



# NEWSLETTER

## MESSAGE FROM THE DEAN



Dear Colleagues,

As this academic year draws to a close, I want to acknowledge the commitment and dedication of each EBE staff member throughout the year. Since assuming the Deanship in the second half of the year, we have faced a few challenges, and I am grateful for the support and guidance I have received from the faculty and working towards our vision. We remain focused on building a strong academic foundation and creating a learning environment where both students and staff feel supported and engaged in co-creating knowledge and experiences. I would also like to thank all EBE Committees and Working Groups for their consistent efforts in ensuring the faculty operates efficiently and stays focused on our key priorities.

The many student highlights and accomplishments featured in this edition of the newsletter showcase the exceptional contributions of our academic and PASS staff. We also celebrated a number of excellent initiatives and awards from various departments during the last quarter of the year. Notably, Professor Michael Claeys was inducted into the Academy of Science of South Africa, and several faculty Health and Safety representatives were recognised at UCT's inaugural Occupational Health, Safety and Environment (OHSE) Awards Ceremony.

Lastly, a heartfelt thank you to all our retirees for their exceptional service and commitment to the faculty.

I wish you all a restful and peaceful break over the festive season.

## STAFF WELCOME

- **Dr Ekaterina Rzyankina** joined the Department of Electrical Engineering as a Lecturer.

## STAFF FAREWELL

- **Mr Richard Lamour** left the Department of Electrical Engineering.

## RETIREES

This year, we bid farewell to five staff members who are retiring. They have made significant contributions to the faculty, and we are deeply grateful for all they have done. We wish them the very best in their future endeavours.



**Prof Ed Boje**  
(Electrical Engineering)



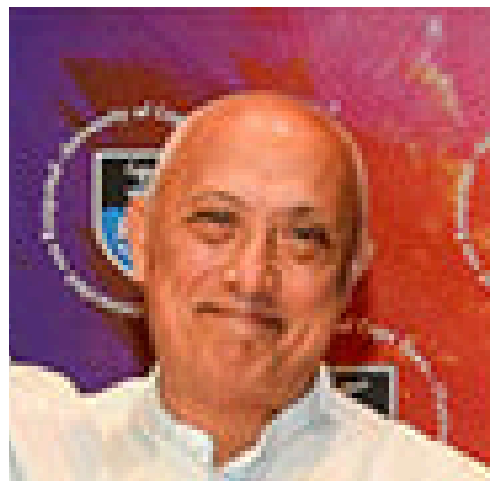
**Prof Jennifer Broadhurst**  
(Chemical Engineering)



**Ms Tarna Klitzner**  
(Architecture, Planning and Geomatics)



**A/Prof François Viruly**  
(Construction Economics & Management)



**Mr Terence Swarts**  
(Architecture, Planning and Geomatics)

## AWARDS AND HONOURS

### Professor Michael Claeys Inducted into the Academy of Science of South Africa (ASSAf)



Congratulations to Professor Michael Claeys on being inducted into the Academy of Science of South Africa (ASSAf).

Induction into ASSAf is both a moment of deep pride and a reflection of the excellence that has long been the hallmark of UCT. ASSAf recognises and celebrates scholarly excellence, and as a university we are immensely proud that our scholars have been inducted into the South African scientific vanguard.

ASSAf represents the highest ideals of scholarly integrity and social responsibility. By joining its ranks, our colleagues have extended UCT's influence into the very heart of the national scientific community.

It is also a reminder that our excellence is not measured only by rankings or outputs, but by the depth of our impact – on people, on policy and on the planet.

Professor Claeys is based in the Catalysis Institute within the Department of Chemical Engineering. His leadership in the Institute showcases UCT's strength as a global hub for multidisciplinary, solutions-driven research. His research focuses on catalysis for energy applications, including the Fischer-Tropsch process. This technology lies at the heart of South Africa's synthetic fuels and chemicals industry, and plays an increasingly important role worldwide in the production of future green fuels and chemicals from sustainable sources.

[Read more.](#)

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## AWARDS AND HONOURS

### Saving the Day: EBE's Unsung Safety Heroes



*EBE H&S award winners, Randall Smith, Natasha Kalu and Derik Wilbers*

On the 11th of November, the inaugural COHSAC Awards were hosted at the D-School. EBE was well represented, with several members of the EBE Health & Safety (H&S) team recognised for their outstanding efforts in keeping our faculty safe. These truly are the unsung heroes of EBE.

Ms Natasha Kalu (Electrical Engineering) received the EBE First Aider of the Year award for displaying compassion and a calm, clear head. Throughout the year, Natasha attended to multiple incidents and consistently did a fantastic job reassuring patients. She is proactive and has been described by her department as invaluable.

Staying with first aiders, Mr Curwin Nomdoe (Chemical Engineering) received a special mention and certificate from the faculty for his many years of service as Chief First Aider for the department. He is also an active Evacuation Marshal and H&S Representative.



Moving on to our H&S Representatives, Mr Derik Wilbers was recognised as the EBE H&S Representative of the Year for identifying a serious potential risk involving highly volatile crystallised picric acid and taking the correct preventative actions to ensure its safe disposal - an operation that required assistance from the bomb disposal unit. Derik is also a First Aider and Evacuation Marshal.

This leads us to our Evacuation Marshals, where Mr Randall Smith (Chemical Engineering) received the EBE Emergency Evacuation Marshal for 2025 award. His enthusiasm and willingness to assist during evacuation drills - after clearing his own floor- sets him apart. Randall regularly checks other areas as well and always steps in where assistance is needed. In addition to being an Evacuation Marshal, he is also a First Aider.

