

**Welcome to the  
Graduation Ceremony  
of the  
University of Johannesburg  
4 April 2016 at 17:00**

**Welkom by die  
Gradeplegtigheid  
van die  
Universiteit van Johannesburg  
4 April 2016 om 17:00**

**Le a Amogelwa  
Moletlong wa Dikapešo wa  
Yunibesithi ya Johannesburg  
4 Moranang 2016 ka 17:00**

**Niyamukelwa  
eMcimbini wokweThweswa kweZiqu  
weNyuvesi yaseJohannesburg  
4 kuMbaso 2016 ngele-17:00**

# **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 IL Rensburg  
BPharm (Rhodes), MA, PhD (Stanford USA)

### **DEPUTY VICE-CHANCELLOR: ACADEMIC**

Prof A Parekh  
BA, BA Hons, MA (UDW), MA (Kansas USA), DPhil (UDW)

### **DEPUTY VICE-CHANCELLOR: RESEARCH, INTERNATIONALISATION AND THE LIBRARY**

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

### **REGISTRAR**

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

### **DEPUTY VICE-CHANCELLOR: STRATEGIC SERVICES**

Mrs ME Letlape  
BSc (UFH)

### **DEPUTY VICE-CHANCELLOR: FINANCE**

Mr J van Schoor  
BCom, BCom Hons (RAU), CA (SA)

### **SENIOR EXECUTIVE DIRECTOR: VICE-CHANCELLOR'S OFFICE**

Ms KC Mketi  
BA (Bophut), BA Hons (RAU), MBL (Unisa)

### **ADVISOR TO THE VICE-CHANCELLOR: SPECIAL PROJECTS**

Mr DM Manganye  
NDip, BTech (UJ)

### **GENERAL COUNSEL**

Prof PH O'Brien  
BCom, LLB, LLM, LLD (RAU)

## **EXECUTIVE DEANS**

### **FACULTY OF ART, DESIGN AND ARCHITECTURE**

Prof F Freschi  
BA (Wits), BA Hons (UCT), PhD (Wits)

### **FACULTY OF ECONOMIC AND FINANCIAL SCIENCES**

Prof A Dempsey  
BCom, BCom Hons, MCom (RAU), CA (SA)

### **FACULTY OF EDUCATION**

Prof SJ Gravett  
BA, HEd (PU for CHE), BEd, MEd, DEd (RAU)

### **FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT**

Prof S Sinha  
BEng, MEng, PhD (UP)

### **FACULTY OF HEALTH SCIENCES**

Prof A Swart  
NDip, NHDip (TWR), BEd, MEd (RAU), DTech (TWR)

### **FACULTY OF HUMANITIES**

Prof AB Broadbent  
BA, BA Hons, MPhil, PhD (Cambridge UK)

### **FACULTY OF LAW**

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

### **FACULTY OF MANAGEMENT**

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

### **FACULTY OF SCIENCE**

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

## **MEMBERS OF COUNCIL**

### **CHAIRPERSON**

Prof RD Marcus

### **DEPUTY CHAIRPERSON**

Mr MS Teke

### **MEMBERS**

Prof H Abrahamse  
Mr FM Baleni  
Prof IC Burger  
Mr JP Burger  
Mr D Bvuma  
Ms TA Chaka  
Ms S Dlamini  
Mr TJ Dikgole  
Mr CR Gebhardt  
Prof D Hildebrandt  
Mr G Khosa  
Prof C Landsberg  
Dr DSS Lushaba  
Dr J Manyaka  
Ms A Mazimpaka  
Ms BJ Memela-Khambula  
Dr P Mjwara  
Prof A Mohammadali-Haji  
Mr T Moloji  
Mr MJN Njeke  
Prof A Parekh  
Prof IL Rensburg  
Dr WP Rowland  
Mr KB Sibiya  
Mr K Thomas  
Mr J van Schoor  
Mr M White

### **PRESIDENT OF CONVOCATION**

Mr M Mkhonto

# **Programme**

**Monday, 4 April 2016 at 17:00**

To ensure good order during the ceremony all those present are requested to leave the Auditorium only after the ceremony has been concluded.

The academic procession enters the Auditorium and the members of the procession take their seats on the stage.

The choir sings Gaudeamus Igitur (or a CD is played) while those present remain standing.

The Chancellor constitutes the congregation.

Choir.

Welcome.

The relevant Executive Dean presents the candidates to the Chancellor for the conferment of a degree/diploma/certificate.

Singing of the National Anthem.

The Chancellor dissolves the congregation.

The academic procession leaves the Auditorium while those present remain standing.

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# **Lenaneo**

**Mošupologo, 4 Moranang 2016 ka 17:00**

Go kgonthiša gore dilo di sepela ka tshwanelo nakong ya moletlo, bohle bao ba tilego moletlong ba kgopelwa go tšwa ka Holong ya kopano feela ka morago ga ge moletlo o phethilwe.

Sehlopha sa dirutegi se tsena ka Holong ya kopano gomme maloko a sehlopha se a dula ditulong tša ona sefaleng.

Khwaere e opela Gaudeamus Igitur (goba CD e tlo bapalwa) mola bao ba lego gona ba tšwela pele go ema.

Mokhanseliri o kopanya phuthego.

Khwaere.

Dikamogelo.

Hlogophethiši ya maleba ya lefapha e hlagiša dialoga go Mokhanseliri gore di newe tikrii/diploma/setifikeiti.

Go opelwa ga Koša ya Setšhaba.

Mokhanseliri o phatlalatša phuthego.

Sehlopha sa dirutegi se tšwa ka Holong ya kopano mola bao ba lego gona ba tšwela pele go ema.

# **Program**

**Maandag, 4 April 2016 om 17:00**

Ter wille van die ordelike verloop van die plegtigheid  
word alle aanwesiges vriendelik versoek  
om die Ouditorium nie voor die einde van die plegtigheid te verlaat nie.

Die akademiese proses kom die Ouditorium binne en neem op die verhoog plaas.  
Die koor sing Gaudeamus Igitur (of 'n CD word gespeel) terwyl die aanwesiges staan.

Die Kanselier stel die kongregasie saam.

Koor.

Verwelkoming.

Die betrokke uitvoerende dekaan stel die kandidate aan die Kanselier voor vir die  
toekenning van 'n graad/diploma/sertifikaat.

Sing van die volkslied.

Die Kanselier ontbind die kongregasie.

Terwyl die aanwesiges bly staan, verlaat die akademiese proses die Ouditorium.

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# **Uhlelo**

**uMsombuluko, 4 kuMbaso 2016 ngele-17:00**

Ukuze kuqinisekwe ukuthi konke kuhamba kahle ngesikhathi somcimbi, bonke abakhona  
bacelwa ukuba baphume eHholweni kuphela lapho umcimbi usuphuthuliwe.

Udwendwe lezifundiswa lungena ehholweni bese amalungu odwendwe ahlala phansi  
esiteji.

Ikwaya icula i-Gaudeamus Igitur (noma kudlalwa iCD) ngalenkathi labo abakhona  
besamile.

UShansela uhlanganisa ibandla.

Ikwaya.

Ukwamukelwa.

Izinhloko Eziyiziphathimandla ezithintekayo zethula abafundi kuShansela weNyuvesi  
ukuze bathole idigiri/idiploma/isitifiketi.

Kuculwa iHubo Lesizwe.

# 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!

# QUALIFICATIONS

## 1. **Baccalaureus Ingenieriae (BIng) