Graduation Programme

The Future. Reimagined.

UNIVERSITY OF JOHANNESBURG

Dear UJ Graduates

Your journey to this point has been an important lesson in leadership. As I have iterated often, learning, knowledge and leadership are an essential mix and those who do not know, cannot lead. Our objective has been to empower you as leaders who are primed to face the challenges of the 4IR and explore the opportunities that this new era presents both locally and internationally. This is an exciting adventure, let me assure you that the world you are entering is abundant with opportunities, and of course, challenges.

This graduation is rather special. Though we still find ourselves in a strange setting, still fighting an invisible and relatively unknown threat and still gripped with a sense of uncertainty, there does seem to be a glimmer of hope on the horizon. This represents our first cohort of in-person graduations in two years. As we celebrate your attainment of a major milestone, we are cognisant of the sheer resilience you have demonstrated against a tumultuous context – one defined by loss, anguish and seismic shifts in the way we live and work. A graduation ceremony is an important precursor to the next chapter of your lives. It is warming to be able to celebrate this achievement today with you in person as opposed to the digital modes that have defined much of the pandemic so far.

I want to take this opportunity to remind you that as a graduate, you join a small elite in our country. This is really something to celebrate. Though the odds seemed stacked against you, you persevered and not have the potential to address some of the greatest scourges of our time. You have chosen well – a qualification from UJ will hold you in good stead!

UJ has grown into a world-class, internationally recognised university with more than 50 000 students registered. Our global stature and academic depth and footprints are acknowledged by reputable higher education ranking systems in the world. You emerge today as the world including us in South Africa, is in a period of deep change. UJ is leading the charge in the Fourth Industrial Revolution (4IR) and creating a cohort of graduates who are agile, curious and able to be active participants in a technology driven and digital environment.

At UJ, you have encountered some of the finest South African and international academic minds. You have participated in technology-rich learning, which compares favourably to the very best in global higher education.

We welcome you as a new member of the global UJ alumni community where you will join a worldwide body of professionals, many of whom are leaders in their fields. I encourage you to join the UJ Alumni Network and become an active member of the University Convocation. By staying actively engaged with UJ, you can make a real contribution to our academic projects and to those who will study at UJ after you.

It is exciting to once again commence this time-honoured tradition. Congratulations on this inspiring achievement and the best of luck with your next chapter!

Prof Tshilidzi Marwala
Vice-Chancellor and Principal
University of Johannesburg

Welcome to the
Graduation Ceremony of the
University of Johannesburg
19 May 2022 at 15:30

Welkom by die
Gradeplegtigheid van die
Universiteit van Johannesburg
19 Mei 2022 om 15:30

Le a Amogelwa
Moletlong wa Dikapešo wa
Yunibesithi ya Johannesburg
19 Mopitlo 2022 ka 15:30

Niyamukelwa
eMcimbini wokweThweswa kweZiqu
weNyuvesi yaseJohannesburg
19 kuNhlaba 2022 ngele-15:30

UNIVERSITY OF JOHANNESBURG

CHANCELLOR

Prof NS Ndebele
BA (Lesotho), MA (Cambridge UK), PhD (Denver USA)

SENIOR OFFICE-BEARERS OF THE UNIVERSITY

VICE-CHANCELLOR AND PRINCIPAL

Prof T Marwala
BS Eng (Case Western Reserve USA), MEng (UP), PhD (Cambridge UK)

DEPUTY VICE-CHANCELLOR ACADEMIC

Prof LG Mpedi
B Juris, LLB (Vista), LLM (RAU), LLD (UJ)

DEPUTY VICE-CHANCELLOR: RESEARCH AND INTERNATIONALISATION

Prof S Sinha
BEng, MEng, PhD (UP)

REGISTRAR

Prof IC Burger
BA, HEd, BA Hons, MA, PhD (RAU)

CHIEF FINANCIAL OFFICER

Ms N Mamorare
BCom (Rhodes), BCom Hons (UKZN), CA (SA)

CHIEF OPERATING OFFICER

Dr M Ralephata
BSc Eng (Wits), MBA (UOVS), MSc (Heriot-Watt), DBA (Heriot-Watt)

SENIOR EXECUTIVE DIRECTOR

Dr N Vukuza
BA (Fort Hare), BA Hons (Rhodes), DTE (UNISA), MA (Wits),
PhD (Stellenbosch)

GENERAL COUNSEL

Mr D Pretorius
BCom, LLB, LLM (NWU)

EXECUTIVE DEANS

COLLEGE OF BUSINESS AND ECONOMICS

Prof D van Lill
BSc, BSc Hons, MSc, PhD (US)

FACULTY OF ART, DESIGN AND ARCHITECTURE

Prof S Laurent
BFA (l'Ecole Boulle, Paris), MFA (ENS, Paris-Saclay),
MPhil, PhD (Université Panthéon-Sorbonne, Paris),

FACULTY OF EDUCATION

Prof N Petersen
BA Ed (UNISA), BEd Hons (RAU), MEd (RAU), DEd (UJ)

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

Prof DJ Mashao
BSc Eng (UCT), MSc Eng (UCT), MSc AM (Brown, USA), PhD (Brown, USA)

FACULTY OF HEALTH SCIENCES

Prof S Khan
BSc, BSc Hons, MSc, PhD (UWC)

FACULTY OF HUMANITIES

Prof K Naidoo
BA, BA Hons, MA, PhD (University of Manchester, UK)

FACULTY OF LAW

Prof W Domingo
B SoSc (UCT), LLB (UWC), LLM (Columbia, USA),
SJD (Winsconsin-Madison, USA)

FACULTY OF SCIENCE

Prof D Meyer
BSc, BSc Hons, MSc (RAU), PhD (California USA)

DEAN

JOHANNESBURG BUSINESS SCHOOL

Prof R Carolissen
MSc (UWC), MBA (SUN), MCom (NWU), PhD (UWC)

MEMBERS OF COUNCIL

CHAIRPERSON

Mr MS Teke

DEPUTY CHAIRPERSON

Dr Y Ndema

MEMBERS

Prof H Abrahamse
Mr FM Baleni
Ms S Dlamini
Ms K Gugushe
Prof D Hildebrandt
Ms X Kakana
Mr G Khosa
Mr M Khoza
Ms K Khumalo
Ms B Madikizela
Mr M Mahlasela
Mr M Manana
Prof T Marwala
Prof LG Mpedi
Ms N Molope
Ms Z Mthembu
Dr WP Rowland
Prof A Strydom
Ms C Tshilande

PRESIDENT OF CONVOCATION

Prof BM Diale

Gaudeamus Igitur

Gaudeamus igitur,
Juvenes dum sumus;
Post iucundum iuventutem,
Post molestam senectutem
Nos habebit humus.
Vivat academia,
Vivant professores,
Vivat membrum quodlibet,
Vivat membra quaelibet;
Semper sint in flore!

English

Let us rejoice, therefore,
While we are young.
After a pleasant youth
After a troubling old age
The earth will have us.
Long live the academy!
Long live the professors!
Long live each student;
Long live the whole fraternity;
For ever may they flourish!

Sesotho sa Leboa

Ka gona, a re thabeng,
Re sa le ba bafsa.
Ka morago ga bofsa bjo bo bose
Ka morago ga go tšofala mo go nago le mathata
Lefase le tla ba le rena.
Phela thuto phela!
Phelang diprofesa phelang!
Phelang baithuti phelang;
Phela kagišano ka botlalo phela;
O ka re ba ka phela gabotse goyagoile!

Afrikaans

Laat ons dan vrolik wees,
Terwyl ons jonk is;
Na ’n aangename jeug.
Na ’n onaangename oudag,
Sal die aarde ons hou.
Lank lewe die universiteit,
Lank lewe die professore,
Lank lewe elke student,
Lank lewe al die studente,
Mag hulle vir ewig hul jeug behou!

Zulu

Ngakho, masithokoze
Sisebasha nje.
Emva kobumnandi bobusha
Emva kwezinkinga zobudala
Umhlaba uzosithatha.
Phambili ngemfundo!
Phambili boSolwazi!
Phambili nakuwe mfundi;
Phambili ngenhlangano yonke;
Maziqhubeke ngonaphakade!

FACULTY OF LAW
QUALIFICATIONS

1. Magister Legum (LLM)

Booysen, Shanese Letatia (Commercial Law) **(with distinction)**
Minor Dissertation: A comparative analysis of aspects of the law of South Africa and the United States of America regarding money laundering and the financing of terrorism
Supervisor: Prof CF Hugo

Chakwakwama, Tariro Lorraine (International Law)
Minor Dissertation: A critical appraisal of whether the alleged atrocities against the Uyghurs in China amount to genocide and crimes against humanity
Supervisor: Dr M Roux

Chimatilo, Cynthia Carlos (International Law)
Minor Dissertation: The protection of prisoners' rights in international law
Supervisor: Dr R Laubscher

Chisedzi, Allen Tinashe (Commercial Law)
Minor Dissertation: The ideal model of insurance for autonomous vehicles: a comparative study
Supervisor: Dr S Huneberg

Chitate, Chelsea (Commercial Law)
Minor Dissertation: Regulating the unsecured lending sector: catering to a real South African need whilst complying with section 25 of the Constitution
Supervisor: Adv PG Louw
Co-supervisor: Prof SF du Toit

Coetzee, Hendrik Johannes (Corporate Law)
Minor Dissertation: What happens when a creditor is left out of a business rescue plan?
Supervisor: Prof KE van der Linde

Dlamini, Rose Sitholisile (Intellectual Property Law)
Minor Dissertation: A critical study of the case of *Google LLC v Oracle America, Inc* and its meaning for the protection of application programming interfaces in South Africa
Supervisor: Prof RW Alberts

Fortuin, Dane Romario (Labour Law)
Minor Dissertation: Standarised contracts concluded by professional football players in South Africa: a comparative perspective
Supervisor: Prof MJ van Staden

Gorimbo, Sarudzai (International Law)
Minor Dissertation: Reparations for climate change in Africa as a driver of state responsibility, human rights protection and global development
Supervisor: Dr JH Hall

Hadebe, Mthobisi Lindokuhle (Labour Law)
Minor Dissertation: Social insurance protection in South Africa during COVID-19: a legal perspective
Supervisor: Prof ES Fourie

Hanson, Brooke Gail (Tax Law)
Minor Dissertation: Green taxation: a potential integrative tool for social protection and economic stabilisation in South Africa?
Supervisor: Prof T Legwaila
Co-Supervisor: Dr JH Hall

Jaffer, Faatimah Zahrah (Commercial Law)
Minor Dissertation: The role of banks in combatting financial crime in South Africa: the efficacy of current policies and procedures
Supervisor: Prof CF Hugo

Jaure, Wadzanai Rose (International Law)
Minor Dissertation: Transnational corporations and accountability for environmental harm: a closer look at shell
Supervisor: Dr JH Hall

Javangwe, Wilson Matsika Isheunesu (Tax Law)
Minor Dissertation: A tax-based approach to the promotion of the local acquisition, retention and exploitation of intellectual property
Supervisor: Prof T Legwaila

Kodisang, Keotshepile Retlametswe (Banking Law)
Minor Dissertation: Closing of bank accounts with specific reference to evidence led at the State Capture Commission
Supervisor: Prof SF du Toit

Kunene, Zamangema Nompumelelo (Commercial Law)
Minor Dissertation: Is the doctrine of consideration applicable in the South African contract law?
Supervisor: Dr A Munyai

Lebepe, Luyanda (Corporate Law)
Minor Dissertation: The role of the social and ethics committee in facilitating environmental compliance with statutory requirements
Supervisor: Dr JH Hall

Legodi, Manamela Shaawn (Intellectual Property Law)
Minor Dissertation: A comparative study of the approach followed towards parody in the United States and South African copyright systems
Supervisor: Prof RW Alberts

Lekaise, Kgaogelo Kelly (Drafting and Interpretation of Contracts)
Minor Dissertation: Nagware: a form of improperly obtained consensus?
Supervisor: Dr MM van Eck

Maake, Motale Kgomotso (Banking Law)
Minor Dissertation: A comparative analysis of the approach of different regulatory materials to the independence principle in letters of credit and demand guarantees
Supervisor: Prof CF Hugo

Mabasa, Shumirai (Commercial Law)
Minor Dissertation: A closer look at the insurance relationship and how digitalisation will impact fairness between the insurer and insured
Supervisor: Dr S Huneberg

Macingwane, Sanelisiwe ZiziphoInga (Commercial Law)
Minor Dissertation: A director gone rogue – a legal analysis of *Organisation Undoing Tax Abuse v Myeni*
Supervisor: Prof JC Calitz

Magazi, Simphiwe Ngqobile (Corporate Law)
Minor Dissertation: Is section 20(7) of the Companies Act, 2008 a codification of the *Turquand rule*?
Supervisor: Prof KE van der Linde

Majam, Naadiya (International Commercial Law)
Minor Dissertation: A comparative analysis of the grounds for the recognition and enforcement of foreign judgments pertaining to international commercial contracts in the BRICS countries
Supervisor: Prof EA Fredericks

Malumane, Tiens (Corporate Law)
Minor Dissertation: A critical analysis of the effect of business rescue proceedings on the cancellation of executory contracts
Supervisor: Prof JC Calitz

Mamphoka, Mokgoma Mitchelle (Labour Law)
Minor Dissertation: The employer's duty to provide a safe and healthy working environment during the Covid-19 pandemic
Supervisor: Prof MJ van Staden

Maruping, Kebafilwe Sharon (Drafting and Interpretation of Contracts)
Minor Dissertation: Mechanisms to escape contractual liability in electronic contracts
Supervisor: Dr MM van Eck

Masombuka, Athylia Senzeni (Tax Law)
Minor Dissertation: A critical analysis of the taxable income of expatriates in South Africa with reference to *X v Commissioner of the South African Revenue Services*
Supervisor: Prof T Legwaila

Mbambo, Ishmael Khayelihle (Drafting and Interpretation of Contracts)
Minor Dissertation: Implications of data protection legislation on the drafting of contracts in South Africa
Supervisor: Dr MM van Eck

Mnxuma, Sipho Trevor (Commercial Law)
Minor Dissertation: An analysis of the protection afforded by the National Credit Act to over-indebted consumers
Supervisor: Adv PG Louw
Co-Supervisor: Prof SF du Toit

Mokgotho, Poelo Coretta (Drafting and Interpretation of Contracts)
Minor Dissertation: The recognition of force majeure clauses in South Africa
Supervisor: Dr MM van Eck

Molefe, Lukholo (Labour Law)
Minor Dissertation: Resignations to avoid disciplinary action: a legal analysis
Supervisor: Mrs KB Mufamadi

Molefe, Siyanda Njabulo (Labour Law)
Minor Dissertation: The fourth industrial revolution and organizational rights: a legal perspective
Supervisor: Prof ES Fourie

Motloung, Sechaba (Labour Law)
Minor Dissertation: The impact of the Fourth Industrial Revolution on occupational health & safety in the mining sector: a legal perspective
Supervisor: Prof ES Fourie

Mpingadza, Cynthia (Corporate Law)
Minor Dissertation: Directors' liability for insolvent trading during the Covid-19 pandemic
Supervisor: Prof JC Calitz

Msipa, Samantha Funeka (International Commercial Law)
Minor Dissertation: Civil liability and artificial intelligence - a framework for South Africa in light of European developments
Supervisor: Mr JS Baumann
Supervisor: Ms N Ismail

Mthembu, Hlalanathi Naranson (Labour Law)
Minor Dissertation: Regulation of private use of cannabis in South Africa: implications for the workplace
Supervisor: Mrs KB Mufamadi

Mthombeni, Felicity Ronna (Commercial Law)
Minor Dissertation: The legal nature of virtual currencies in South African law
Supervisor: Prof SF du Toit

Ndlovu, Moses Deri (Commercial Law)
Minor Dissertation: A critical analysis of the ultra *duplum rule* and its application in South African law
Supervisor: Adv PG Louw
Co-supervisor: Prof SF du Toit

Ndlovu, Vuyisile Joy (International Commercial Law)
Minor Dissertation: The potential influence of article 6(1)(b) of the Hague Principles on Choice of Law in International Commercial Contracts on Indian private international law
Supervisor: Dr P Obiri-Korang

Nkomo, Lindani Providence (Commercial Law)
Minor Dissertation: Legal perspectives on cryptocurrencies issued by states
Supervisor: Dr SF du Toit

Nxumalo, Sizwe (Labour Law)
Minor Dissertation: Substance use in the workplace: a comparative analysis
Supervisor: Mrs KB Mufamadi

Nyantakyi, Nicholas (International Commercial Law)
Minor Dissertation: Liability 4.0 in the legal framework of the European Union
Supervisor: Prof JL Neels
Supervisor: Mr JS Baumann

Ohene Marfo, Akua Ophir (Banking Law)
Minor Dissertation: The reversal of credit transfers in South African and Ghanaian law
Supervisor: Prof SF du Toit

Padayachee, Dasran (Commercial Law)
Minor Dissertation: Are liability insurers obliged to prove prejudice when repudiating a policyholder's claim based on late notification?
Supervisor: Dr S Huneberg

Pitoyi, Thenjiwe (Commercial Law)
Minor Dissertation: The inclusion of labour disputes under general moratorium in business rescue: a fair balance between employee and employer?
Supervisor: Prof JC Calitz

Pooe, Katlego (Tax Law)
Minor Dissertation: A legal analysis of the Carbon Tax Act
Supervisor: Prof T Legwaila

Qoto, Sibongile (International Commercial Law)
Minor Dissertation: The potential influence of article 2(1) of the Hague Principles on Choice of Law in International Commercial Contracts on Brazilian private international law
Supervisor: Dr GJ Bouwers

Ramcharethar, Kashvir (Banking Law)
Minor Dissertation: Reckless credit in modern society: a comparative legal analysis
Supervisor: Adv PG Louw
Co-supervisor: Prof SF du Toit

Ramuhala, Rudzani Aubrey (Labour Law)
Minor Dissertation: The legal consequences of abscondment in the context of Covid-19
Supervisor: Prof MJ van Staden

Serobe, Lazarus Noge (Intellectual Property Law)
Minor Dissertation: A comparative study of the concept of "originality" in copyright law
Supervisor: Prof RW Alberts

Shabangu, Yvonne Princess (Banking Law)
Minor Dissertation: The digitisation of financial services to enhance financial inclusion: a study of South African law with comparative insights from Europe
Supervisor: Prof CF Hugo

Shuping, Desire Katlego (Drafting and Interpretation of Contracts)
Minor Dissertation: The impact of the effort's standards on legal certainty and the interpretation of contracts
Supervisor: Dr MM van Eck

Sibanda, Shelton (Drafting and Interpretation of Contracts)
Minor Dissertation: The enforceability of restraint of trade agreements during Covid-19
Supervisor: Dr MM van Eck

Siphambili, Portia Penelope (International Law)
Minor Dissertation: Sexual and gender-based violence during the Covid-19 pandemic: an analysis of the legal measures employed to protect female refugees in South Africa
Supervisor: Ms R Maphosa

Siwela, Rebecca (International Law)
Minor Dissertation: The application of the responsibility to protect the Rohingya population against atrocities committed on the territory of Bangladesh
Supervisor: Dr M Roux

Solomon, Kate Mary (Commercial Law) **(with distinction)**
Minor Dissertation: Toeing the line in a company group - the development of a "best interests of the group" defence for subsidiary director liability
Supervisor: Prof KE van der Linde

Strydom, Clea (International Law) **(with distinction)**
Minor Dissertation: Autonomous weapon systems and the meaningful human control requirement: is it going too far or not far enough?
Supervisor: Prof G Kemp
Co-supervisor: Prof MR Phooko

Suping, Lerato Kgomotso (Drafting and Interpretation of Contracts)
Minor Dissertation: The protection of consumers in South African pledge agreements
Supervisor: Dr MM van Eck

Theron, Cianel (International Law) **(with distinction)**
Minor Dissertation: Legal obstacles to the effectiveness of the humanitarian work of international non-governmental organisations in the context of armed conflicts within Africa
Supervisor: Dr M Roux

Tholo, Lindobuhle (Drafting and Interpretation of Contracts)
Minor Dissertation: The protection afforded to minors entering into electronic contracts in South Africa
Supervisor: Dr MM van Eck

Van Rheede, Sharon Rose (Human Rights Law)
Minor Dissertation: Can deinstitutionalisation of persons with psychosocial disabilities meet the government's human rights obligations to them?
Supervisor: Prof DI Bilchitz

Vawda, Suhail (Labour Law) **(with distinction)**
Minor Dissertation: A comparative analysis of the definitions of an employee in labour legislation
Supervisor: Prof ES Fourie

Special Award
Faculty of Law

2. Chancellors Medal for the Most Meritorious Masters' Study for 2021

Theron, Cianel
Magister Legum (LLM): International Law **(with distinction)**

3. Doctor Legum (LLD)

Joubert, Yvette Marie
Thesis: Judicial case management as a tool to improve efficiency in the pre-trial process in civil trials
Supervisor: Prof D Millard
Co-supervisor: Prof PH O'Brien

Joubert, Yvette Marie (LLD)

Yvette Joubert obtained a Bachelor of Arts degree in English in 1988, and a Bachelor of Laws degree in 1991, both from the University of the Witwatersrand. She also holds a Master of Laws degree in Commercial Law, which she obtained *cum laude* from the University of Johannesburg in 2013. She obtained the prize for best student in Insolvency Law during her Masters' studies. She was admitted as an attorney in the High Court of South Africa in 1995 and practiced in the field of litigation for 15 years, during which time she pursued and defended claims for personal injury damages in both the senior and junior courts. Since 2013 she has been a lecturer at the University of Johannesburg in the Faculty of Law in the Department of Procedural Law.

