



# GRADUATION CEREMONY

*Faculty of Engineering & the Built Environment  
(Ceremony 1)*

SARAH BAARTMAN HALL  
30 March 2026

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# FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT (CEREMONY 1)

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## ORDER OF PROCEEDINGS

Academic Procession.

*(The congregation is requested to stand as the procession enters the hall)*

The Presiding Officer will constitute the congregation.

The National Anthem.

Welcome by the Master of Ceremonies.

Musical Item.

The graduands and diplomates will be presented to the Presiding Officer by the Dean of the faculty.

The Presiding Officer will congratulate the new graduates and diplomates.

The Master of Ceremonies will make closing announcements and invite the congregation to stand.

The Presiding Officer will dissolve the congregation.

The procession, including the new graduates and diplomates, will leave the hall.

*(The congregation is requested to remain standing until the procession has left the hall.)*

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# NATIONAL ANTHEM

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Nkosi sikelel' iAfrika  
Maluphakanyisw' uphondolwayo,  
Yizwa imithandazo yethu,  
Nkosi sikelela, thina lusapho lwayo.

Morena boloka etjhaba sa heso,  
O fedise dintwa la matshwenyeho,  
O se boloke,  
O se boloke setjhaba sa heso,  
Setjhaba sa South Afrika – South Afrika.

Uit die blou van onse hemel,  
Uit die diepte van ons see,  
Oor ons ewige gebergtes,  
Waar die kranse antwoord gee,

Sounds the call to come together,  
And united we shall stand,  
Let us live and strive for freedom,  
In South Africa our land.

**NAMES OF  
GRADUANDS/DIPLOMATES**

An asterisk \* denotes that the qualification will be awarded in the absence of the candidate

**FACULTY OF ENGINEERING &  
THE BUILT ENVIRONMENT**

*Dean: Professor A Mainza*

**DEGREE OF BACHELOR OF  
ARCHITECTURAL STUDIES**

Faatimah Abrahams  
 Jake Ackerman (with distinction)  
 Naadirah Adam  
 Abhishek Andhee  
 Leigh-Elmo Arendse  
 Aaliyah Sherazaad Ariefdien  
 Emily Sylvia Barker  
 Aden Franklin Bayley  
 Rameez Beaton  
 Lwandle Ntuthuko Bhengu  
 Nosihle Ntombenhle Bhengu (with distinction)  
 Szanmarli Bleeker  
 Mari Blom  
 Kirsty Talita Canham  
 Lucy Lynn Church  
 Shannon Storm Crous  
 Robyn Lynn Curtis  
 Micah Del Grosso  
 Gloudina Maria De Waal  
 \*Zayd Mohammed Dindar  
 Nicolas Du Toit (with distinction)  
 Somila Ohluma Dyakala  
 Gabrian Sebastian Eager  
 Saeed Ebrahim  
 Libing Fang  
 Anna Fangang Messini  
 Eve Olivia Gardiner  
 Michaella Olivia Godfrey (with distinction)  
 James David Grant  
 Robyn Rosemary Gush (with distinction)  
 Caleb Harichand  
 Rafiqah Harris  
 Emi Leigh Heuvel  
 Kira Catherine Hofmeyr (with distinction)  
 Anxin Hui  
 \*Kristy Hume  
 Vashti Josias

\*Eunjun Kim  
 Bianca Kleynhans  
 Shelly Kramarz (with distinction)  
 \*Dingbin Lu  
 Alulutho Lunika  
 Lethabo Siphosihle Madlebe  
 \*Augustinus Malatsi  
 Yolulela Mda  
 Tshepang Mofokeng  
 Leon Marcus Msipa  
 Mashudu Dimpho Murovhi  
 Methembe Descent Ngqola  
 Alicia Olivia Oluoch  
 Josephine Elizabeth Orpen  
 Siwon Park  
 Zukhanye Mlibo Peni  
 Erin Jessica Preston  
 Tchieza Daiane Eduardo De Jesus  
 Rasgado (with distinction)  
 Vivek Yogi Rendall (with distinction)  
 Rebecca Kathleen Rooy  
 William Charlton Saltwater  
 Mia Anne Scheffers  
 Masego Nontsikelelo Seopa  
 Zoya Amanda Bonani Sibiya  
 Ndikho Sima Sili  
 Langelihle Sithole  
 Christelle Slabber  
 Tayla Isabella Swan  
 Kiona Rae Van Der Merwe  
 Rachele Eve Walker  
 Gaotlhobogoe Vuyo Wittes  
 Itohan Thandeka Zulu