Both Mr Maysam Soltanian (Electrical Engineering) and Dr Thobani Gambu (Chemical Engineering) were thanked for their outstanding contributions and for consistently leading from the front as H&S Representatives for their respective departments. Thobani runs a tight ship while managing arguably the most complex and high-risk department in the faculty - with all its chemicals and gases - and is always willing to offer support and advice.

Maysam has made a marked difference, implementing several new measures and improvements within his department. He is always ready to assist and is clearly passionate about H&S. In addition to his duties as H&S Rep, he is also a First Aider and Evacuation Marshal.

The faculty wishes to thank the entire H&S team in each department. Their efforts and contributions are greatly appreciated.



*EBE H&S award winners, Thobani Gambu, Curwin Nomdo, Maysam Soltanian*

## AWARDS AND HONOURS

### A Night of Elegance and Affirmation at UCT's Staff Awards



UCT honoured School of Architecture, Planning and Geomatics' Terence Swarts for 45 years of service at the 2025 Annual Staff Awards, recognising a journey that began in 1980 when he arrived as a cleaner with little formal education but a promise he believed was written in destiny. Swarts reflected on a journey shaped by the support and humanity of colleagues who became family.

Watch the full video:  
<https://qr.link/bv2K04>

## IN THE NEWS

### Western Cape Built Environment Stakeholder Engagement Roadshow



UCT in partnership with the Council for the Built Environment (CBE) and the Department of Public Works and Infrastructure (DPWI), hosted the Western Cape Built Environment Stakeholder Engagement Roadshow (BESER).

This event was part of a national series aimed at strengthening collaboration and promoting professional excellence across South Africa's built environment sector.

The roadshow objective was to deepen partnerships, advance professional standards and transformation, and align industry practices with national development priorities while expanding the CBE's institutional presence across provinces. As the academic host, UCT brought research expertise and thought leadership to the engagement, reinforcing its commitment to innovation, sustainability and the advancement of the built environment.

The gathering brought together key stakeholders from the public and private sectors, professional councils, academia, industry bodies and local government.



## IN THE NEWS

### UCT Leads Africa in Two Major International Rankings



UCT has recorded strong performance in two major international rankings released in November 2025.

The ShanghaiRanking's Global Ranking of Academic Subjects (GRAS) 2025 reported consistent results for UCT across several subjects, while the Quacquarelli Symonds (QS) Sustainability Rankings 2026 confirmed the university's positive activity in environmental, social and governance-related indicators.

The latest GRAS results place two UCT subjects in the global top 50 and four in the global top 100. All four subjects ranked first in South Africa:

- Mining & Mineral Engineering – ranked between 76-100 (entering the top 100 for the first time)

UCT had more subjects listed in the 2025 GRAS than any other university in Africa and ranked first in South Africa in 10 subjects.

This year, GRAS evaluated nearly 2000 universities across 57 subjects. The GRAS methodology is metrics-based, using indicators such as publication output, citation impact, international collaboration, papers in high-impact journals and major academic awards. GRAS rankings do not include reputation surveys.

[Read more.](#)



## IN THE NEWS

### UCT Helps Unveil Hidden Pre-colonial Cities with LiDAR



*Pictured from left to right: A/Prof Siddique Motala, Prof Herbert Maschner, Adv. Lungisa Malgas, Prof Aubrey Mainza, Mr Ben Mwasinga*

A multidisciplinary team spanning the University of Cape Town (UCT), the South African Heritage Resources Agency (SAHRA) and Global Digital Heritage Afrika (GDHA) is behind this cutting-edge LiDAR mapping initiative, which is transforming how archaeologists understand pre-colonial settlement patterns in South Africa.

LiDAR's breakthrough lies in its ability to "see through" vegetation and map built structures at scale. Using laser light points and GPS receivers mounted on drones, planes or satellites, the technology generates high-resolution 3D data that reveals sites long hidden by dense bush or inaccessible terrain.

Arguably one of the biggest breakthroughs in archaeology since radio-carbon dating, LiDAR has been brought to South Africa by United States (US) non-profit organisation GDH, created by brothers who found success in Silicon Valley. GDH's Africa chapter, GDHA, resides within UCT's Department of Civil Engineering.

"GDHA has brought a spirit of innovation and collaboration that is truly admirable. Together, we are not just looking at maps; we are writing a new chapter in the story of our heritage," said Advocate Lungisa Malgas, chief executive officer of SAHRA, at the project launch at the Castle of Good Hope. The initiative draws together GDHA, UCT and SAHRA teams, students, Heritage Conservation Management and others. Within UCT, the project spans the Faculty of Engineering & the Built Environment, the Department of Archaeology and the Faculty of Science.

[Read more](#)

## IN THE NEWS



### A Rallying Call for Africa's Urban Future

Urban2063, a coalition of 13 leading African and global institutions led by the African Centre for Cities (ACC) at the University of Cape Town, has launched An Unstoppable Force – a powerful new Cityscapes Magazine special report that challenges Africa to rethink the future of its cities radically.

The report emphasises that Africa has all the ingredients it needs to chart a new path.

[Read more](#)



### The Taste of Victory

UCT has raised the bar yet again, taking home the “Best Beer on Show” title for the fourth consecutive year at the South African Intersarsity Brewing Challenge. Students from the Department of Chemical Engineering, who participated in the event in October, won the aged category, and secured second place in the India Pale Ale (IPA) category.

[Read more](#)



### Research Powers Insights into Sustainable Housing

A groundbreaking national study led by UCT is offering new insights into how South Africans use energy in affordable and social housing – and what this means for the country's sustainability future.

The study, led by Grant Smith, along with co-investigators Alison Highes and Richard Larmour of the Energy Systems Research Group (ESRG), forms part of a global project involving partners in Colombia and Indonesia.

[Read more](#)



## IN THE NEWS

### CREE Showcases Global Collaboration at PhD Summer School



*Pictured here are CREE educators and students*

The Centre for Research in Engineering Education (CREE) staff and students participated in a PhD Summer School which is part of the IntraAfrica Mobility project in Muldersdrift in Gauteng on 21 - 23 November. The PhD Summer School was facilitated by Kristina Edstrom, (KTH, Sweden) and A/Prof Corrinne Shaw (CREE, UCT), and included contributors from University of Cape Town, University of Johannesburg, University of Pretoria, University of Stellenbosch, University of Aalborg (Sweden), University of Lagos, Nigeria and UT Dublin, Ireland.

CREE also has a strong national profile which is sustained through publications and involvement in national conferences and workshops on engineering education.

### CEM Releases Second Edition of its Maskakhe Magazine

The Department of Construction Economics and Management has recently released the second edition of Masakhe, the department's digital magazine. The theme of this edition is "CEM Legends." The edition features individuals - alumni, students, associates, colleagues - who are at the summit, and pushing boundaries, defying stereotype and making an impact.

You can read the full issue [here](#).





## IN THE NEWS

### Department of Mechanical Engineering Successfully Hosts the 2025 SAIMEchE PG Conference



The 2025 SAIMEchE PG conference, proudly hosted by the Department of Mechanical Engineering was held in November. The conference saw participation from postgraduate students across the three local institutions. With over 50 submissions; each reviewed by at least one member of the scientific committee.

SAIMEchE Western Cape endorsed this annual conference in partnership with local engineering faculties at the University of Cape Town, Stellenbosch University and Cape Peninsula University of Technology. The aim of the conference was to provide a platform for postgraduate students to present their ongoing research and technological innovations across the diverse field of mechanical engineering.

A number of UCT Mechanical Engineering post graduate students won awards:

- **Best presentation** (SAIMEchE) - Mpilonhle Nxasana (UCT)
- **Best abstract** (SAIMEchE) - Timothy Reddy (UCT)
- **Best composites-related project** (AAT Composites) - Mpho Ntloane (UCT)
- **Best aluminium-related project** (AFSA) - Abdul Benjamin (UCT)

MECAD sponsored Prizes:

- **Best Use of CAD in Design:** "Induction Heating in an Extreme-temperature Fracture Toughness Testing Apparatus" by Braden Nicholson (UCT)
- **Best Application of Computational Fluid Dynamics (CFD):** "A numerical investigation into cryogenic fuel storage tanks under violent sloshing excitation" by Maxwell Bischof (UCT)
- **Best Experimental Methodology / Analysis:** "Effects of Varying Cuboid Charges Aspect Ratio on the Blast Wave Propagation in Free Air" by Tumelo Selialia (UCT)
- **Best in Mechatronics / Robotics / Control:** "Control Design of a Coaxial Tiltrotor Quadcopter for Mixed Flight Regimes" by Mpilonhle Nxasana (UCT)

## IN THE NEWS

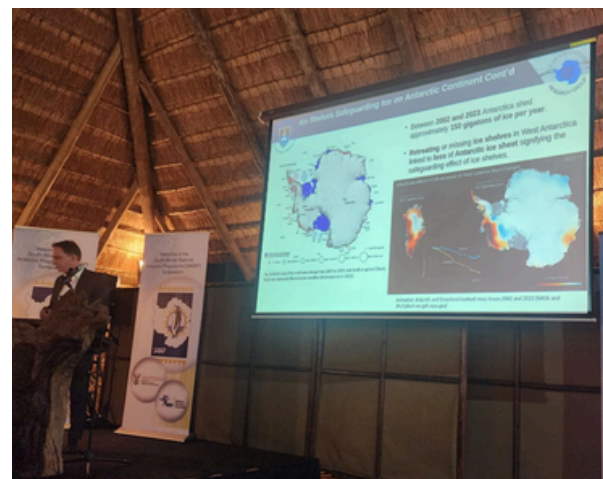
### Civil Engineering Launches a Dedicated Collaborative Space



The Department of Civil Engineering recently launched a dedicated collaboration space, created through the generous support of key industry partners to strengthen internal teamwork and deepen engagement with our broader network of stakeholders - including academic institutions, industry collaborators, and NGOs.

The space was conceptualised and realised through the leadership and strategic connections of Mr Gundo Maswime and HOD, Prof. Mark Zuidgeest, who facilitated vital partnerships with donors DAVO Group, iX Engineers, IMQS Software and Thomani Technology Solutions. Initiated in 2024, the project culminated in the official opening of the space on 14 November 2025, marking an important milestone in fostering meaningful, multi-sector collaboration with the department.

### UCT's PERG Team Presents Key Antarctic Ice Shelf Findings



The Polar Engineering Research Group (PERG) team introduced their project "Structural Glaciological Analysis of Antarctic Ice Shelves (SANAS)" to the South African science community at the South African National Antarctic Programme Symposium in Gauteng.

The PERG team was represented by Prof Sebastian Skatulla, Prof Denis Kalumba, and the postgraduate students Garner Brown, Bhooshay Dookee, Chisambo Ng'ambi and Kamvelihle Tabata, who presented the team's preliminary findings from their 2024/2025 field campaign on the Fimbul Ice Shelf.



## EBE TRANSFORMATION COMMITTEE INITIATIVES

### Santa Shoebox Project

The EBE Transformation Committee would like to thank everyone who generously donated towards this project in 2025. You have brought smiles to so many children's faces as they opened their Santa Shoeboxes filled with surprises. It is heart-warming to imagine the joy they felt when receiving them...little hearts overflowing with excitement.

This year, every one of the 76 565 children on the list received a beautifully packed Santa Shoebox, filled with love.

Together we are all certainly greater than the sum of our parts - for which we are enormously grateful, and about which we are super proud!





## FACULTY ACADEMIC INCUBATOR EVENTS

### The EBE Academic Incubator Writing Retreat: A Productive and Engaging Experience



*Pictured here are members of the Academic Incubator*

The October Academic Writing Retreat in Diemersfontein was a great success, providing participants with the ideal environment to focus on their writing projects. Attendees appreciated the uninterrupted time to write, away from the usual demands of teaching, research, and daily responsibilities. The retreat also offered valuable opportunities for networking and collaboration among colleagues from different departments, fostering a strong sense of academic community and shared purpose.

The EBE Academic Incubator is a support group for our young academics. Some are new to UCT and have recently joined the faculty, and some are balancing research and teaching while doing their PhD or master's degrees. The forum aims to create a platform where new academics can build on their current skills, learn more about EBE and UCT processes, and create an inspiring and motivating network across the EBE Faculty.

To have your news featured in our EBE Newsletter, please send it through to [Justin.Marthinus@uct.ac.za](mailto:Justin.Marthinus@uct.ac.za)

## STUDENT NEWS

### UCT Google PhD Fellowship Awarded to Civil Engineering Student

The Google PhD Fellowship Program supports exceptional graduates who are conducting groundbreaking research in computer science and related fields. This year, Justine Kojo, is one of two UCT students that have been selected as part of the 2025 cohort.

Since 2009, Google has been recognising groups of promising young academics through its Google PhD Fellowship Program. For the tech company, these students represent the future of research in fields as wide ranging as quantum computing and health research.

The goal is to support the next generation of researchers who are focused on the critical foundational science that can open up new avenues for technological development.

Justine Kojo's research is focused on how advanced technology can be used to improve our everyday experiences. The doctoral researcher, based in the Centre for Transport Studies within the Department of Civil Engineering in EBE, is looking into how we can build resilience into our growing transport networks.

"My research uses artificial intelligence [AI] and Earth Observation [EO] data to study how transport networks respond to climate stress, particularly flooding and heat waves, and to develop ways to make urban mobility systems more resilient," he explained.

Kojo is interested in how the Anthropocene, a geological period defined by major planetary changes led by human impact on Earth's systems, could impact urban planning and how we can use AI and satellite EO to overcome these challenges.

In this light, Kojo is particularly excited about being named as a Google PhD Fellow in 2025. The engineer is keen to use this platform to cement the idea that African scientists are more than capable of finding solutions to African problems in ways that strengthen communities across the continent.

[Read more.](#)





## STUDENT NEWS

### Candace Eslick Reflects on Her Falling Walls Berlin Experience



Representing South Africa at Falling Walls Berlin marked an unforgettable milestone in Candace Eslick's career. As one of two South African finalists, Candace had the opportunity to present her research on sustainable green-LPG synthesis to a global audience. Condensing three years of work into a three-minute pitch proved both challenging and rewarding, highlighting the importance of clear and impactful scientific communication.

The experience extended far beyond the presentation itself. Candace connected with 100 innovators from 60 countries, each committed to breaking boundaries in science and society. These interactions sparked collaborations and friendships that will endure well into the future.

Standing on the Falling Walls stage as an ambassador for South Africa, the University of Cape Town, and the GreenQUEST project was a moment of immense pride for her. She used the platform to advocate for cleaner energy solutions and to emphasise the significance of partnerships between Africa and Germany.

For Candace, the Falling Walls experience served as a reminder that science flourishes through dialogue, diversity, and shared purpose. It was more than a competition - it was a celebration of transformative ideas and a call to continue breaking walls and building bridges together.



## STUDENT NEWS

### APG Student Futsal Team Embraces Teamwork and Student Culture



*Pictured here are the team members of APG futsal team.*

The APG Futsal Team represents the School of Architecture, Planning and Geomatics (APG) at the Stiles Archi Futsal League — an annual tournament that brings together Cape Town's leading architectural firms for a season of friendly yet competitive futsal, with the goal of fostering and growing a sense of community within the architectural field.

The tournament has expanded each year, with 16 teams taking part this season.

Hosted at Hellenic Soccer Park in Green Point, the league kicks off in early September and runs into October, with matches played every Friday evening.

The UCT APG team first joined the league in 2019 and has been a regular contender ever since. The team has consistently reached the later stages of the tournament -including semi-finals and finals and proudly lifted the trophy in 2024. This year, they entered as defending champions, with trials held in May and training beginning in July. The team is inclusive of both male and female players, and all students are encouraged to attend trials for a chance to earn their spot. In 2025, the team delivered another strong performance, offering exciting football throughout the season and finishing as semi-finalists.

Team captain Anrique Johnson says the goals of the APG Futsal Team are to create a more interconnected studio environment, linking students from first year through to master's. Through shared experiences, the futsal team helps students get to know peers from other years, which is valuable for learning, especially when giving and receiving crits from more senior students. The tournament also provides a platform for students to network with professionals in the field, opening doors for internships and job placements after graduation, while helping them integrate into Cape Town's architectural landscape from an early stage. We hope to see more students attending matches and supporting the team next season."

Johnson also highlights that "it means a lot for students to make and be part of the team. Weekly practices and matches give students a much-needed break from the intensity of architecture school and everyday pressures. There's a real sense of pride in wearing the UCT APG shirt - students often wear it casually around campus as a symbol of belonging and school spirit".

## STUDENT NEWS

### UCT Studentpreneurs Lead the Way in Innovation



South Africa's student entrepreneurship scene is thriving, with six visionary ventures from the University of Cape Town (UCT) named national finalists in the 2025 Entrepreneurship Development in Higher Education (EDHE) Entrepreneurship Intersivity and ABSA Innovation Challenge. Hosted by the EDHE, these competitions serve as launchpads for scalable, sustainable innovation.

Now in its seventh year, the intersivity competition celebrates student-led ventures that merge innovation with impact. This year's theme, "Entrepreneurship for Sustainability", inspired solutions to real-world challenges:

Among the six finalists this year was Chemical Engineering PhD student, Sikozile Ncembu whose entry was entitled "A diagnostic platform using SNAP-tag technology for early, affordable cancer detection tailored to African healthcare systems", reached the final round of the Entrepreneurship Intersivity competition.

These six changemakers exemplify the power of student-led innovation to address pressing societal challenges. As they head to the EDHE Nationals, they carry the aspirations of communities and institutions striving for transformation.

[Read more.](#)



*Students emerged tops during the Entrepreneurial Intersivity competition*



## STUDENT NEWS

### Bridging Campus Business Gap with Innovative Marketplace



*UCT students Mpilonhle Ngcoya (right) and Jonathan Tirkaso are two of the three directors of Makethe*

(UCT) final-year mechatronics student and entrepreneur Mpilonhle Ngcoya is proving that innovation often begins with solving problems close to home. As the founder of Makethe, a digital marketplace designed to connect UCT students with student-run businesses, Ngcoya is on a mission to reshape how entrepreneurship thrives within campus spaces.

“It started as a simple idea: to help student businesses grow,” he said. “Many students have great products or services but struggle to get the word out. We wanted to bridge that marketing gap.”

*Makethe*, which officially launched in 2022, aims to give student entrepreneurs visibility and easier access to customers. The platform allows users to discover and book services or purchase products from peers – from hairstylists and photographers to small clothing brands and food sellers.

Ngcoya, who hails from KwaZulu-Natal, said the inspiration for *Makethe* came from watching fellow students struggle to expand their businesses despite the high demand for affordable, peer-based services. “Some students would have amazing businesses but couldn’t reach enough people,” he said. “Our goal was to create a platform that makes student-to-student trade easier, faster, and more transparent.”

Initially, Ngcoya ran the business alone, balancing development work with his demanding engineering coursework. “I started on 15 November 2022, and for the whole of 2023, I worked by myself,” he recalled. “It was really difficult trying to run everything alone, but that experience showed me where my strengths and weaknesses were.”

By March 2024, *Makethe* was officially registered as a company, and Ngcoya began building a team of fellow UCT students to help scale the project. Today, the small team of three, which includes Jonathan Tirkaso and Kwanele Ndzimande, continues to refine the platform and grow its user base.

[Read more.](#)

## STUDENT NEWS

### EBE Students Shine Bright at the 2025 Greenovate Awards

The 2025 Greenovate Awards, a partnership between Growthpoint Properties and GBCSA, marked a decade of student-driven sustainability innovation for the built environment. This year's awards saw 29 students from 8 universities participate, and the winners were announced at a gala dinner held in Sandton.

#### ENGINEERING WINNERS:

1st – **Aqeelah Sharief**, University of Cape Town: Exploring On-Site Nutrient Recovery and Water Reuse at the Cape Town Stadium

#### PROPERTY WINNERS:

1st – **Justine Braaf** and **Benjamin van Rhyn**, University of Cape Town: An investigation into the Financial Benefits of Water Efficiency for EDGE Residential Units in the Western Cape

3rd – **Samuel De witt** and **Aiden Pringle**, University of Cape Town: Living Walls in the Western Cape: The Optimal Model – A Quantity Surveyor's Perspective

#### OTHER PRIZE WINNERS:

IFC Prize – Justine Braaf and Benjamin van Rhyn, University of Cape Town: An investigation into the Financial Benefits of Water Efficiency for EDGE Residential Units in the Western Cape

Congratulations also to their supervisors, Dr Rolien Terblanche and Dr Saul Nurick.

The future of green building is in the hands of innovative and extraordinary young people!

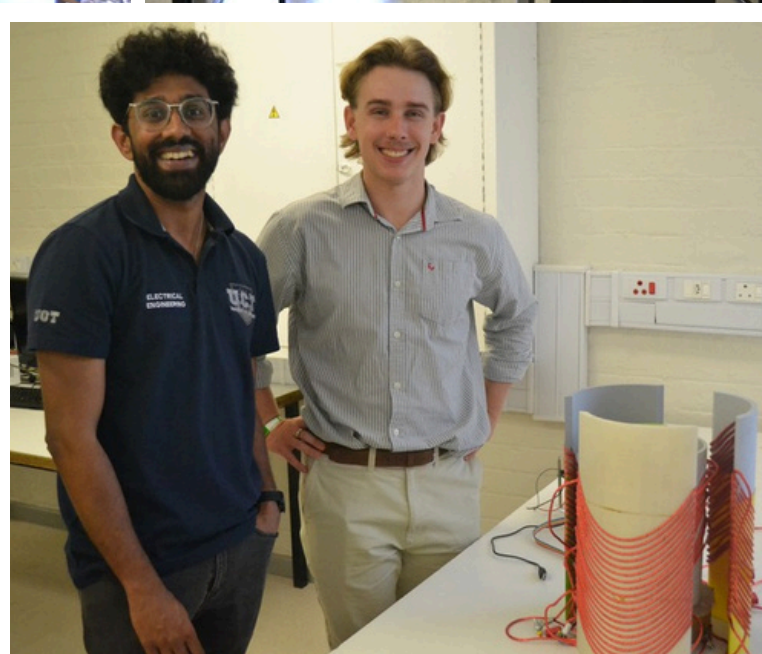
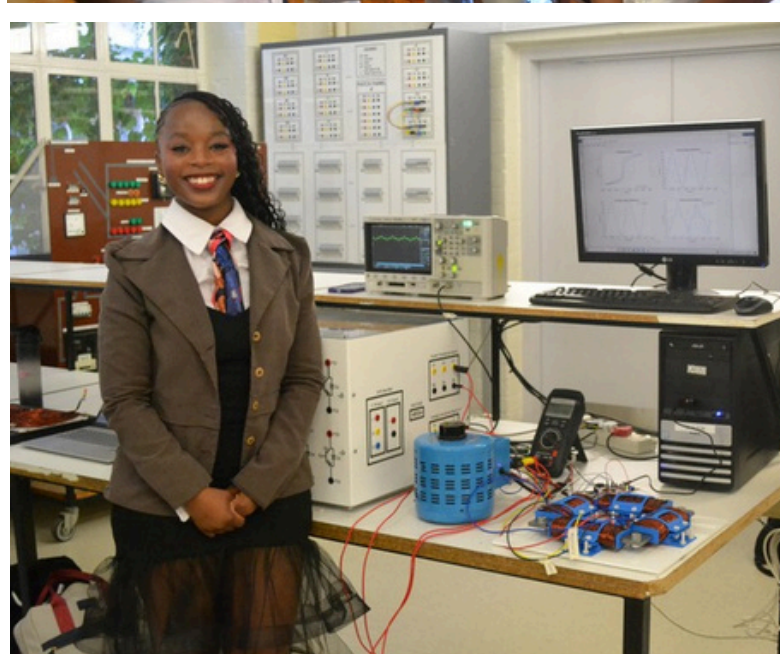
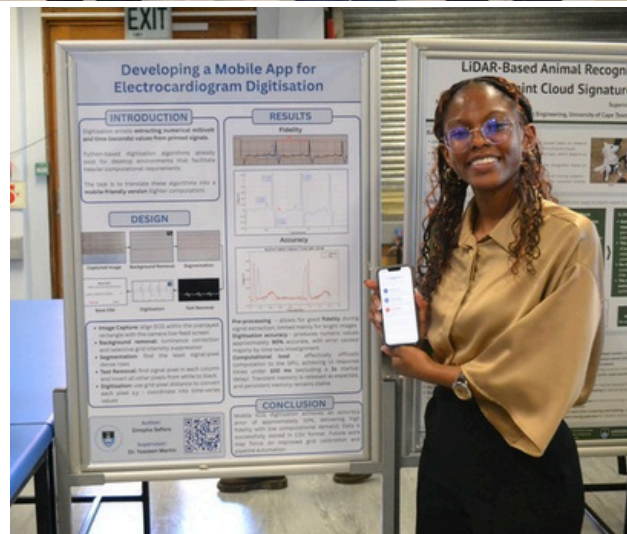
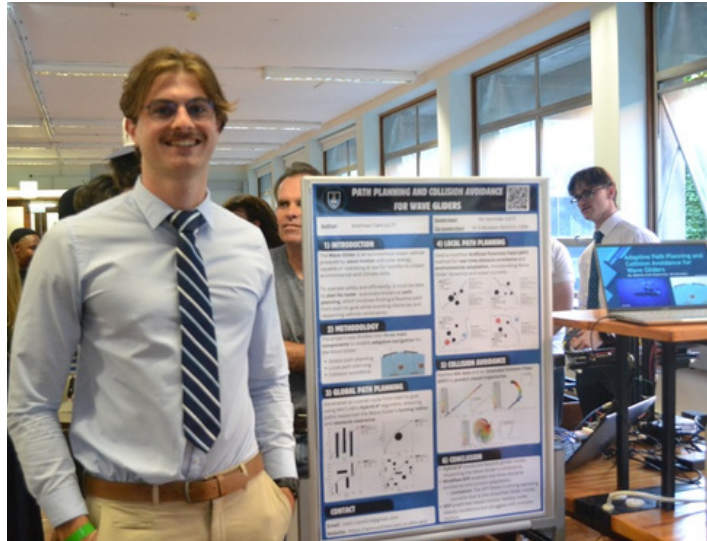




# STUDENT NEWS

## Electrical Engineering Final Year Poster and Presentation Day

At the annual Electrical Engineering Final Year Presentation Day in November, students were recognised for their oral presentations and projects in the Electrical Engineering, Mechatronic Engineering, and Electrical and Computer Engineering programmes.