Her thesis investigates measures taken in comparative legal systems to improve judicial case management that has thus far failed in South Africa to achieve the speedier, simpler, and cheaper resolution of civil disputes. She concludes that the current climate in South Africa advocates a pragmatic, incremental approach to reform of civil procedure. Our courts are not primed to adopt a wholescale codification of the civil procedure rules at this point including an *overriding* objective as adopted in other jurisdictions. Introducing an *underlying* objective may be more pragmatic to guide the courts in instances where court rules are unclear or when a judge has to exercise a discretion. The candidate provides a roadmap to guide reform by means of consistent improvement toward a clearly defined goal, namely a new procedural code that may include the overriding objective of just, timely and cost-effective adjudication within the framework of the Constitution.

Supervisors: Prof D Millard and Prof PH O'Brien

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT
QUALIFICATIONS

4. National Diploma
Diploma

Douglas, Morgan John (Operations Management)
Gorekwang, Hlompho Hlonipiwe (Management Services)
Kalefya, Elijah (Operations Management)
Mashaba, Suprise Mlungisi (Engineering Metallurgy)
Motsiri, Masego (ENGINEERING: Civil)
Mthembu, Kuhlesibonge Thabang (Management Services)
Ramagwa, Netshedzo (Management Services)
Sangweni, Michael (Management Services)
Seete, Ngoato Motlokoa Maikanya (Engineering: Civil)
Simelane, Thuma Keith (Engineering: Civil)
Siphoro, Ntakadzeni (Management Services)
Supe, Nthabiseng Kwena (Operations Management)
Thunzana, Siyasanga (Management Services)
Tlaka, Thabang Edward (Operations Management)
Tshabalala, Matshepo Michelle Emily (Management Services)
Ubisi, Khethiwe (Management Services)

5. Advanced Diploma

Fana, Bonga (Quality)
Kgoale, Mamotshabo Rinah (Management Services)
Lange, Daniel Shotsha (Operations Management)
Leso, Katlego Leso (Management Services)
Mahlangu, Lethuthando Mellisa (Quality)
Mahleka, Ayanda (Management Services)
Mashita, Lebogang Whitney (Operations Management)
Matlhatsi, Malesego (Management Services)
Mohlasedi, Solomon Lesiba (Management Services)
Mzinyane, Sizakele Cecilia (Management Services)
Njoko, Busisiwe Immaculate (Quality)
Sabela, Nomusa Zamanguni (Quality)
Sesinye, Tebogo Daphne (Quality)
Simelane, Swakhile Xolisa (Management Services)

6. Post Graduate Diploma

Khechane, Bokamosho (Quality)
Mabaso, Ayanda (Quality)
Ndlovu, Sakhile Proffesor (Quality)
Santiago, Gleide Luisa Torres (Quality)
Sehlwana, Mmone Rosinah (Quality)
Seoka, Lerato Ranny (Quality)
Skhosana, Amahle Antonette (Quality)

7. Bachelor's

Dhladhla, Xolani Nhlonipho (Construction)
Gwebu, Mfundo Branden (Construction)
Manyisa, Sizwe Bongani (Construction)
Mshuqwana, Vuyo (Construction)
Nefale, Prudence Rendani (Urban and Regional Planning)
Nkosi, Nontokozo Precious (Construction)

8. Bachelor of Engineering Technology

Barei, Olebile Patrick (Extraction Metallurgy)
Chauke, Shaun (Chemical Engineering)
Choenyana, Obed Raditlale (Extraction Metallurgy)
Daweti, Zizipho (Extraction Metallurgy)
Kekana, Neo Carol (Chemical Engineering)
Lesia, Relebohile Precious (Extraction Metallurgy)
Makhubele, Katekani (Industrial Engineering)
Mathabela, Gift (Mechanical Engineering)
Mcatshulwa, Esethu (Mining Engineering)
Moleleki, Kamohelo (Industrial Engineering)
Moloisi, Samuel Mmamakobe (Chemical Engineering)
Mthimunye, Zakhele Zane (Extraction Metallurgy)
Mtsweni, Karabo Chantell (Physical Metallurgy)
Radebe, Dumisa Twolex (Mechanical Engineering)
Ramasindi, Fhatuwani Cynthia (Mechanical Engineering)
Ramncwa, Siphenathi (Extraction Metallurgy)
Setausi, Sean (Mechanical Engineering)
Simango, Zaphania (Mining Engineering)

Thoahlane, Puseletso Philip (Extraction Metallurgy)
Tladi, Nkwele Aaron (Extraction Metallurgy)
Tladi, Samuel Tshwene (Extraction Metallurgy)

9. Bachelor of Science Honours

Chimbadzwa, Gilbert Zvikomborero (Quantity Surveying)
Koloko, Nteboheng (Quantity Surveying)
Mathibela, Zandile (Urban and Regional Planning)
Mdala, Chipo (Quantity Surveying)
Mohaleamalla, Maile David (Urban and Regional Planning)
Tshose, Naome Kelebogile (Quantity Surveying)
Yengwa, Iqiniso Akhona S'phelele (Mine Surveying)

10. Bachelor of Engineering Technology Honours

Mahlangu, Steven Koos (Mechanical Engineering)
Makungo, Ruddy (Mechanical Engineering)
Mathegu, Thanyani Brighten (Industrial Engineering)
Myeni, Mondli (Mechanical Engineering)
Mziyako, Thulile Nomhlangano (Industrial Engineering)
Naidoo, Keshan (Mechanical Engineering)
Nchabeleng, Phindile (Industrial Engineering)
Nkomo, S'khulile (Mechanical Engineering)
Ramme, Neo (Mechanical Engineering)
Tshipa, Onkgopotse Mojalefa Recious (Industrial Engineering)

11. Baccalaureus Ingeneriae
Bachelor of Engineering

Cossa, Michael Sibusiso (Mechanical)
Hadebe, Bandile Sabelo (Civil)
Hlatshwayo, Mlungisi Mike (Civil Engineering)
Hlongwani, Mfanelo (Mechanical Engineering)
Kanyinji, Racheal Michelle Thandiwe (Civil)
Khoza, Sifiso Rudolph (Civil)
Khumalo, Eric Ayanda (Mechanical Engineering)
Mabetwa, Kagiso (Electrical and Electronic Eng)
Mahamo, Ntebele Christopher (Civil)
Mahasha, Mosibudi Masedi (Civil)
Mahlangu, Mbali Precia (Electrical and Electronic)
Makena, Mpumelelo (Civil)
Makhokha, Rendani (Mechanical Engineering)
Makhosa, Thoriso Marcus (Electrical and Electronic)
Malatji, Arthur (Electrical and Electronic)
Malatji, Tumelo Sebope (Mechanical Engineering)
Malope, Retang Koena (Civil Engineering)
Matanda, Brighton (Civil Engineering)
Matshebele, Sipho Nhlanhla (Mechanical Engineering)
Mdukaza, Gangilanga (Electrical and Electronic)
Miyambu, Malwandla (Civil)
Mmotong, Lesedi (Civil)
Moabelo, Kabelo Caddily (Electrical and Electronic)
Mokgethi, Kelebogile Hilda (Electrical and Electronic)
Mokone, Kabelo (Electrical and Electronic with Information Technology)
Mosaka, Thapelo Daniel (Civil Engineering)

Mosaka, William Lemohang (Electrical and Electronic)
Moteme, Madise Kenneth (Civil)
Motloung, Siphiwe Victor (Mechanical Engineering)
Moyo, Kanishka (Electrical and Electronic with Information Technology)
Mphethi, Constencia (Electrical and Electronic)
Mtemeli, Noble Melaphi (Civil Engineering)
Mthembu, Banele Terry (Mechanical Engineering)
Mundungehama, Caspar (Civil Engineering)
Muzira, Arthur (Civil Engineering)
Ncube, Sandile (Electrical and Electronic)
Nkoana, Thato Johannes (Civil Engineering)
Nkosi, Bheki Oliver (Civil)
Phanguphangu, Rudzani (Civil)
Railele, Molatelo Lesly (Civil Engineering)
Rammutha, Mokgadi Daniel (Civil Engineering)
Rapudu, Thabang Coleen (Electrical and Electronic)
Sathekge, Karabo Moyagabo (Mechanical Engineering)
Sehlapelo, Augustinos Katlego (Mechanical Engineering)
Setati, Cecil Tlou (Mechanical)
Sikhosana, Fanyana Amon (Electrical and Electronic Engineering)
Tshabalala, Bafikile (Civil)
Twala, Bandile (Mechanical)

Special Award
Faculty of Engineering and the Built Environment

12. Faculty Prize for the Most Prestigious Student among undergraduates and honours for 2021

Mphahlele, Thabang Joel
Bachelor of Engineering Technology: Mechanical **(with distinction)**

13. Magister Technologiae

Abbot, Devon William (Engineering: Mechanical)
Dissertation: Accuracy of FEM of 3D printed parts
Supervisor: Dr DVV Kallon
Co-supervisor: Dr CE Anghel

Da Silva, Stephen Andrew Mateus (Engineering: Mechanical)
Dissertation: FEA on different disc brake rotor designs
Supervisor: Dr DVV Kallon
Co-supervisor: Dr CE Anghel and Dr OT Laseinde

Hlophe, Lungisile Siso (Construction Management)
Dissertation: Assessment of compartmentalization for fire safety in high-rise buildings in the city of Johannesburg, South Africa
Supervisor: Prof CO Aigbavboa
Co-Supervisor: Dr LM Aghimien and Prof WD Thwala

Jiyane, Musawenkosi Petros (Operations Management)
Dissertation: Impacts of line management, active management, and training and development on operational performance and productivity improvements in manufacturing organisations
Supervisor: Dr N Sukdeo

Khangale, Rendani Jeffrey (Construction Management)
Dissertation: Success rate and implications of contractual claims decisions on contractors in South Africa
Supervisor: Prof I Musonda
Co-supervisor: Dr C Okoro

Mabunda, Hlulani Success (Construction Management)
(with distinction)
Dissertation: Appraisal of artisan management in the South African construction industry
Supervisor: Prof CO Aigbavboa
Co-Supervisor: Prof WD Thwala and Dr I Ohiomah

Mabuza, Semanga (Operations Management)
Dissertation: The impact of automation on operational performance objectives: Case of barbeque rib manufacturers vs industry best practices
Supervisor: Dr N Sukdeo
Co-supervisor: Mr SC Mukwakungu

Mafokwane, Thabang (Engineering: Mechanical)
Dissertation: Vibration sensor and control system for an acoustic horn developed for boilers at Sasol synfuels power station Secunda
Supervisor: Dr DVV Kallon
Co-supervisor: Prof LK Tartibu

Mailola, Masabata Cynthia (Construction Management)
Dissertation: An evaluation of inspectors contribution in assuring quality housing under warranty scheme in Gauteng, South Africa
Supervisor: Prof I Musonda
Co-supervisor: Dr C Okoro

Makhado, Mbongiseni (Operations Management)
Dissertation: Quality as a competitive advantage: The role of quality in industry 4.0
Supervisor: Dr N Sukdeo

Manyaka, Thikho Deon (Construction Management)
Dissertation: Risk management practices in the South African construction industry
Supervisor: Prof CO Aigbavboa
Co-supervisor: Prof WD Thwala and Dr JO Aliu

Maqina, Phumelele (Engineering: Mechanical)
Dissertation: Investigation of rectangular Actiflo clarifier under hydrostatic pressure with horizontal stiffeners
Supervisor: Dr DVV Kallon
Co-supervisor: Dr F Tekweme