**DEGREE OF BACHELOR  
OF SCIENCE IN  
CONSTRUCTION STUDIES**

Badr Abrahams  
 Josh Laurence Arnott  
 Iman Cassiem  
 Adrian Tawananyasha Dhliwayo  
 Rachel Madison Du Plessis  
 Masande Gadini  
 Litha Gaxela  
 Sakhe Lwande Gcolotela  
 Ali Karaan  
 Britney Munashe Katuruza  
 Nomceco Zinniah Khathi  
 Waseem Lutchman  
 \*Samantha Chokoe Mabotja  
 Sinethemba Bianca Mafuleka  
 Nelisiwe Majokweni (with distinction)  
 Koketso Rethabile Makhanya  
 Mantjeng Kabelo Maseema  
 Mpume Nosipho Mngomezulu  
 Michelle Tanyaradzwa Musendekwa

Lelethu Irene Ncube  
 Khanya Similile Nofonta (with distinction)  
 Sinoxolo Samantha Nolokwe  
 Ramsen Segawa Qashani  
 Thokozone Katlego Sekonyela  
 Christiaan Frederik Serton  
 Anton Charl Van Wyngaarden  
 Kothebkekile Tshimologo Vilakazi  
 David Wagener  
 Tatum Lee Walker  
 Jinsong Zhang

**DEGREE OF BACHELOR  
OF SCIENCE IN GEOMATICS**

Adriaan De Bruyn  
 Priyanka Devdath (with honours)  
 Ryan Dominique Gregersen  
 Stephen Eric Jacobs  
 Tamia Kenya Khumalo  
 Siyabonga Magitshima  
 Samantha Pauline Mabutsi Mazarura  
 Kearabilwe Valencia Modise  
 Nthabiseng Priscilla Mokhethi (with honours)  
 Sibabalwe Mpukuzela  
 Anees Omar  
 Vidhur Ramcharan (with first class honours)  
 Adam Spreeth  
 Aaminah Tape  
 Amanda Sinelita Tinise (with honours)  
 Chloe Teagan Tudor

**DEGREE OF BACHELOR OF  
SCIENCE IN PROPERTY STUDIES**

Tyler Lyle Broughton  
 Lucy Jennifer Campbell  
 Shupulu Ofentse Choshane  
 Tamia Danielle Adaeze Coetzee (with distinction)  
 Matthew Rory Coetzer  
 Matthew Duncan  
 \*Mohammad Suhayl Riyad Goolamally  
 Alex Peter Healey  
 Oarabile La Lefuo  
 Kenan Philip Le Roux  
 Ingrid Madubanya  
 Tumelo Praise Magwane  
 Itumeleng Jay Makgopela  
 Jonathan Robert Mc Connell  
 Kayla Anne Mitchell (with distinction)  
 Eitan Miller  
 Vutomi Michelle Ngomana

Lauren Jessica Simpson-Heath (with distinction)  
Damon Ethan Thom  
Christopher Heath Edwards Townshend  
Jamian Jamall Wiese  
Lesedi Owethu Zwane

POSTGRADUATE DIPLOMA IN  
POWER PLANT ENGINEERING

Solomon Olamide Aina  
Mbalekelwa Emmanuel Mpmembe  
Njabulo Phiwe Ncube  
\*Simba Emmanuel Nduna  
Fayyaad Samsodien  
Clifford Takawira

DEGREE OF BACHELOR  
OF ARCHITECTURAL  
STUDIES HONOURS

Robyn Lisa Adams  
Giorgia Bauer  
Khanyisile Bodlani  
Adrian Leon Boyce  
Jenna Veronica Bramley  
Liam Thomas Brien  
Jade Lucy Camacho  
Julia Rosemary Chamberlain (with first class honours)  
Jemmie Amana Chinje  
\*Thalia Coetzee  
Hanriëtte De Lange  
Thamsanqa Donald  
Liam Elder  
Grethe Geringer  
Katryn Groenewald  
Raees Harneker  
\*Emlin Hendricks  
Aidan Michael Joseph  
Hilda Hana Krige  
Raeesah Leeman  
Bea Liebenberg  
\*Liam Gabriel Lineveldt  
Christiaan Johannes Lups  
\*Nokubonga Diana Madondo  
Fatima Manzini  
Daniël Marx  
Latoya Neorotha Mbetshu  
Josie Middleton  
Abigail Robyn Millar  
Saarah Mkansi  
Keren Nontokoza Agatha Moyo  
Megan Nicole Nicholson  
Evan Tyler Ohlsson  
Chad Kyle Phillips