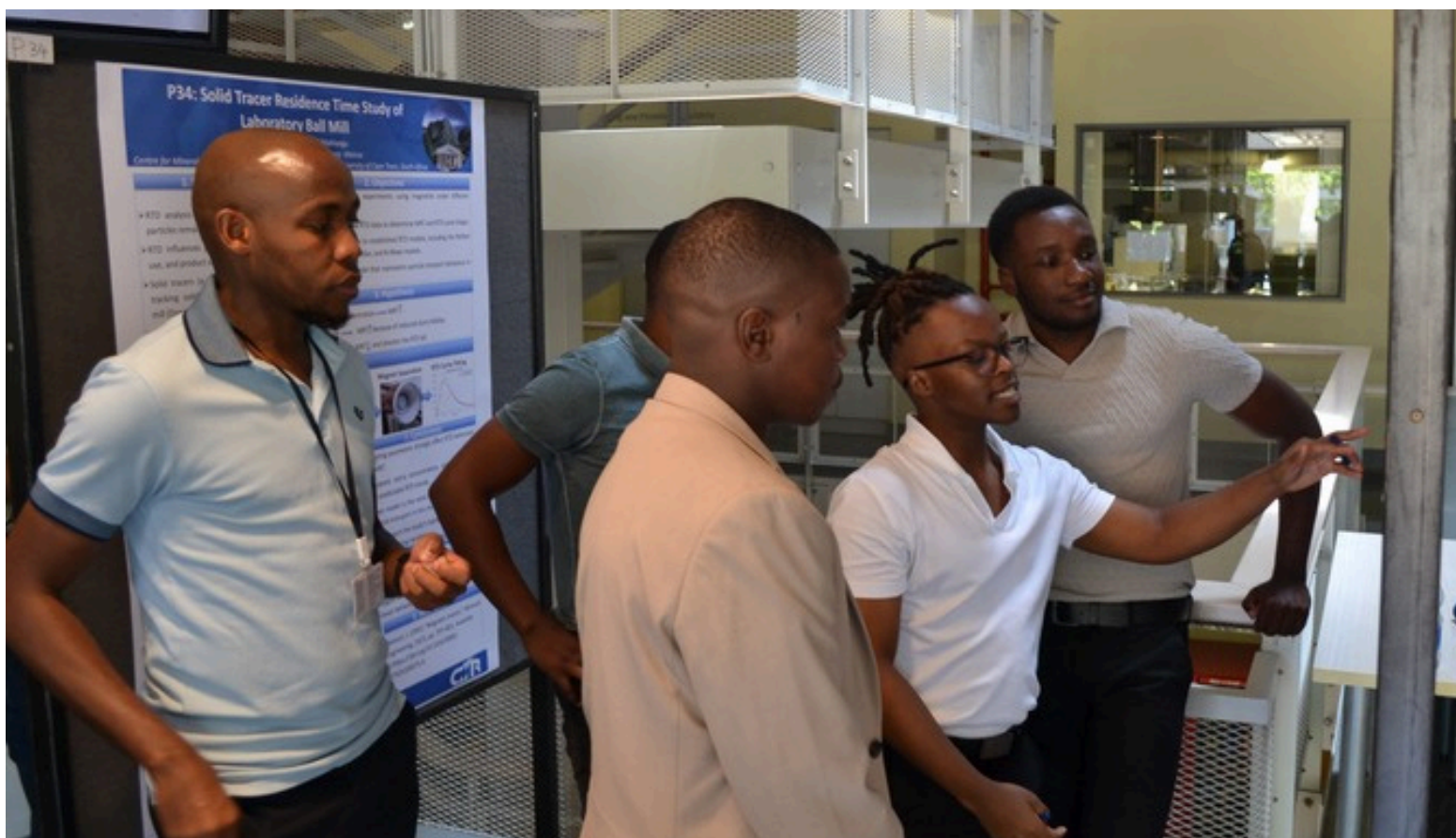
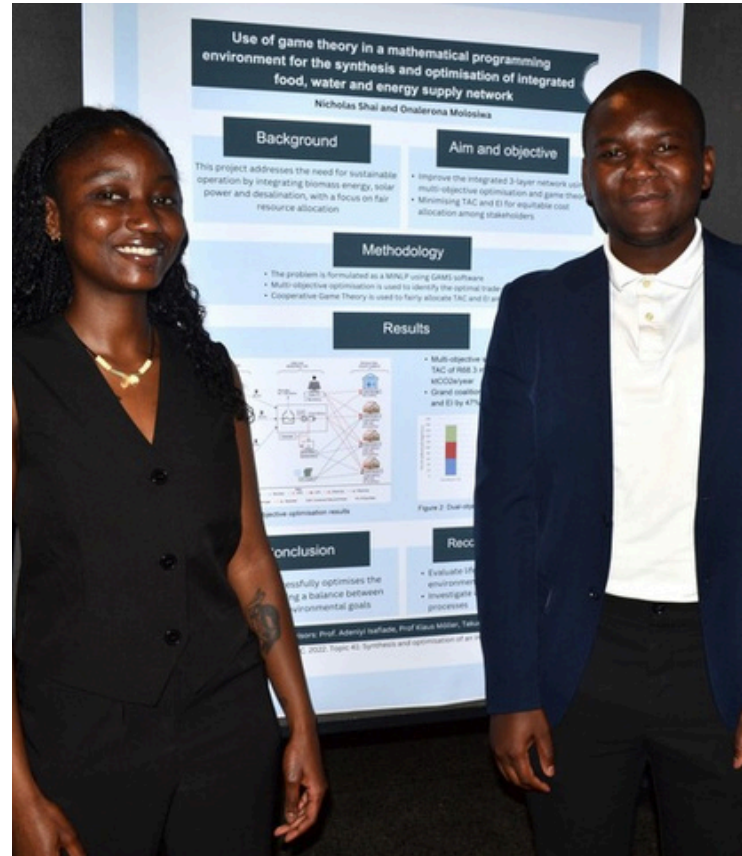
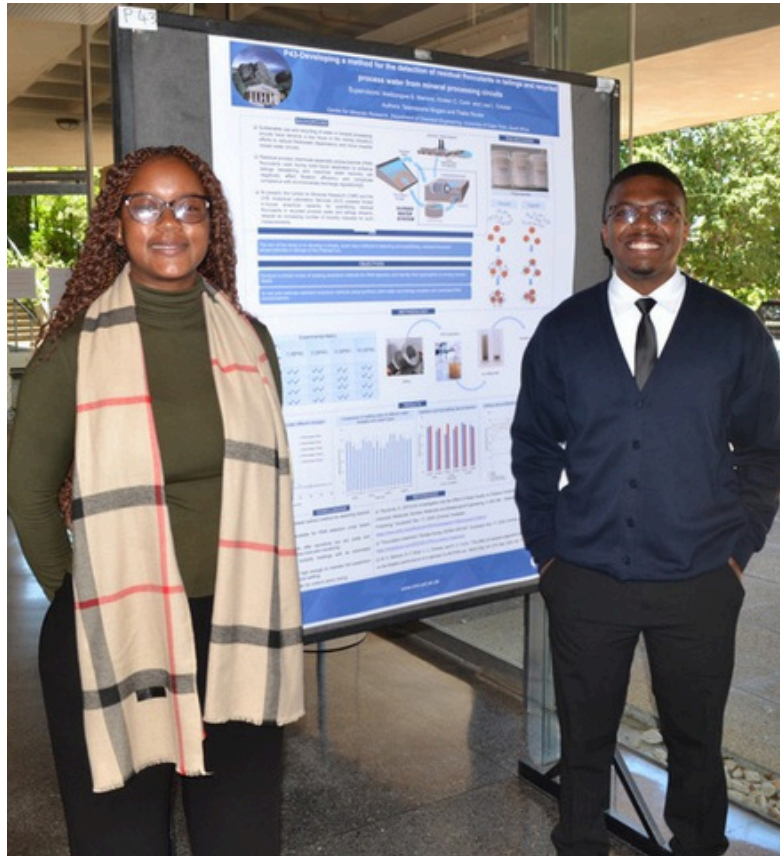