Masetlwa, Refilwe (Construction Management)
Dissertation: An assessment of building information modeling adoption for stakeholder buy-in in value engineering processes
Supervisor: Prof I Musonda
Co-supervisor: Dr C Okoro

Mungomo, Lorna Phylis (Operations Management)
Dissertation: Strategic leadership in driving lean six sigma for Malawian companies
Supervisor: Dr A Vermeulen
Co-supervisor: Prof C Mbohwa

Munzhelele, Vhuthuhawe (Engineering: Industrial)
Dissertation: The impact of supply chain management in the automotive industries of South Africa
Supervisor: Dr G Muyengwa

Mutereko, Christopher (Construction Management)
Dissertation: Investigating the impact of built environment skills set levels on construction project delivery in South Africa: Experience from rural municipalities of Free State
Supervisor: Prof I Musonda
Co-supervisor: Prof T Gumbo

Muvhango, Dzivhuluwani Collins (Construction Management)
Dissertation: An assessment of the perception of low-income households on the quality and affordability of municipal water services in the city of Johannesburg
Supervisor: Prof CO Aigbavboa
Co-Supervisor: Prof WD Thwala

Nefale, Tshifhiwa Matthews (Engineering: Industrial)
Dissertation: Deployment of change management and its impact on employee performance in the South African construction industry
Supervisor: Dr G Muyengwa
Co-supervisor: Dr N Ndou

Nena, Tholang David (Construction Management)
Dissertation: An exploration of automated inspection process for quality housing delivery in the construction industry: A study in Gauteng, South Africa
Supervisor: Prof I Musonda
Co-supervisor: Dr C Okoro

Netshia, Mukhethwa (Engineering: Metallurgy)
Dissertation: Evaluation of corrosion resistance of NiAl alloy reinforced with carbon nanotubes in the marine environment
Supervisor: Prof PA Olubambi
Co-supervisor: Dr MA Awotunde and Dr MGR Mahlobo

Ntombela, Nkosinathi Mluleki (Construction Management)
Dissertation: The viability of solar energy use to improve efficiency on the railway infrastructure: The case study
Supervisor: Prof I Musonda

Raphiri, Mampholo Marcia (Construction Management)
Dissertation: Management capability in construction small and medium contractors in Gauteng province, South Africa
Supervisor: Prof I Musonda
Co-supervisor: Dr C Okoro

Rissenga, Evans Vincent (Engineering: Metallurgy)
Dissertation: Recovery of magnetite using a magnetic hydro-sizer
Supervisor: Prof W Nheta
Co-supervisor: Prof J Kalala

Wangi, Asanga Pierre (Engineering: Civil)
Dissertation: Managing quality within road construction projects: Case studies of storm water design in Mpumalanga province
Supervisor: DR H Quainoo

14. Masters

Langa, Mpho (Sustainable Urban Planning and Development)
Dissertation: Investigating the innovativeness of public transport systems: The case of Tshwane Rapid Transit (TRT) 'A Re Yeng'
Supervisor: Dr EN Makoni
Co-supervisor: Prof T Gumbo

Madima, Mukondeleli Valencia (Sustainable Urban Planning and Development)
Dissertation: The role of the spatial planning and land use management act in fostering traditional leadership governance in Sekhukhune district municipalities
Supervisor: Dr EN Makoni

Madinga, Ella (Sustainable Urban Planning and Development)
Dissertation: Land use and land cover change Inlilongwe, Malawi
Supervisor: Prof W Musakwa

Madzivhandila, Ntendedeleni Lawrence (Industrial Engineering)
Dissertation: An investigation of the factors affecting plasterboard warehouse inventory management: The case of a South African company
Supervisor: Dr F Chiromo

Msibi, Nompendulo Nokuthula (Industrial Engineering)
Dissertation: An investigation of the impact of internal quality auditing practices on ISO 9001 quality management system performance: the case of company XYZ in South Africa
Supervisor: Dr F Chiromo

Mudau, Khuthadzo Isaac (Sustainable Urban Planning and Development)
Dissertation: Assessing the importance of mixed-use developments in sustainable urban planning: The case study of Melrose arch, Johannesburg
Supervisor: Dr EN Makoni

Oseifuah, Joel Elikem Kwaku (Sustainable Urban Planning and Development)
Dissertation: Analysis of non-motorized transport system in the outer-ring road of Thohoyandou CBD
Supervisor: Prof T Gumbo
Co-supervisor: Dr J Chakwizira

Ravele, Eugiania Khethani (Sustainable Urban Planning and Development)
Dissertation: Development of a sustainable housing project. A case of the South Hills residential development project, Johannesburg
Supervisor: Mr G Onatu

Tshiamala, Deborah Mbombo (Industrial Engineering)
Dissertation: Analysis of order picking in a warehouse using a design of experiment approach and ant colony optimization
Supervisor: Dr L Tartibu
Co-supervisor: Dr R Mutyavavire

Zulu, Silindile Nosipho Wendy (Sustainable Urban Planning and Development)
Dissertation: Electricity theft monitoring and detection system with double connected data capture system
Supervisor: Prof T Gumbo
Co-supervisor: Prof W Musakwa

15. Master of Philosophy

Dada, Damilola Ayomide (Mechanical Engineering)
Dissertation: Application of virtual reality for enhanced learning integration in higher education institutions
Supervisor: Dr OT Laseinde
Co-supervisor: Prof LK Tartibu

Mare, Andre Charl (Engineering Management)
Dissertation: Critical soft skills required for successful project delivery in the civil engineering and construction environment
Supervisor: Prof JHC Pretorius

Matshebele, Amukelani Rejoice (Engineering Management) **(with distinction)**
Dissertation: Challenges affecting project team collaboration during a pandemic
Supervisor: Prof A Marnewick
Co-supervisor: Prof C Marnewick

Mbele, Cynthia Ntombizanele (Engineering Management)
Dissertation: Managing structural integrity of pipelines utilising in-line inspection data
Supervisor: Mr HH Malik
Co-supervisor: Prof JHC Pretorius

Melanie, Abigail Jessica (Engineering Management) **(with distinction)**
Dissertation: The identification of cyber security work roles within the water sector in South Africa
Supervisor: Prof AL Marnewick
Co-supervisor: Prof S von Solms and Dr M Malatji

Morena, Keyanao Ruth (Engineering Management)
Dissertation: Knowledge transfer barriers in infrastructure project-based organisations
Supervisor: Prof AL Marnewick
Co-supervisor: Prof C Marnewick

Nchabeleng, Mandla Michael (Engineering Management)
Dissertation: Review of effective management factors and implementation strategies of South African wastewater treatment facilities
Supervisor: Prof H Nel

Ntobela, Delani Favours (Mechanical Engineering)
Dissertation: Development and analysis of water purifier system
Supervisor: Prof LK Tartibu
Co-supervisor: Mr TJ Kunene

Pokane, Sello Steven (Engineering Management)
Dissertation: Optimum systems integration architecture for monitoring to manage an electricity utility
Supervisor: Prof A Telukdarie
Co-supervisor: Mr M Shilenge

Shongwe, Thabile (Engineering Management)
Dissertation: The application of big data analytics for customer service improvement in the telecommunications industry of South Africa
Supervisor: Prof JHC Pretorius
Co-supervisor: Mr M Malatji

Thomani, Rendani Vincent (Engineering Management)
Dissertation: Cybersecurity knowledge requirements for a water sector employee
Supervisor: Prof AL Marnewick
Co-supervisor: Prof S von Solms and Dr M Malatji

Weideman, Jacques (Engineering Management) **(with distinction)**
Dissertation: The impact of total productive maintenance on performance in the South African food manufacturing industry
Supervisor: Prof JHC Pretorius
Co-supervisor: Dr A Vermeulen

16. Master of Engineering

Bekker, Marius (Engineering Management) **(with distinction)**
Dissertation: Theoretical framework for a measurement and verification meter supported by the development of Simulink models
Supervisor: Prof JHC Pretorius

Bonhomme, Berendina Eloise (Engineering Management) **(with distinction)**
Dissertation: Effective strategy implementation through rail infrastructure projects
Supervisor: Prof AL Marnewick
Co-supervisor: Prof C Marnewick

De Carvalho, Jose Roberto (Mechanical Engineering)
Dissertation: Design and development of a six-component platform type wind tunnel balance incorporating optical fibre and strain gauge sensors
Supervisor: Dr CR Bester
Co-supervisor: Dr FF Pieterse and Dr PM Bidgood

Dlamini, Mvuyo Zwakele (Mechanical Engineering)
Dissertation: Analysis of a loudspeaker driven and a thermo-acoustically driven travelling-wave thermo-acoustic refrigerator
Supervisor: Prof LK Tartibu
Co-supervisor: Dr OT Laseinde

Hlahane, Morake Dawid (Extraction Metallurgy)
Dissertation: Influence of process water on flotation performance of a sedimentary phosphate ore
Supervisor: Prof W Nheta
Co-supervisor: Prof E Makhatha

Kasongo, Kubangala Brest (Extraction Metallurgy)
Dissertation: Leaching analysis of copper and cobalt from sulfide ores in sulfuric acid- sodium chloride media
Supervisor: Prof E Makhatha
Co-supervisor: Prof LK Tartibu and Mr EN Malenga

Kilimi, Mafwele Guy Raymond (Electrical and Electronic)
Dissertation: Optimal design of an off-grid hybrid energy system using particle swarm optimisation
Supervisor: Prof PN Bokoro
Co-supervisor: Dr K Roro

Lukong, Valantine Takwa (Mechanical Engineering) **(with distinction)**
Dissertation: Spin coating and characterization of self-cleaning TiO2 thin films for photovoltaic application
Supervisor: Prof TC Jen
Co-supervisor: Dr K Ukoba

Mamba, Mxolisi Siyabonga (Engineering Management)
Dissertation: Improving buildings' energy efficiency through smart technologies: Case study of South African university's residences
(University of Johannesburg)
Supervisor: Prof JHC Pretorius
Co-supervisor: Dr PS Eboule

Mamphogoro, Thabelo Morris (Engineering Management) **(with distinction)**
Dissertation: The efficacy of battery-energy-storage systems installed in electricity generation and distribution plants in South Africa
Supervisor: Dr N Madushele
Co-supervisor: Prof JHC Pretorius

Maponya, Alpheus Ngwako (Mechanical Engineering)
Dissertation: The effect of minimum quantity lubrication on selected surface integrity attributes when machining grade 4 titanium alloy
Supervisor: Prof RF Laubscher

Mhlanga, Zamadumbe Hlengiwe Nombuso (Engineering Management)
Dissertation: An assessment of the applications of industry 4.0 in construction project management in the South African construction industry
Supervisor: Prof CO Aigbavboa
Co-supervisor: Prof WD Thwala

Mugumbate, Tapiwanashe Prince (Civil Engineering)
Dissertation: Investigation into South African municipal construction project failures
Supervisor: Mr D Kruger

Ngoy, Kitalu Ricin (Mechanical Engineering) **(with distinction)**
Dissertation: Design and optimization of Cu2InGaSe4 thin film solar cell using numerical analysis
Supervisor: Prof TC Jen
Co-supervisor: Dr AK Singh