Amy Phillipson  
Hannah Plit  
\*Milan Pioreschi  
Siphesihle Faith Sandleni  
Aidan Schippers  
\*Gavin John Strachan  
Palesa Tamako  
Kezia Rose Taylor  
Siyanda Noluthando Thabede  
\*Tristin Theron  
Elizabeth Van Eeden  
Joané Van Wyk  
Quadash Van Wyk  
Daniel Edward Wildeman (with first class honours)

DEGREE OF BACHELOR OF CITY  
PLANNING HONOURS

Mohammad Achmat  
Milisa Luyanda Braweni  
Rainer Pascal Chambeau  
Sydney Leigh Cleophas  
Lathitha Mbalo  
Zethembe Sibahle Mzimela  
Leigh-Anne Elizabeth Rumboll  
Joel Stevens  
\*Janine Titley

DEGREE OF BACHELOR OF  
LANDSCAPE ARCHITECTURE  
HONOURS

\*Abdullah Amra  
Jordan Beyer (with first class honours)  
Amy Delo-Carolus  
Nicholaih Henry Faro  
\*Georgia Kathryn Farrell (with first class honours)  
Hape Cynthia Matheka  
\*Noel Matuvhunye  
Wanjavwa Nalengo  
Jyotsana Rawat  
John Ethan Steyn  
Lily Angela Waterkeyn

DEGREE OF BACHELOR OF  
SCIENCE HONOURS IN  
CONSTRUCTION MANAGEMENT

Mohamed Zafeer Ismail  
Sello Kotele

DEGREE OF BACHELOR OF  
SCIENCE HONOURS IN  
GEOGRAPHICAL  
INFORMATION SYSTEMS

Ntando Babie (with first class honours)  
Thasn'n Anelisa Sisa Ngaleka  
\*Sakhile Thabani Sibiyi

DEGREE OF BACHELOR OF  
SCIENCE HONOURS IN  
MATERIALS SCIENCE

Nikolas Botha (with first class honours)  
Usamkelekile Dyomfana  
Mikayla Lee Gray (with first class honours)  
\*Juane Neville Leukes  
Lwazi Luthuli  
Lwazi Knowledge Magqabi  
\*Tendayi Takunda Makwara  
Thembi Mpumelelo Masango  
Mpho Christopher Masindi  
\*Thendo Harris Molamu  
Annita Zandile Ngoma  
\*Sven Richter  
Monique Raelene Timm

DEGREE OF BACHELOR OF  
SCIENCE HONOURS IN  
PROPERTY STUDIES

Nafisa Alam  
Michelle Neema Apollo  
Thomas Grant Ashfield  
Mohammed Hussain Ayob  
Justine Catherine Braaf (with distinction)  
Luke Andrew Couves  
Matthew Fredericks  
James Kevin Hawkins  
Thato Khoabane  
Caitlin Raye Mackenzie (with distinction)  
Luthembe Lwambathe Maqeda  
Naledi Mogaila  
Keketso Mokoena  
Matseliso Monne  
Sunny Maloba Muamba  
Ndumiso Mpendulo Ngubane  
Baraka Ntimba (with distinction)  
Thomas Melville Russell  
Gololesego Setlogelo  
\*Iviwe Sithole  
Matthew Steere  
Benjamin David Van Rhyn (with distinction)

DEGREE OF BACHELOR OF  
SCIENCE HONOURS IN  
QUANTITY SURVEYING

Badr Abrahams  
Mudiwa Angela Chaza  
Aaron Nicholas Filmalter (with  
distinction)  
Thaakiyah Jacobs  
Alex Kamau Maina  
Alizwa Mboniswa  
Lihle Mlondleni  
Ciaran Rixon Connor Pinfold  
Aiden Graham Pringle (with  
distinction)  
Yonwaba Sohuma  
Nolwazi Nondo Zwane