## STUDENT NEWS

### Chemical Engineering Final Year Poster and Presentation Day

The Department of Chemical Engineering held its annual mini-conference for their final year undergraduate class on 21 November.





## STUDENT NEWS

### SATNAC 2025 Best Paper Award



A research paper titled “Building a Low-Cost Cloud-Native 5G Network Slicing Experimental Testbed: Open-Source Solutions, Lessons Learned and Future Directions” was awarded the Best Paper Award at the South African Telecommunications Networks and Applications Conference (SATNAC-2025).

The paper was submitted by a collaborative team from the University of Cape Town (UCT), the Council for Scientific and Industrial Research (CSIR), the University of Johannesburg, Technische Universität Berlin, and Fraunhofer FOKUS.

Humphrey Owuor Otieno, the lead author and UCT PhD candidate, drove the development of this work as a significant component of his PhD research, which focuses on enabling accessible and low-cost 5G testbed solutions for African research communities. He is supervised by A/Prof Joyce Mwangama.

The paper presents a practical and cost-effective approach to implementing end-to-end 5G network slicing using low-cost hardware, open-source software, and cloud-native technologies such as Kubernetes, Docker, and Helm. By extending the OpenAirInterface reference setup, the authors achieved slice instantiation, traffic isolation, and control-data plane separation using standard slice identifiers.

This contribution supports the democratisation of 5G/6G innovation, offering African universities and emerging researchers the opportunity to experiment with next-generation networks and develop solutions for healthcare, smart agriculture, IoT, and AI-driven applications, even with constrained resources.

The work received support from DIGITAfrica (EU Horizon Europe), the ARISE Programme, Google Africa PhD Fellowship, and the Telkom and SENTECH Centres of Excellence, with further expansion planned under the DIGITAfrica initiative toward a Pan-African, future-ready, digital research infrastructure.

## STUDENT NEWS

### L'Oréal-UNESCO For Women in Science Sub-Saharan Africa Young Talents Award



Maurine Chepkoech, a PhD candidate in the Electrical Engineering Department under the Communications Research Group at the University of Cape Town, has been selected as one of the 2025 L'Oréal-UNESCO For Women in Science Sub-Saharan Africa Young Talents Award recipients. Now in its 15th edition, this regional programme recognises 25 doctoral and 5 post-doctoral researchers whose work demonstrates outstanding scientific excellence and meaningful societal impact across the continent. She is supervised by A/Prof Joyce Mwangama. Maurine's research focuses on integrating open-source 5G and beyond mobile networks with low Earth orbit satellites to extend broadband connectivity to rural and underserved regions that lack reliable terrestrial infrastructure.

Her work also incorporates AI-driven self-optimisation techniques to improve the resilience and reliability of wireless networks. This research paves the way for access to specialist mission-critical services such as virtual surgical support in Africa by enabling high-reliability, low-latency communication systems that allow expert surgeons to guide junior doctors in remote areas, addressing a critical shortage of specialist expertise across African health systems.

Through this programme, the Fondation L'Oréal provides financial support and intensive leadership development to help women scientists advance their careers and overcome structural challenges such as the glass ceiling.

Maurine's project reflects the programme's mission to support exceptional women whose research contributes to scientific progress and practical solutions to global challenges. Her work offers a scalable pathway to improved surgical training, enhanced healthcare equity, and more resilient communication and medical systems across Africa.

