hosted by the South African Heavy Haul Association (SAHHA) in September in Johannesburg.

Professor Pilate Moyo, head of the Department of Civil Engineering, Director of CoMSIRU, and Chairman of Technical Programmes at SAHHA, attended the workshop. In an interview with CNBCAfrica, he shares insights into new technologies for heavy haul railways and South Africa's role in advancing these on the continent. You can find the interview here.

# SAIMM Award for best performing students

The annual Western Cape student evening of the South African Institute of Mining and Metallurgy (SAIMM) was held on 3 September at the University of Stellenbosch. The event is for undergraduate students from CPUT, Stellenbosch and UCT. It provides final-year students with an opportunity to learn about the activities of the SAIMM, encouraging them to become members. Two 2017 chemical engineering graduates, Vimbainashe Dzimbanhete (left) and Danielle Goho (right), were given an award as the best-performing final-year Minerals Processing Students at UCT in 2017. The award was given by the current President of the SAIMM, Alastair Macfarlane.

# Brewing UCT have done it again!

*Article and photograph by Candice*

For the fourth time since the SAB Intervarsity Beer Brewing competition began 10 years ago, UCT has claimed the top prize as Overall Winners of the show. This year, the team wowed the judges with their "Dubbel or Nothing" speciality beer which placed first in its category, went on to win "Best in Show" and ultimately sent the Overall Prize-winning trophy home with the team.

Brewing UCT is an EBE postgraduate student-run microbrewery based in the Chemical Engineering Department and building on the expertise of bioprocess engineering students from CeBER.

Together they have spent hours researching, perfecting and experimenting with recipes in pursuit of a delicious, "hoppy" ending for every brew. This year, the beers that they submitted for judging included Dubbel or Nothing (Belgian Dubbel), Miami Weiss (Pineapple Weiss), Lost in Translation (Foreign Extra Stout) & V for Vienna (Vienna Lager) — each representative of a flavour and aroma profile particular to its category. The team overcame 13 other universities to win this year's competition and this victory has only added fuel to their flame; having only just received their awards, they are already well into discussions on the next best brew. Congratulations to the team and many thanks to CeBER for the sponsorship and support.

*BACK: Chris Knutsen, Alex Opitz, Shanna Swart, Prof Eric van Steen, Catherine Edward, Nicole Uys, Dr Juarez Amaral-Filho*
*FRONT: Elina Chen, Gianluca Shaer, Obakeng Jona*

# Soccer Tournament

In August, the EBE postgraduate council held its annual soccer tournament. Through their hard work, the council members got each department to put a team together to participate in the tournament.

The aim of the tournament is to give postgrads a break from their research and work. It was a fun social occasion where everyone had fun and there was a healthy competition between the departments teams.

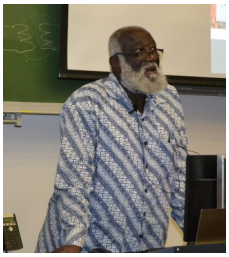
The winning team was the CEM honours team who entered for the first time. The event was well attended and a great success.

*CEM honours team*

# Heritage Day

The postgraduate and undergraduate student council hosted a faculty-wide Heritage Day event where staff and students celebrated the diversity in the faculty.

The evening consisted of music, poetry and dancing. The guest speaker was Professor Kwesi Prah who spoke about the importance of language and culture. He has worked at a number of universities across Africa, Europe, and Asia, and in South Africa he worked at the University of the Western Cape. His talk was very relevant to the EBE students and it was enjoyed by all.



*Professor Prah*

*Poet Pearl Mamabolo*

*One Heart*

# Community build

In September, the Association of Built Environment Students (ABES) organised the annual first-year community build. ABES's partnership with VHP Holdings for the five-day community build in The Hague, Delft, was facilitated by BlueMoon Projects. The students are responsible for fundraising towards this opportunity contributing towards materials used on the BNG housing development.

The first-year construction studies students were guided and mentored by ABES committee members and volunteer senior students, under the watchful eye of VHP Holdings' foremen. They learnt how to set out the sub-structure for a house using boundary pegs and started with the basics of digging and excavating for the foundations. The students mixed concrete, plastered, painted and discovered the importance of the compaction testing before pouring the concrete slab. Under the guidance of skilled artisans on site they learnt how to apply the theoretical knowledge they learnt in class. Many students felt that the experience of working together on site brought the class together and allowed them to bond.


*First-year construction students and ABES members*

Leeroy Malata said, "I am very honoured to have been part of such an awesome and informative event. It was a great opportunity for me to get more exposure to site conditions and to see how the management of staff and materials is conducted on site. I really acquired a lot of information from other members on site and the VHP management team."

Refiloe Mokgele said, "Overall a huge amount was learnt by those who attended the build about the practical implications of class theory and more so about one another."