DEGREE OF MASTER  
OF ARCHITECTURE

Rachel Abrahams  
Simon Abrahams  
Jordan Rachel Arendse  
Angelo Joey Bender  
Lauren Megan Bonthuys  
Deirdre Botha  
\*Dylan Salvatore Bove  
\*Matthew Brown (with distinction)  
Georgina Margareta Chappel (with  
distinction)  
Benjamin Georges Pierre Roland  
Dufrene (with distinction)  
Lovejoy Zvikomborero Fende  
Chloe Michaela Fox-Martin  
Michelle Georgieva  
Aliyah Hendricks  
Britani Kahn  
Imaad Kamaldien  
Lonene Carl Kgoedi  
\*Aqeel Salim Khan (with distinction)  
Charles Makamo  
\*Rachel Michau (with distinction)  
Abdullah Mohamed  
Esetu Isipho Nduku  
Christian David Nel  
Banza Nsabua  
Joshua Noel Riddle-Du Plessis (with  
distinction)  
Kendra Danica Sinovich (with  
distinction)  
Tersia Jayne Solomons  
Teag Jaedon Theron  
\*Kyle Van Der Merwe  
Amani Waglay  
Isabel Karen Wygers

DEGREE OF MASTER OF CITY  
AND REGIONAL PLANNING

Lailah Davids  
Kutloano Khaile  
Jethro Josef Klitzner  
Mokholoane Moloi  
Rugare Nazare  
Luke Philipson (with distinction)  
Tavish Nicholas Arthur Pinfold  
Dylan Matthew Snyders

DEGREE OF MASTER  
OF ENGINEERING

Tanita Bhayroo  
William James Bourn (with distinction)  
Mfanafuthi Mgaga  
Daniel James Petrie (with distinction in  
the dissertation)  
Shafiek Salie  
Angela Genes Shirima  
Wayne Van Der Westhuizen  
Zamanyanda Precious Xaba

DEGREE OF MASTER OF  
ENGINEERING IN CIVIL  
INFRASTRUCTURE  
MANAGEMENT AND  
MAINTENANCE

Michelle Rutendo Sibongile Maphosa

DEGREE OF MASTER OF  
GEOTECHNICAL ENGINEERING

\*Godlove Frema Awuku-Asabere  
\*Chitradev Haulooman  
Rabasothe Joel Lerotholi  
Yonela Makaziwe Madyibi  
Naimi Ndapandula Nghipuyoonda  
\*Ndatambula Nangolo  
Thetshelesani Solomon Phalanndwa

DEGREE OF MASTER OF  
LANDSCAPE ARCHITECTURE

Carolina Taylor Brand (with distinction)  
Eden Cloete  
\*Samkelo Tshungu  
Nekita Amberose Van Wyk  
Georgina Samantha Visser  
Inge Windvogel

DEGREE OF MASTER  
OF PHILOSOPHY

Abraham Alexander Cader (with  
distinction)  
Kudzanaai Jacqueline Makanyanga  
\*Bredah Musili Nzuki  
Charl Francois Taljaardt  
Tshifhiwa Terrence Tshinyalani

DEGREE OF MASTER OF SCIENCE  
IN ENGINEERING

Sigrid Aadnesgaard  
Gloria Anano (with distinction in the  
dissertation)  
Zaheer Hussein Dhunny  
Sunday Oluwaseyi George  
Lwando Gomomo (with distinction in  
the dissertation)  
Guy Nicholas Hasewinkel  
\*Edward Valentine Maganga (with  
distinction in the dissertation)  
Joshua Liam Malan  
Tariro Hither Marekwa (with  
distinction)  
Carla Mathyse (with distinction)  
Norbert Anthony Matilya  
Onalenna Mukundi Mochotlhoane  
Dylan Müller (with distinction)  
Itumeleng Beverlin Musa  
Vuyo Derrick Ndayi  
Zuhayr Ahmed Parkar (with distinction)  
\*Sven Pietrangeli  
\*Willem Johannes Naudé Steyn  
\*Ibrahim Ghalib Stracey  
Bianca Tarboton (with distinction)  
Thierry Philippe Verfaille (with  
distinction)  
Elsa Visser (with distinction)

DEGREE OF MASTER OF SCIENCE  
IN PROJECT MANAGEMENT

Tafadzwa Alfred Chapara (with  
distinction in the coursework  
component)  
Hlulani Patience Chauke  
Qiniso Khethukuthula Dlamini  
Kebone Zodwa Lehlulere  
Luntu Artwell Ndalasi  
Moshoane Tafita Phasha  
Manee Lucia Ramakwe - Makgaleng

DEGREE OF MASTER OF SCIENCE  
IN PROPERTY STUDIES

Muhammed Mutebi  
Ntombizanele Yonela Ncence  
Amanda Ndlovu (with distinction in  
the dissertation)  
Robyn Maclear Reid (with distinction  
in the dissertation)