Sekabate, Morwa Irene (Engineering Management)
Dissertation: Improving human resources planning for maintenance shutdown efficiency
Supervisor: Prof AL Marnewick
Co-supervisor: Dr N Joseph

Sifundza, Bongani Pelican (Engineering Management) **(with distinction)**
Dissertation: Improving project outcomes through stakeholder involvement during pre-project planning
Supervisor: Prof AL Marnewick
Co-supervisor: Prof C Marnewick

Tshabalala, Mzwakhe Phanuel (Engineering Management)
Dissertation: Manufacturing of a resin-coated chromite sand for rapid sand-casting applications
Supervisor: Prof KD Nyembwe
Co-supervisor: Dr PJ van Tonder

Van Zyl, Frans Willem (Civil Engineering) **(with distinction)**
Dissertation: The use of polymer concrete as a cost-effective and durable
Supervisor: Mr D Kruger

17. Master of Science

Adekunle, Peter Ademola (Quantity Surveying) **(with distinction)**
Dissertation: An assessment of construction information management in the South African construction industry
Supervisor: Prof C Aigbavboa
Co-supervisor: Prof CJ Anumba

Malomane, Reneiloe (Quantity Surveying) **(with distinction)**
Dissertation: The impact of fourth industrial revolution technologies in managing health and safety within construction industry
Supervisor: Prof I Musonda
Co-supervisor: Dr C Okoro

Special Award
Faculty of Engineering and the Built Environment

18. Chancellors Medal for the Most Meritorious Masters' Study for 2021

Van Zyl, Frans Willem
Master of Engineering: Civil Engineering (with distinction)

19. Doctor of Philosophy (D Phil)

Dube, Partson (Mechanical Engineering)
Thesis: The impact of modular designs on supply chain performance in a mass customisation environment
Supervisor: Prof C Mbohwa

Nlend, Samuel (Electrical and Electronic Engineering)
Thesis: Enhancing the performance of FFH-OCDMA channels with combined access, line and error correction codes
Supervisor: Prof TG Swart
Co-supervisors: Prof HC Ferreira

20. Doctor of Engineering

Ikegwuoha, Darlington Chinenye (Civil)
Thesis: Investigations of the impact of future climate variations in the Lepelle river basin for extreme flow conditions
Supervisor: Prof MO Dinka
Co-supervisors: Prof D Hedding

21. Doctor of Philosophy (PHD)

Abima, Cynthia Samuel (Mechanical Engineering)
Thesis: Experimental and numerical study of hybrid welded components for enhanced structural integrity
Supervisor: Prof S Akinlabi
Co-supervisors: Dr N Madushele

Adekunle, Samuel Adeniyi (Construction Management)
Thesis: A building information modelling maturity model for the South
African construction industry
Supervisor: Prof CO Aigbavboa
Co-supervisors: Dr O Ejohwomu and Prof WD Thwala

Adeleke, Oluwatobi Adesanya (Mechanical Engineering)
Thesis: Comparative analysis of waste-to-energy technologies using
municipal solid waste
Supervisor: Prof ET Akinlabi
Co-supervisors: Prof TC Jen and Prof I Dumade

Adu Gyamfi, Timothy (Construction Management)
Thesis: Risk management model for public-private partnership project for Ghanaian construction industry
Supervisor: Prof CO Aigbavboa
Co-supervisors: Prof WD Thwala

Aghimien, Lerato Millicent (Construction Management)
Thesis: An integrated human resource management practice framework for the South African construction industry
Supervisor: Prof CO Aigbavboa
Co-supervisors: Prof CJ Anumba and Prof WD Thwala

Ajayi, Oluwafemi Peace (Electrical and Electronic Engineering)
Thesis: Nature inspired algorithm-trained neural networks for data centre energy management systems
Supervisor: Dr R Heymann

Aladesanmi, Victor Ifetayo (Mechanical Engineering)
Thesis: Synthesis and characterization of carbon steel matrix composites by laser cladding techniques of additive manufacturing
Supervisor: Dr ET Akinlabi
Co-supervisors: Dr OS Fatoba

Borode, Adeola Olaoluwa (Mechanical Engineering)
Thesis: Performance evaluation of graphene nanoplatelet-based nanofluids for heat transfer application
Supervisor: Prof NA Ahmed
Co-supervisors: Prof PA Olubambi

Ikuabe, Matthew Osivue (Construction Management)
Thesis: A cyber-physical systems adoption model for facilities management in South Africa
Supervisor: Prof CO Aigbavboa
Co-supervisors: Prof CJ Anumba and Prof WD Thwala and Dr AE Oke

Khan, Muhammed Fuzail (Electrical and Electronic Engineering)
Thesis: Optical modulation using digital image symbol patterns and grading light valve technology in a hybrid multiplexed super channel
Supervisor: Prof TG Swart

Mambwe, Mwewa (Construction Management)
Thesis: Occupational Health and Safety performance management framework for small-scale electrical contractors in Zambia
Supervisor: Dr EM Mwanaumo
Co-supervisors: Prof CO Aigbavboa and Prof WD Thwala

Maumela, Joshua Tshifhiwa (Electrical and Electronic Engineering)
Thesis: A meta-heuristic optimisation algorithm based on Ubuntu philosophy: introduction and applications of Ulimisana optimisation algorithm
Supervisor: Prof FV Nelwamondo
Co-supervisors: Prof T Marwala

Mbae, Ariel Mutegi (Electrical and Electronic Engineering)
Thesis: Optimal placement of FACTS devices for improved power system stability using filter-feeding allogenic
Supervisor: Prof N Nwulu

Moges, Simeneh Shiferaw (Civil Engineering)
Thesis: Geo-hydrological investigation of groundwater at Doornfontein Campus (DFC), the University of Johannesburg
Supervisor: Prof MO Dinka

Molapo, Makhabane Lawson (Electrical and Electronic Engineering)
Thesis: Adaptive control on aircraft systems using artificial intelligence technologies
Supervisor: Dr AN Hassan

Mongwe, Wilson Tsakane (Electrical and Electronic Engineering)
Thesis: Hybrid Monte Carlo methods in machine learning: Stochastic volatility methods, shadow Hamiltonians, adaptive approaches, and variance reduction techniques
Supervisor: Prof T Marwala
Co-supervisors: Dr R Mbuvha

Muller, Daniel (Electrical and Electronic Engineering)
Thesis: Value rational planning and decision making in oversubscription systems
Supervisor: Prof T Marwala

Nissanov Nissan, Uri (Electrical and Electronic Engineering)
Thesis: Analysis and design of a terahertz microstrip antenna for next-generation cellular communication systems
Supervisor: Prof G Singh

Okafor, Chigozie Collins (Construction Management)
Thesis: An integrated framework for smart city development in Nigeria
Supervisor: Prof CO Aigbavboa
Co-supervisors: Prof WD Thwala

Ononiwu, Ndudim Henry (Mechanical Engineering)
Thesis: Machinability studies and characterization of aluminium matrix reinforced with fly-ash and carbonized eggshells
Supervisor: Prof ET Akinlabi
Co-supervisors: Dr CG Ozoegwu and Dr N Madushele

Shahzad, Tariq (Electrical and Electronic Engineering)
Thesis: Development of physiological indices using modern signal processing approaches
Supervisor: Prof T Marwala
Co-supervisors: Prof K Ouahada

Sherri, Marwan Fahmi Mohammad (Mechanical Engineering)
Thesis: Evolutionary Markov chain Monte Carlo algorithms for Bayesian model updating
Supervisor: Prof T Marwala
Co-supervisors: Dr I Boulkaibet

Teweldebrihan, Meseret (Civil Engineering)
Thesis: An integrated human resource management practice framework for the South African construction industry
Supervisor: Prof MO Dinka
Co-supervisors: Prof M Scholz

Thisani, Sandisiwe Khanyisa (Mechanical Engineering)
Thesis: Acid mine drainage treatment using a hybrid active-passive
treatment process: A systems engineering approach
Supervisor: Dr DVV Kallon
Co-supervisors: Dr P Byrne

Tshivhase, Ndamulelo (Electrical and Electronic Engineering)
Thesis: An adaptive fuzzy logic based system for voltage regulation in power distribution networks with high variable distributed generation
Supervisor: Dr A Hassan
Co-supervisors: Prof TC Shongwe

Wa Kalenga, Michel Kalenga (Metallurgical Engineering)
Thesis: Modelling of phase relations during high carbon ferromanganese production from basic manganese ores
Supervisor: Prof K Nyembwe
Co-supervisors: Prof M Tangstand

Dube, Partson **(DPhil)** Mechanical Engineering

Partson Dube completed his BEng Industrial Engineering and MEng Industrial Engineering degrees from the National University of Science and Technology, Zimbabwe. He is presently working as Lecturer in the Department of Mechanical and Industrial Engineering at the University of Johannesburg. He research interest is in the field of Supply Chain Management, System Dynamics and Product Design. In 2014 he began his studies for a doctorate in mechanical engineering. His thesis title is "*The Impact of Modular Designs on Supply Chain Performance in a Mass Customisation Environment"*.

The capability to concurrently design the product and its supply chain is a key competence in manufacturing companies. There is often a lack of synchronisation of product design and supply chain design. The flow of customised products requires the increased collaboration of supply chain partners, which requires complicated decision-making processes in a highly stochastic fast-paced environment. Continuous alteration of supply chain metrics, design, and policies is required in such an environment. There is also a lack of quantitative methods for analysing the relationship between product architecture design and supply chain configuration design. To address this gap, the research developed a system dynamics model to simulate the impact of the product modularisation level on supply chain metrics. The research hypothesis was tested using primary data collected from a furniture company operating in South Africa. This research work has contributed to literature by developing a customisation scale, a practical tool that can be used by the

practitioners in the manufacturing industry. The research also developed a system dynamics model to simulate the impact of the product modularisation level on the supply chain metrics. The model is capable of concurrently designing the product architecture and the supply chain metrics.

Supervisor: Prof C Mbohwa

Nlend, Samuel **(DPhil)** Electrical and Electronic Engineering

Samuel Nlend completed his MPhil in Electrical Engineering at the University of Johannesburg in 2013. He is presently with the Centre for Telecommunications at UJ, working in the fields of information theory, queuing theory, telecommunication networking, intelligent transport systems and business intelligence. His doctoral work produced three international journal papers, either published or accepted, as well as five conference papers. During his studies, he was also involved with the Centre for Telecommunications, the Institute for Intelligent Systems and the Academy of Science of South Africa, in suggesting alternative communication solutions for the SKA Karoo region.

To achieve service convergence over the optical fibre, which is plagued by non-linear effects and which is non-flexibly managed using system monitoring through threshold values, this research suggests a combined coding system that enhances the fibre's performance and its Optical Code Division Multiple Access transfer system. It provides a code construction that combines access-, line-, and error-correction coding to reduce the encoding and decoding complexity and adapts through a fibre constraint coding. The system enhances the optical fibre system transfer and the system cardinality.