DEGREE OF MASTER OF  
SUSTAINABLE URBAN PRACTICE

\*William Nicholas Bradley (with  
distinction in the coursework  
component)  
Raeesa Ghoor (with distinction)  
\*Gamza Meyer (with distinction)  
Irene Daphne Randall (with distinction)  
\*Sarah Watson (with distinction in the  
coursework component)

DEGREE OF MASTER OF  
TRANSPORT STUDIES

\*Victor Miranze  
Masibonge Tshiki

DEGREE OF MASTER OF  
URBAN DESIGN

Inéz Adams  
\*Malose Patricia Malapile  
Lutho Qhayiya Mkukwana  
Armas Shitaatala  
Jenielle Davene Titus  
Zoë Jamie Walker

DEGREE OF MASTER  
OF WATER ENGINEERING

Victoria Tsholofelo Diale  
Mamokitlane Irene Korotsoane  
Lerato Joyce Lekhera  
Maanea Mpho Mabannda  
Lingas Molatlhiwa  
Privy Mzizi (with distinction)  
Francis Njibiche Nlansong  
\*Ashton Lyle Stephen  
Moferefere Augustinus Tlali

DEGREE OF DOCTOR  
OF PHILOSOPHY

\*Awingot Richard Akparibo  
Thesis Title: *Single stage boost  
inverter-based perturbation technique  
for online impedance spectroscopy  
measurements of solar PV panels*

Awingot Akparibo completed his BSc  
and MPhil Degrees in Electrical and  
Electronic Engineering at the University  
of Mines and Technology (UMaT),  
Ghana. He began full-time study towards  
his PhD in Electrical Engineering at the  
University of Cape Town (UCT) in 2022.

Awingot Akparibo's thesis  
investigates online condition monitoring  
of Solar Photovoltaic (PV) Panels  
using Electrochemical Impedance  
Spectroscopy (EIS). He developed  
two novel EIS techniques based on  
a single-stage DC-to-AC inverter  
topology, required for causing small  
signal AC perturbations for Impedance  
Spectroscopy measurements of solar  
panels in-situ. He also made significant  
improvements to the conventional EIS  
measurement method based on the two-  
stage boost inverter topology (DC-DC  
boost followed by DC-AC inversion).  
The impedance spectrum of the panel  
provides much important information,  
which is used to track the panel's state  
of health and monitor performance  
losses due to degradation and faulty  
operation. The proposed techniques are  
particularly relevant for PV applications,  
where the requirement of a single-stage  
boost inverter is crucial for optimising  
PV operations and lowering the costs of  
system design.

*Supervisor:* Professor P Barendse  
(Electrical Engineering)

Brighton Chamunorwa  
Thesis Title: *Coupling machine  
learning-based mapping and simulation  
models for evaluating the influence  
of informal settlements on runoff and  
stormwater quality*

Brighton Chamunorwa completed his  
BSc, BSc (Hons), and MSc at Fort  
University before commencing full-  
time PhD studies at UCT in 2021.

Brighton Chamunorwa's  
research examines how makeshift  
neighbourhoods affect urban water  
systems. By utilising computer analysis  
of satellite images, he has accurately  
identified these informal settlements.  
Furthermore, he has enhanced water  
flow prediction models to better  
align with observed water quality  
data. His findings indicate that such  
neighbourhoods generally lead to  
increased pollution and runoff compared  
with natural areas. Overall, his study  
underscores the importance of flexible  
monitoring and more effective planning  
to safeguard water resources as our cities  
continue to expand.

*Supervisor:* Dr M Shoko (Geomatics)

Colin Francois Du Sart  
Thesis Title: *Thermofluid design and  
dynamic simulation of an sCO<sub>2</sub> power  
cycle for a 50 MWe concentrated solar  
thermal tower plant in Southern Africa*

Colin du Sart completed his BSc (Eng),  
followed by his MSc (Eng) and his  
BCom (Honours), all at UCT. He then  
worked for three years in industry  
before starting his PhD in 2020.

Colin du Sart's thesis focuses  
on the conceptual design and analysis  
of a dry-cooled supercritical carbon  
dioxide (sCO<sub>2</sub>) power cycle for a  
proposed utility-scale concentrated solar  
power (CSP) plant in Southern Africa.  
One-dimensional (1D) thermofluid  
simulation codes were developed  
to design the power cycle and the  
comprising components, and to analyse  
the performance and behaviour of the  
cycle at off-design conditions and during  
transient events. The work identifies a  
suitable sCO<sub>2</sub> power cycle layout and  
nominal operating parameters for the  
proposed plant. Additionally, the main  
component requirements in terms of  
physical geometry and specifications are  
determined. These include compressors,  
turbines, heat exchangers, piping and  
valves. The work also identifies methods  
of control which ensure reliable and  
safe operation during changing ambient  
conditions and load-following, and  
during emergencies such as a load-  
rejection event.

*Supervisor:* Professor T Bello-Ochende (Mechanical Engineering)  
*Co-supervisor:* Professor PG Rousseau (Stellenbosch, Mechanical and Mechatronic Engineering)

Catherine Joanna Edward  
Thesis Title: *The effect of thiocyanate on ferrous iron and sulfur oxidation kinetics of biooxidation microorganisms*

Catherine Edward completed her BSc in Chemical Engineering at the University of Cape Town (UCT). Her MSc(Eng) was upgraded to a PhD study. Initially studying full-time, she has concurrently held roles as Contract Lecturer (UCT), Head of Research and Development at a biotech startup, and Senior Engineer at Mintek.

Catherine Edward's research focuses on the biooxidation process for gold extraction from mineral sulfides, with an emphasis on water circularity enabling a closed-loop system. She explores the effect of thiocyanate (SCN<sup>-</sup>), an anion formed during gold extraction by cyanide and present in remediated cyanidation tailings wastewater, on the activity of microorganisms central to biooxidation. Isolating three microbial species, she characterised their kinetics, two of which had never been studied. Her work identifies both the extent and mechanism of SCN<sup>-</sup>-inhibition on microbial iron and sulfur oxidation. By determining SCN<sup>-</sup>-exposure limits, assessing impact on kinetics, and evaluating the microbes' capacity to adapt over time, she provides valuable insights into microbial performance and resilience. This underpins her investigation into how SCN<sup>-</sup> and treated wastewater influence microbial community structure and function. Her findings extend fundamental knowledge for process design and offer practical guidance for improving water management and maintaining biooxidation efficiency in industrial applications.

*Supervisor:* Associate Professor M Fagan-Endres (Chemical Engineering)  
*Co-supervisor:* Professor STL Harrison (Queensland; Chemical Engineering)

\*Samson Olusegun Fatukasi  
Thesis Title: *Conjugate heat transfer in minichannel with embedded pin fins or porous medium: application to battery cooling system*

Samson Olusegun Fatukasi holds a PGD and an MTech degree in Mechanical Engineering from the Ladoke Akintola University of Technology Ogbomoso, Oyo State, Nigeria. He joined the Faculty of Engineering and the Built Environment at UCT in 2020 for his PhD studies. Before joining UCT, he worked in the Osun State Polytechnic Iree, in Nigeria.

The focus of Samson Fatukasi's work is on conjugate heat transfer in minichannels with embedded pin fins or porous media, with application to battery cooling systems. He investigates the effect of different shapes and locations of pin fins / aluminum foam of different porosities inserted in the channel on the enhancement of the battery cooling system performance. With or without the insert, he starts his investigation by mounting different numbers of channels on a rectangular frame coupled with a pack of five cylindrical lithium-ion batteries. His study shows that three channels with the placement of solid pin fins at the L/8 towards the inlet give the best performance of the cooling system. His work showed it was possible to attain over 300% enhancement when the system was optimized.

*Supervisor:* Professor T Bello-Ochende (Mechanical Engineering).

Siphiwe Godfrey Mahlangu  
Thesis Title: *Extraction and identification of endophytes for skin health*

Siphiwe Mahlangu completed a bachelor's and master's degree (with distinction) in biotechnology at the University of Johannesburg. In 2020, he joined the Centre for Bioprocess Engineering Research (CeBER) in the Department of Chemical Engineering at UCT for his PhD studies.

Siphiwe Mahlangu's thesis focuses on biopharmaceutical drug discovery and development, isolating and investigating new strains of endophytic

bacteria from *Centella asiatica* and *Gunnera perpensa*, indigenous to the Western Cape Province, South Africa, in vitro. A diverse microbial community was identified, with 20 strains isolated from *C. asiatica* and 11 from *G. perpensa*. His research also aims to understand growth kinetics and behaviour of these endophytes outside their host plant systems, facilitating access to their antimicrobial and antioxidant compounds. Among these, *Pseudomonas* sp. strain SGM2 and *Chryseobacterium* sp. GP- SGM7 were selected for further investigation due to their high growth rates and promising properties. Scale-up studies in bioreactors evaluated the effects of pH, agitation speed, and aeration on biomass and bioactive yields, revealing improvements in production due to enhanced agitation and oxygen availability. This research presents a promising avenue for drug discovery and the development of natural products for skin health.