Supervisor: Prof TG Swart
Co-supervisor: Prof HC Ferreira

Ikegwuoha, Darlington **(DIng)** Civil Engineering

Darlington completed his PhD (2021) in Civil Engineering in the Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa. He graduated with MSc in Civil Engineering from Wits University in 2013. Mr Ikegwuoha is presently working as Lecturer at the Durban University of Technology (Pietermaritzburg), Department of Civil Engineering and Surveying. Before joining DUT he worked at UNISA. His has two recent journal article publications. One of these, "Drought Prediction in the Lepelle River Basin Under General Circulation Models", has attracted the attention of water engineers and environmental scientists due to the bold drought and flood predictions presented.

Darlington completed his Doctoral degree in Civil Engineering at the University of Johannesburg. His doctoral research is related to the use of WEAP model to evaluate the availability of water into the future of the Lebelle River basin, especially during extreme flow conditions. The study has attracted the attention of water engineers and environmental scientists due to the bold drought and flood predictions presented. Two scientific articles has been published from the study.

Supervisor: Prof MO Dinka
Co-Supervisor: Prof DW Hedding

Abima, Cynthia Samuel **(PhD)** Mechanical Engineering

Cynthia Abima holds a Bachelor's and a Master's degree (with distinction) in Mechanical Engineering from the Cross River University of Technology in Nigeria and the University of Johannesburg in South Africa, respectively. Her research interests are in advanced manufacturing processes, additive manufacturing and surface engineering process optimisation. Cynthia is a member of the South African Institution of Mechanical Engineering (SaiMechE) and the Nigerian Institute of Mechanical Engineers.

Cynthia Abima's doctoral study examines the use of the TIG-MIG hybrid welding process for the enhancement of structural integrity of welded steel components. In this study, Cynthia carried out a comparative study of the evolved properties of the TIG-MIG hybrid welding process and standalone TIG and MIG processes based on statistical design experimental approaches to establish the Integrity of the TIG-MIG hybrid process over the conventional TIG and MIG processes respectively. Through this research she establishes a process window for welding AISI 1008 mild steel via the TIG-MIG welding process, and also developed numerical models capable of simulating the thermal dynamics of the TIG, MIG and TIG-MIG hybrid processes.

Supervisor: Prof S Akinlabi
Co-supervisors: Dr N Madushele

Adekunle, Samuel Adeniyi **(PhD)** Construction Management

Samuel Adekunle obtained his Bachelor of Science (2014) and Master's in Science (2016) in Quantity Surveying from the University of Lagos, Nigeria. He enrolled for his doctoral studies in Construction Management at the University of Johannesburg in 2019. He is a professional member of the Quantity Surveying Associations in Nigeria and South Africa. He has several publications in accredited peer-reviewed journals and conferences, which have earned him Best Paper awards. In addition, he has served as a panel member on several platforms and seminars discussing and presenting BIM adoption strategies in the South African construction industry. The output of his PhD research is adopted in helping organisations to achieve BIM maturity.

The developed model was achieved through an extensive literature review. Validation of factors was achieved through two Delphi iterations and a questionnaire survey. The quantitative data were analysed through structural equation modelling (SEM). The developed model theorised that for the South African construction industry to be BIM matured, it must possess the following dimensions: people, technology, process, ecosystem regulations, effective BIM training and stakeholder orientation. The developed model provides a holistic, unbiased tool for assessing and achieving the BIM maturity of the South African construction industry and can be adopted by other developing countries. The model is well-rooted in the ISO 19650 information management standard. Furthermore, the model developed is novel as it adopted a mixed-method approach and adopted SEM in its development.

Supervisor: Prof C Aigbavboa
Co-Supervisor: Dr O Ejohwomu and Prof WD Thwala

Adeleke, Oluwatobi Adesanya **(PhD)** Mechanical Engineering

Oluwatobi Adeleke holds a bachelor and Master's degree in Mechanical Engineering from Ladoke Akintola University of Technology, and the University of Ibadan, Nigeria respectively. His research interest is in artificial intelligence, waste-to-energy, machine-learning, renewable energy systems modelling, waste and biomass beneficiation, waste management. He has published journals and conference papers in these fields. He was awarded the best PhD researcher in the Department of Mechanical Science, under the faculty of Engineering and Built Environment (FEBE) award of academic excellence, 2021.

Oluwatobi Adeleke's doctoral research focused on a framework of artificial intelligence and life cycle assessment tool to evaluate the physical components of waste management systems in South Africa involving generation, physical composition, heating value and process outputs of municipal solid waste. His research, which developed machine learning algorithms and environmental assessment tools addressed the challenge of data gaps in sustainable waste management planning, allocation of resources and feasibility of waste-to-energy plants in South Africa.

Supervisor: Prof ET Akinlabi
Co-supervisors: Prof TC Jen and Prof I Dumade

Adu Gyamfi, Timothy **(PhD)** Construction Management

Timothy Adu Gyamfi obtained the Construction Technician Certificate I, II, and III at Kumasi Polytechnic, now Kumasi Technical University, in 1999, 2001 and 2002, respectively. At the University of Education Winneba, Ghana, he obtained a Certificate in Education and a BEd in Vocational Technical Education in 2005 and 2010, respectively. In 2013, he graduated from the University of Education with a Master of Philosophy in Construction Technology. He has been a lecturer at Koforidua Technical University since 2016. In 2018, he started his PhD journey in Construction Management at the University of Johannesburg, South Africa. He has published two journal articles from his PhD thesis.

The focus of the candidate's research was on the development of the Public-Private Partnership (PPP) risk management (PPPRM) model to improve the risk management capacity of the construction industry in Ghana. The model comprises a six-factor construct, including PPP operation environment, organisational culture, risk resource management, risk process management, stakeholders' management, and project scope management. The candidate utilised confirmatory factor analysis (CFA) to determine pattern factors for the various constructs and the structural equation model (SEM) to validate and established structural and measurement models for the study constructs. The findings suggested that the formation of a PPP construction contract should consider the operationalisation of PPPRM in the Ghanaian's construction industry. The implication of the study was that PPP risk management can be enhanced by improving the PPP operation environment, organisational culture, risk resource management, risk process management, stakeholders' management, and project scope management in the construction industry.

Supervisor: Prof CO Aigbavboa
Co-supervisor: Prof WD Thwala

Aghimien, Lerato Millicent **(PhD)** Construction Management

Lerato Aghimien earned her National Diploma in Building (2015), Bachelor of Technology in Quantity Surveying (2016), and Master of Technology in Construction Management (2018) degrees from the University of Johannesburg, South Africa. In 2018 she enrolled for her doctoral studies in Construction Management at the University of Johannesburg, where she focused on Human Resource Management in construction. This research focus has birthed six publications in accredited journals and conference proceedings. She was one of the recipients of the Academic Doctorate Advancement Project towards Transformation (ADAPTT) Scholarship and she is a member of the Golden Key International Society.

The candidate developed an integrated Human Resource Management (HRM) Practice Framework for the South African construction industry. The framework was theorised from a comprehensive review of literature and validated through a two-round Delphi study and a structural equation modelling (SEM) analysis. Drawing from the classical approach of the strategic theory and aligning with the soft HRM model, the research theorises that the attainment of increased organisational performance, job satisfaction, better quality and innovative construction, harmonious work environment, and organisational citizenship are directly dependent on the training and development, employee involvement and empowerment, and external environment, with an indirect dependence on the effective management of recruitment and selection, compensation and benefits, performance management and

appraisal, and emotional intelligence. The study also contributes to the method of conducting construction research by using a mixed-method sequential approach, which incorporates the robust use of analytical methods with a different first- and second-generation multivariate analyses.

Supervisor: Prof C Aigbavboa
Co-supervisors: Prof C Anumba and Prof WD Thwala

Ajayi, Oluwafemi Peace **(PhD)** Electrical and Electronic Engineering

Oluwafemi Ajayi obtained his Bachelor of Engineering with First Class Honours from Covenant University (2016) and Master of Engineering in Electrical and Electronic Engineering (*cum laude*) from the University of Johannesburg (2019). He is a registered Candidate Engineer with the Engineering Council of South Africa (ECSA) and a Student Member of the South African Institute of Electrical Engineers (SAIEE).

His research focused on the development of nature-inspired Artificial Intelligence-based energy management systems for data centres, which are key components for driving digital transformation in the Fourth Industrial Revolution (4IR) by enabling access to computer resources and data storage. The scope of the study covered data centre energy demand prediction, weights-based analysis of model parameters, optimised electricity sourcing for cost and environmental impact minimisation, and policy recommendations relative to corporations and the South African energy market. Three journal articles and two conference articles were published, all peer reviewed.

Supervisor: Dr H Heymann

Aladesanmi, Victor Ifetayo **(PhD)** Mechanical Engineering

Mr Victor has core research expertise in additive manufacturing, material science, data science and machine learning. His B.Sc. in Metallurgical and Materials Engineering was obtained from Obafemi Awolowo University, Nigeria. He obtained his Master's degree in Civil Engineering Science (Railway Engineering Option) at the University of Johannesburg. He is an Erasmus research fellow of the Eberhard Karl University of Tübingen, Germany, with Landesbetreuungsmittein – Baden-Württemberg Scholarship, Germany. He is a recipient of Award of Honour from LeadAfrica Tubingen, Germany, at the Global Partnership for African Development conference 2019, towards promoting initiatives of a sustainable development to African Developments.

The candidate utilised laser cladding technology to fabricate metal matrix composite of titanium and titanium diboride on carbon steel for additive shaping of steel robots and carbon steel rails. Predictive analysis of linear and quadratic polynomial regression of their mechanical properties data, optimisation of processing parameters, and metal matrix clad model were obtained for manufacturing Titanium and Titanium diboride admix clads for surface engineering. This research produced six Scopus-listed journal papers.

Supervisor: Prof ET Akinlabi
Co-supervisor: Dr OS Fatoba

Borode, Adeola Olaoluwa **(PhD)** Mechanical Engineering Science

Adeola Olaoluwa Borode obtained his Bachelor's degree and Master's degree in Mechanical Engineering from the Federal University of Technology, Akure, in 2011 and 2017, respectively. Having worked for six years in a parastatal of Nigeria's National Agency for Science and Engineering Infrastructure (NASENI), Abuja, as a Senior Engineer, Adeola enrolled for his Doctoral program at the University of Johannesburg in the Department of Mechanical Engineering in 2018. Adeola was awarded a National Research Foundation (NRF) funding for his research. He has published six articles in Scopus-indexed journals and two peer-reviewed conference papers from this research study.

Adeola Borode's Doctoral research focused on evaluating the performance of graphene-based nanofluids for heat transfer application. The study involved preparing and investigating the thermophysical properties and convective heat transfer performance of mono-graphene and novel graphene-based hybrid nanofluids. Apart from the natural convection study, which is largely ignored in the literature, this study also investigated the corrosion effects of the nanofluids on the materials used in thermal systems. The study established that hybrid nanofluids exhibit the best thermal convection performance. The graphene-based hybrid nanofluids developed, are recommended for potential applications in thermal systems than mono nanofluids.