*Supervisor:* Dr. CS Mokwatlo (Chemical Engineering)  
*Co-supervisors:* Dr N Zulu (Chemical Engineering) and Dr SL Tai (Chemical Engineering)

Joshua Ayomikun Matesun  
Thesis Title: *Tracking micropollutants of concern through conceptual mathematical models in a Western Cape wastewater treatment plant, South Africa*

Joshua Matesun earned a BSc in Petroleum Engineering from the University of Ibadan (Nigeria), an MSc(Eng) in Civil Engineering at UCT (2020), and joined the Water Research Group at UCT for his PhD studies in 2021.

Joshua Matesun's thesis develops a conceptual plantwide model of South Africa (PWM\_SA) to track persistent micropollutants (MPCs: 15 metals, 7 emerging contaminants and transformation products) at the Bellville Wastewater Treatment Plant (WWTP). Laboratory-scale investigations include two Modified Ludzack-Ettinger reactors, two anaerobic digesters, a triplicate aerobic batch system, and an augmented biomethane potential (AugBMP) setup.

Analytical methods are used to identify and quantify the MPCs in raw and settled wastewater. Experimental data are integrated into PWM\_SA (WEST® software) to simulate MPC behaviour under aerobic and anaerobic conditions. The upgraded model identifies removal mechanisms and kinetic rates, evaluates mitigation strategies (effluent/sludge MPC reduction), and supports pollution-control frameworks. Addressing gaps in modelling persistent MPCs — risks to ecosystems and health — this study advances tools to improve water quality and guide WWTP management, aligning with environmental and public health priorities.

*Supervisor:* Associate Professor D Ikumi (Civil Engineering)

*Co-supervisors:* Professor L Petrik (Western Cape; Chemistry); Dr E Musvoto (TruSense Consulting Services)

Charles Baraka Mwau

*Thesis Title: New city-making in Africa: a case of planning hybridity*

Charles Baraka Mwau holds a BA degree in Planning and a MPhil in Urban Infrastructure, from the University of Nairobi and the University of Cape Town (UCT), respectively. Mwau re-joined UCT in 2018 for his PhD studies, which he undertook alongside consulting in urban planning and development practice.

Charles Baraka Mwau's thesis focuses on urban planning and governance practices, specifically on how the state and the private sector engage in the production of "new city-making" in Kenya. He applies the case study method, using Tatu City as the case study, together with qualitative analytical techniques of discourses and rationalities. His research reveals that the intertwinement of public-private sector roles and functions produce hybridised institutions and practices. He goes further to examine the implications that these institutions and practices have on public sector planning in the African context. This allows him to propose "planning hybridity" as an analytical and explanatory theory of how the interplay between public and private sector

relations and rationalities are crucial to an understanding of "new city-making" in Africa, which is inclusive of everyday practices of urban reproduction.

*Supervisor:* Professor T Winkler (Architecture, Planning and Geomatics)

*Co-supervisor:* (2018-2021): the late Professor Vanessa Watson (Architecture, Planning and Geomatics)

Carol Zethu Ngwenya

*Thesis Title: Feasibility of renewable bioenergy production from carbohydrate-rich waste streams using confectionery waste as a substrate*

Carol Zethu Ngwenya holds a BTech (Biotechnology) and MTech (Environmental Health) from Cape Peninsula University of Technology. She joined the UCT Centre for Bioprocess Engineering Research as an intern in 2016, transitioning to postgraduate study, and upgrading to PhD. She is a bioprocess scientist at Afrigen Biologicals and Vaccines.

Carol Zethu Ngwenya's thesis investigates the potential for enhancing South Africa's circular economy through conversion of carbohydrate-rich solid wastes, such as the solid waste from the confectionery industry, to bioenergy to offset energy requirements of the process from which it is sourced. At the same time, this reduces the waste requiring disposal in landfill and its subsequent liability to pollute. The study focuses on the potential of bioprocesses to produce biofuels bioethanol and biobutanol as well as methane-rich biogas. The study highlights the importance of acclimatisation and adaptation of the biological system to the waste resource as well as understanding key factors driving carbon partitioning in the metabolic pathway to maximise carbon conversion to biofuel. Findings demonstrate that process selection depends on the prioritisation of evaluation criteria: energy output, waste reduction, CO<sub>2</sub> emission minimisation and energy offsets. Typical energy offsets in the range of 10% were achievable.