Supervisor: Prof NA Ahmed
Co-Supervisor: Prof PA Olubambi

Ikuabe, Matthew Osivue **(PhD)** Construction Management

Matthew Ikuabe obtained a National Diploma and a BTech in Quantity Surveying from the Federal Polytechnic, Auchi, and the Federal University of Technology, Akure, Nigeria, respectively. He finished as the best graduating student from both institutions, which earned him several awards. In 2018 he completed his MTech in Quantity Surveying with a distinction from the Federal University of Technology, Akure, Nigeria. He enrolled for his doctoral studies at the University of Johannesburg, South Africa, in 2019. He has published research works in accredited journals, book chapters, and peer-reviewed conferences to his credit. He is a corporate member of the Nigerian Institute of Quantity Surveyors.

The candidate developed a cyber-physical systems adoption model for facilities management in South Africa. Resulting from the review of extant literature, a hypothesised model was formulated and validated using a mixed method approach, which entailed a two-round Delphi study and a structural equation modelling (SEM) analysis technique. In contextualising the validated model, it was revealed that for the adoption of cyber-physical systems for facilities management, four intrinsic features: performance expectancy, social influence, enabling measures and effort expectancy, and two extrinsic features: business environment and performance measurement, are significantly influential. The study contributes practically to the body of knowledge in providing a roadmap for the digitalisation of built infrastructure at the post-occupancy stage. Also, the study adds to the theoretical base of the conversation for the uptake of emerging digital technologies for effective facilities management.

Supervisor: Prof C Aigbavboa
Co-supervisors: Prof CJ Anumba and Prof WD Thwala and Dr AE Oke

Khan, Muhammed Fuzail **(PhD)** Electrical and Electronic Engineering

Fuzail has been a student at the University of Johannesburg since 2003, having completed both his Bachelors of Electrical and Electronic Engineering and Information Technology degrees in 2006, followed by a Masters of Electrical and Electronic Engineering degree in 2010. In 2017 he began his PhD in Electrical and Electronic Engineering with completion in 2021, and he published one international conference paper and one international journal paper from the research. Fuzail is an industry professional with 20 years of experience executing projects in telecommunication network services, financial payment services, renewables, as well as oil and gas energy services.

The latest research exploits to increase optical channel bandwidth are termed Polarization Division Multiplexing (PDM) and Few Mode Fiber (FMF), which rely upon a complex multiplexed architecture together with customized electro-optic modulated hardware elements, inhibited by cost implications and technical limitations thereof. The research pursued in this study presents an alternate Digital Image Pattern Modulated (DIPM) approach to achieve higher bandwidth gains, spectral efficiency, and transmission reach improvements. The solution focuses on reducing implementation cost with a scalable software approach and simplified hardware design using Grating Light Valve (GLV) technology to address the drawbacks of PDM, FMF, and conventional commercialised optical transmission technologies. A hardware proof of concept prototype was implemented with simulation test results for a DIPM-GLV-based fiber optic transmission system and comparisons against conventional and other novel techniques are graphically shown and interpreted, suggesting that DIPM using GLV is a viable high-performance and cost-efficient solution.

Supervisor: Prof TG Swart

Mambwe, Mwewa **(PhD)** Construction Management

Mwewa Mambwe earned her BSc in Real Estate Management (2013) from the Copperbelt University in Zambia with a Merit, and a Master's of Engineering in Project Management (2017) at the University of Zambia. In 2019 she enrolled for her doctoral studies in Construction Management at the University of Johannesburg. She is a member of the Surveyors Institute of Zambia (Valuation Chapter) and the Engineering Institute of Zambia. Ms Mambwe has published several peer-reviewed book chapters, journal papers and numerous conference publications.

In her research the candidate developed an occupational health and safety (OH&S) performance management framework for small-scale electrical contractors in Zambia. The framework was theorised and developed based on a comprehensive review of extant literature and was validated using a two-round Delphi study and Structural Equation Modelling (SEM). The framework was developed to ascertain the influence of management strategy, finance, employee involvement, training and promotion, actions for continuous improvement, hazard identification management and review, employee wellbeing, and provision of OH&S services in predicting the outcomes of improved OH&S performance management. Practically, with the developed framework, small-scale electrical contractors can measure OH&S performance and use the eight determinants to assess improvement areas required during their planning and decision making on OH&S. The study contributes to the method of conducting research by adopting the mixed-method sequential approach, which is able to incorporate the robust use of various analytical methods.

Supervisor: Dr EM Mwanaumo
Co-supervisors: Prof WD Thwala and Prof C Aigbavboa

Maumela, Tshifhiwa Joshua **(PhD)** Electrical and Electronic Engineering

Joshua Maumela started his academic career at Mariadze Primary School in Limpopo Province, South Africa, and matriculated at LTT Murunwa School of Excellence. He graduated with BEng in Electrical and Electronics Engineering at the University of Johannesburg (UJ). He pursued an MEng in Electrical and Electronics Engineering, focusing on Artificial Intelligence, at UJ. He completed a Master's in Economics from Waseda University in Japan, where he studied Game Theory and Circular Economy. He enrolled for PhD in Artificial Intelligence at the University of Johannesburg in 2018.

Tshifhiwa Maumela's thesis introduced a new artificial intelligence optimisation algorithm modelled around Ubuntu Philosophy. The resulting algorithm was subsequently named "Ulimisana Optimisation Algorithm", which means "working together to till land" (Letsema is SeSotho). The algorithm was benchmarked against other existing optimisation algorithms on benchmark test functions. The thesis introduced Hyperparameter Optimisation and Federated Learning frameworks using the UOA algorithm, and proved that this extension addresses the challenges of Machine Learning Unfairness. He has published one journal and one conference paper.

Supervisor: Prof FV Nelwamondo
Co-Supervisor: Prof T Marwala

Mbae, Mutegi Ariel **(PhD)** Electrical and Electronic Engineering

Mutegi Mbae earned his BSc degree in Electrical and Electronics Engineering from the University of Nairobi, Kenya, in 2005. He graduated with an MSc degree in Electrical Engineering and Electronics Engineering from Jomo Kenyatta University of Agriculture and Technology in Kenya in 2017. In 2018 he enrolled for his PhD in the Department of Electrical and Electronic Engineering Science at the University of Johannesburg.

The candidate developed a framework to assess the impact of optimally placed hybrid FACTS devices on voltage, small-signal and transient stability when significant system disturbances occur. The algorithm was inspired by the feeding and spontaneous movement traits of filter feeders. The results obtained were used to develop a performance-based ranking system for the hybrid FACTS devices and a new method of classification for FACTS devices. The candidate published four high-quality journal papers in the course of his study.

Supervisor: Prof N Nwulu

Moges, Simeneh Shiferaw **(PhD)** Civil Engineering

Simeneh Moges was born in Ethiopia and holds a BSc in Agricultural Engineering from Hawassa University, Ethiopia. He obtained an MSc in Water Resources Management from the University of South Australia. Simeneh has worked in various roles, including as water supply, sanitation and hygiene (WASH) and irrigation engineer, WASH and irrigation programme manager, and director in government and non-government organisations in Ethiopia. Simeneh proudly received UJ's GES in 2018 and enrolled for a PhD in Civil Engineering.

The candidate's doctoral research focused on investigating and understanding the behaviour of groundwater resources in the Doornfontein area (Johannesburg) for the better management and utilisation of this available water resource. He used both experimental and modelling techniques to achieve the study objects. The study indicated that the composition of groundwater of the area was influenced by both natural and anthropogenic factors. Thus, the study suggested the need to protect the groundwater reserve of the area from surface pollutants. Three journal articles (two produced and one accepted) emanated from the study.

Supervisor: Prof MO Dinka

Molapo, Makhabane Lawson **(PhD)** Electrical and Electronic Engineering

Mr Makhabane Molapo has 12 years' experience in the defense and aerospace sector, having worked for a number of aerospace/defense and aviation companies in South-Africa. He completed his Master's in engineering (M. Eng.) from the University of Johannesburg in 2016. His research was on the effective allocation of multifunction resources. In 2018 he registered his PhD with the University of Johannesburg, having worked in the aerospace and aviation industry Mr. Molapo's interest was on the control, guidance and navigation of aircraft using artificial intelligence. There are various control techniques in control engineering, such as PID, MRAC and fuzzy logic control, just to mention a few.

Makhabane's thesis empirically investigates and compares different types of adaptive control techniques which are previously published in literature, and then proposes a new improved hybrid control technique using artificial intelligence algorithms, thus improving the intelligence and adaption of the controller. To the best of our knowledge this is the first study where such a combination of techniques has been applied: Adaptive Neuro Fuzzy Inference System and Linear Quadratic Regulator controller (ANFIS-LQR) for the control and stabilisation of a drone platform in flight. The thesis results have been published in several control and artificial intelligence journals and conference proceedings. These findings have addressed the research hypothesis that hybrid controllers are more optimal than the traditional controllers while operating exactly in the same environment, thus the hypothesis is validated and accepted.

Supervisor: Dr AN Hassan

Mongwe, Wilson Tsakane **(PhD)** Electrical and Electronic Engineering

Wilson Tsakane Mongwe matriculated from Bankuna High School in 2008 and was overall the second-best performing learner in the Limpopo province. He holds a BSc in Computing (*cum laude*) from the University of South Africa, a BBusSci in Actuarial Science (with distinction in Statistics) from the University of Cape Town, and a Master's in Mathematical Finance (with distinction) from the University of Cape Town. He is a recipient of the Google PhD Fellowship in Machine Learning, which supported his PhD research at the University of Johannesburg, and a recipient of the Mail and Guardian Top 200 young South Africans award for 2020.

The candidate's thesis was on developing new Hybrid Monte Carlo Methods with applications in Machine Learning. His thesis presented novel Markov Chain Monte Carlo algorithms, which enhanced Magnetic Hamiltonian Monte Carlo through the incorporation of auxiliary momentum variables with stochastic mass, performing a backward error analysis on the numerical integrator to derive the novel Shadow Magnetic Hamiltonian Monte Carlo method; used an iterative tree branching algorithm to automatically tune the parameters of Separable Shadow Hamiltonian Hybrid Monte Carlo; utilised antithetic sampling to reduce the variance of Magnetic and Shadow Hamiltonian Monte Carlo based estimators; and employed partial momentum refreshment to enhance the sampling behaviour of Magnetic and Shadow Hamiltonian Monte Carlo methods. These algorithms were then applied to construct a first-in-literature Bayesian framework for analysing South African municipal audit outcomes, with a focus on identifying the financial ratios that are most relevant for modelling local government audit outcomes. Wilson's thesis produced a book, nine international journal articles, and one international conference paper.

Supervisor: Prof T Marwala
Co-supervisors: Dr R Mbuvha

Muller, Daniel **(PhD)** Electrical and Electronic Engineering

Daniel Muller is an artificial intelligence (AI) researcher, economist, engineer, data scientist and industry practitioner. He received an M.Sc. in information management engineering, a B.Sc. in industrial engineering and management (cum laude), and a B.A. in economics and management from the Technion–Israel Institute of Technology. He has worked in the defense and finance industries in engineering and data science. He received the Outstanding Leadership Award at the Money 2.0 Conference for creativity and innovation in the financial world.

This thesis investigates rationality, decision-making and planning in artificial intelligence and economic systems. It proposes the net utility and relative net utility to measure the value of decisions and plans. It also provides applications of this theory to real-world problems and solves the St Peterburg paradigm and domain-independent planning. From this thesis, a book titled *On Rationality, Artificial Intelligence and Economics* was published by World Scientific Publications.

Supervisor: Prof T Marwala

Nissanov, Uri (**PhD)** Electrical and Electronic Engineering

Uri Nissanov completed his PhD degree in Electrical and Electronic Engineering at the University of Johannesburg on “Analysis and Design of a Terahertz Microstrip Antenna for Next-Generation Cellular Communication Systems”. His research interests are in the design and simulation of THz band microstrip array antennas for 6G communication systems.

His thesis presents the design consideration of a THz planar microstrip antenna unit-cell, beam steered reconfigurable antennas, with supporting technologies such as Wilkinson power dividers, frequency selective surfaces (FSSs), substrate integrated waveguide (SIW) and beam-steering Rotman Lens. Further, it presents several techniques to enhance the gain/directivity of the THz planar microstrip antenna, which is potential demand of the future generation communication systems. The techniques include parasitic patches, slots at the radiator, proximity coupled feed microstrip antenna, and log-periodic microstrip.

Supervisor: Prof G Singh

Okafor, Chigozie Collins **(PhD)** Construction Management

Chigozie Collins Okafor holds a BEng degree in Civil Engineering and an MEng degree in Materials and Construction Management (*cum laude*). Both degrees were obtained from the University of Nigeria in Nsukka, in 2013 and 2017 respectively. Furthermore, he holds a Certificate of Honour on Building Information Modelling from BIM Academy, BRICS Business Council and WorldSkills, Russia. He was identified as the Australian government's Global Distinguished Talent Independent Program through his PhD research on smart cities and urban technological development. In addition he has published 14 peer-reviewed journal articles, book chapters and conference papers.

The candidate developed an integrated framework for smart city development in Nigeria. This was achieved by conducting a preliminary literature review in which it was found that the concept of a "smart city" is influenced by the exogenous variables of smart economy, smart living, smart environment, smart governance, smart people, and smart mobility. Further review of previous models and theories of "smart city" revealed the following gaps: smart knowledge management and smart building regulation, which have not been accounted for in previous studies. The theoretical findings from previous literature and the results of a Delphi survey were used to develop an integrated framework. The findings of the study addressed the lack of theoretical information regarding which factors are the most influential in smart city development.

Supervisor: Prof C Aigbavboa
Co-supervisor: Prof WD Thwala

Ononiwu, Ndudim Henry **(PhD)** Mechanical Engineering

Ononiwu Ndudim Henry obtained his Bachelor of Engineering degree in Industrial and Production Engineering (2012) from Federal University of Technology Owerri. In 2015 he enrolled for his postgraduate studies and in 2016 he was awarded a Master of Science degree in Advanced Industrial and Manufacturing Systems, with distinction, from Kingston University, London, United Kingdom. From his PhD research Ononiwu published four (4) peer reviewed conference articles and 6 (six) journals, all indexed in the SCOPUS/ISI databases.

For his Doctoral study the candidate conducted a research titled "Machinability studies and characterisation of aluminum matrix composites (AMCs) reinforced with fly ash and carbonised eggshells". This work involved the use of waste materials to fabricate sustainable AMCs with improved mechanical, physical, wear and corrosion resistant properties. The machinability studies were necessary to establish the behaviour of the fabricated hybrid composites during turning operations. Optimisation studies were also conducted to establish the right mix of cutting parameters for effective and efficient machining. The novelty of this work is built around the utilisation of two sustainable materials for the fabrication of enhanced hybrid AMCs.

Supervisor: Prof ET Akinlabi
Co-Supervisor/s: Dr CG Ozoegwu and Dr N Madushele

Shahzad, Tariq **(PhD)** Electrical and Electronic Engineering

Tariq Shahzad is an Assistant Professor at the Department of Electrical and Computer Engineering, COMSATS University, Islamabad, Pakistan. He received an MSc in computer sciences and Bachelor of Engineering in computer engineering from COMSATS University Pakistan. Mr Shahzad has rich experience in academia and industry. He has worked as Head of the ABET Accreditation Committee in the COMSATS university and conducted several workshops and training for ABET Accreditation. He has also worked as an Executive Engineer at Wateen Telecom and an Electronics Engineer at SB Electronics Engineering and Control (Pvt).

Mr Shahzad conducted this research work at the University of Johannesburg on developing physiological indices using modern signal processing approaches. The thesis investigated different cardiovascular and cerebrovascular diseases such as Traumatic Brain Injury, Diabetes Mellitus, and Atrial Fibrillation and developed machine learning models for the classification and detection of these diseases. The findings of this theses have been published in two reputed international journals.

Supervisor: Prof T Marwala
Co-supervisors: Prof K Ouahada

Sherri, Marwan Sherri **(PhD)** Mechanical Engineering Science

Marwan Sherri is a Machine Learning (ML) specialist for energy innovation and solutions. He graduated first in class with the M.Sc. in renewable energy systems from the Hashemite University. He obtained his B.Sc. in Mechanical Engineering from Al-Balqa' Applied University. Both the M.Sc. and B.Sc. degrees were from Amman, The Hashemite Kingdom of Jordan. His engineering experience is utilising ML solutions for clean energy and utility projects. He has developed different ML solutions to improve energy operation and performance.

Marwan's PhD research improves the Markov Chain Monte Carlo method by merging these with advanced evolutionary algorithms for finite element model updating. Four developed evolutionary Markov Chain Monte Carlo algorithms were successfully investigated and tested on real-world applications. These methods were applied to solve the Bayesian finite element model updating problem. The results obtained by these algorithms showed a promising opportunity to improve the finite element model updating problems. Marwan has published six papers from his PhD thesis.

Supervisor: Prof T Marwala
Co-supervisor: Dr I Boulkaibet

Teweldebrihan, Meseret Dawit **(DIng)** Civil Engineering

Meseret Dawit Teweldebrihan was born on December 21, 1984, at a place called SASIGA, Wollega, Ethiopia. In 2011, she obtained her Bachelor's degree in Soil and Water Engineering and Management from the Haramaya University (Ethiopia). After that, Meseret started to work as an assistant lecturer at the Haramaya University, in the Department of Hydraulics and Water Resources Engineering. In 2012, Meseret obtained her Master's degree in Water Science Engineering, specialized in Hydraulic Engineering Land and Water Development from UNESCO-IHE, Delft, Netherlands. Her Master's dissertation thesis was about" Optimizing intensified Runoff from roads for supplemental Irrigation" in Tigray region of Ethiopia. In 2017, Meseret started her PhD journey at University of Johannesburg. Her PhD research title is "Optimizing Irrigation Efficiency of Surface-Groundwater with respect to Climate Change and Gender Sensitivity in Ethiopia". From the research, she published five articles on accredited journals.

Meseret's doctoral research is related to the optimisation of Irrigation Efficiency with respect to climate change and gender sensitivity in Ethiopia. The study applied a multi-criteria analysis decision system to produce irrigation suitability maps. The study predicted the impacts of future climate change on irrigation suitability due to water scarcity. The study involves climate change and gender sensitivity, it attracted a lot of attention from both scientific as well as general public.

Supervisor: Prof MO Dinka
Co-supervisors: Prof M Scholz

Thisani, Sandisiwe Khanyisa **(PhD)** Mechanical Engineering

Sandisiwe Thisani holds a BTech and MTech in Mechanical Engineering from the University of Johannesburg. He further holds a BSc Hons in Technology Management from the University of Pretoria. He has worked over 6 years in water treatment industry and 4 years in FMCG manufacturing. He is currently a Production Manager in FMCG. He has published 5 journal articles and 3 conference papers. He is also credited in a patent stemming from his PhD research. His interests lie in detailed engineering, computer science, manufacturing and environmental sustainability.

Sandisiwe's PhD research focused on the development and testing of a novel active-passive treatment solution for acid mine drainage and industrial wastewater. The process combined passive geochemical treatment using pervious concrete and active biological treatment using a fixed bed pervious concrete anaerobic digestor. The process was found to be highly effective at remove acidity, sulphate and metal contaminants from acid mine drainage while also effectively remove organic pollution and acidity from industrial effluent. The process was also found to require less operational inputs versus conventional treatment methods and could therefore lower treatment costs. The research work contributes towards sustainable management of toxic wastewater sources

Supervisor: Dr DVV Kallon
Co-supervisors: Dr P Byrne

Tshivhase, Ndamulelo **(PhD)** Electrical and Electronic Engineering

Ndamulelo Tshivhase is currently a senior engineer at ESKOM, which is a South African power utility company. He has just completed a PhD in Electrical and Electronic Engineering in the field of Renewable Energy and Grid Integration at the University of Johannesburg under the supervision of Dr Ali Hasan and Prof Thokozani Shongwe. He holds a Bachelor's degree and a Master's degree in Electrical and Electronic Engineering, both from the University of Johannesburg, South Africa.

The candidate worked in the engineering field of Renewable Energy Power Generation and Grid Integration. The main contribution of his work is improving voltage regulation in medium voltage power distribution systems with a large share of variable renewable energy power generators. The technique he has developed optimally and sequentially controls the on-load tap changer, step voltage regulator, battery energy storage systems, and the renewable energy power generator for effective voltage regulation based on the fuzzy logic philosophy. The algorithm relies on real time voltage and current measurements to compute multiple control setpoints for the multiple voltage regulation devices it controls. The developed technique will allow more renewable energy power generators to be integrated into the existing power system without exceeding prescribed voltage limits. The research findings were published in three journal papers (one in Energies and two in IEEE Access).

Supervisor: Dr A Hassan
Co-supervisors: Prof TC Shongwe

Wa Kalenga, Michel Kalenga **(PhD)** Metallurgical Engineering

With a vast experience in the metallurgical industry, the candidate is a holder of a degree “Gradue’ en Sciences de l’Ingénieur”, a degree as “Ingénieur Civil Métallurgiste” and an MSc in Metallurgical engineering at the University of Pretoria. The candidate is a member of SAIMM, Société de Métallurgie et des Materiaux of Canada (MetSoc), a member of Acer, a member of Association of Iron and Steel Technology and a member of TMS. His interests are in pyrometallurgy on slag recycling, metallurgical thermodynamics software development and innovation in new reductants biochar.

In his thesis entitled modelling of phase relations during high carbon ferromanganese production from basic manganese ores, the candidate characterises the Kalahari Manganese-Field (KMF) ores and found to predominantly be Mn_2O_3 and developed a new subdivision of the furnace. The candidate has generated and validated a strong empirical model of mass and energy balance using artificial neural network and a mathematical model for the slag formation. The system metal-slag-gas was found to be close to partial equilibrium. This thesis has contributed to answer the question: “It works in practice, but not in theory”.

Supervisor: Prof K Nyembwe
Co-supervisors: Prof M Tangstand

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National Anthem of South Africa

Nkosi sikelel' Afrika
Maluphakanyisw' uphondo lwayo,

Yizwa imithandazo yethu,
Nkosi sikelela, thina lusapho lwayo.

Morena boloka setjhaba sa heso,
O fedise dintwa le 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.