*Supervisor:* Emeritus Professor STL Harrison (Chemical Engineering)

*Co-supervisor:* Dr M Smart (Roche, Chemical Engineering)

Sancho Nkosilathi Nyoni

*Thesis Title: Interaction of milling media and water chemistry in the flotation of selected base metal sulfides*

Sancho Nkosilathi Nyoni holds a BSc(Hons) in Applied Chemistry from the National University of Science and Technology, Zimbabwe, and an MSc in Metallurgy and Materials Engineering from the University of the Witwatersrand. His PhD research also resulted in the 2024 NRF Research Excellence Award for Next-Generation Researchers.

Sancho Nyoni's thesis investigates problems related to milling media and closed-water circuits in sulfide mineral processing. Resolving these challenges is essential for effective ore treatment, as the ore metallurgy is significantly influenced by changes in pulp composition caused by mechanochemical and galvanic reactions between milling media, recycled water, and the ore. The global mining sector particularly needs water recycling as it adapts to water-scarce environments. Consequently, this study examines the chemical effects of milling, including considerations of pulp and mineral surface chemistry, and uses flotation as a diagnostic tool to assess the impact on metallurgical performance. The study demonstrates that concerns over the adverse metallurgical effects of Fe-bearing milling media and dissolved gangue ions in recycled water can be mitigated by controlling electrochemical conditions and ionic strength. Overall, the research provides a scientific understanding of how the chemical characteristics of the mill pulp phase impact flotation performance.

*Supervisor:* Professor K Corin (Chemical Engineering)

*Co-Supervisor:* Emeritus Professor C O'Connor (Chemical Engineering)

Dime Serumula

Thesis Title: *Assessment of the demand for and influencing factors of hitchhiking, paratransit and e-hailing services in rural South Africa*

Dime Serumula has a double-major BSc Geoinformatics, Environmental and Geographical Science and Atmospheric Science, a BSc (Hon.), and an MSc (Eng.) Geomatics, from the University of Cape Town. His academic project focuses on the ‘spatiotemporal sustainability’ of rural transport in different contexts and time frames, with minimal bias or negative impacts.

This thesis investigates long-distance travel demand of public transport users in rural South Africa, specifically the Waterberg District Municipality in the Limpopo Province, through a user-centric lens. Using primary (counts  $m=104$  and interviews  $n=429$ ) and secondary (social media posts  $o=418$ ) data, the thesis establishes that hitchhiking is mostly used when minibus taxis services are scarce. Furthermore, the destination of the two services differs, where hitchhikers often travel to further destinations. Travellers who use hitchhiking have shorter waiting times on average, i.e. 25 minutes, compared to minibus taxis, which wait for the vehicle to be full before departing. Minibus taxi users spent, on average, more than an hour sitting in the vehicle before departing. Given the high smartphone penetration rate, e-hailing also exists in South Africa’s rural context. A significant number of hitchhikers use social media to arrange trips and want to continue to do so.

*Supervisor:* Professor M. Vanderschuren (Civil Engineering)

\*Mujtaba Mahmoud Nasr Shuaib

Thesis Title: *Response of CFRP retrofitted steel cylindrical shells to external blast loads*

Mujtaba Shuaib holds BSc in Civil Engineering and MSc in Structural Engineering from the University of Khartoum. He joined the University of Cape Town in 2017 to pursue his PhD in Mechanical Engineering, focusing on the blast resilience of CFRP-retrofitted steel cylindrical shells.

A series of controlled blast experiments in conjunction with validated numerical simulations were conducted to assess deformation and failure patterns of both bare and retrofitted tubes with a view to evaluate the effectiveness of Carbon Fibre-Reinforced Polymer (CFRP) retrofitting in improving the blast resistance of steel cylindrical shells. Different CFRP lay-up configurations were investigated. The retrofitted tubes demonstrated up to 34% reduction in midpoint deflection and withstood impulse levels approximately 60% higher before rupture compared to bare tubes. The findings of this study provide insightful knowledge toward the advancement of blast-resistant steel infrastructure, particularly in environments exposed to high risk of explosions.

*Supervisor:* Professor S Chung Kim Yuen (Mechanical Engineering)  
*Co-supervisor:* Professor G Nurick (Mechanical Engineering)

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An inclusive and engaged research-intensive African university that inspires creativity through outstanding achievements in learning, discovery and citizenship; enhancing the lives of its students and staff, advancing a more equitable and sustainable social order and influencing the global higher education landscape.

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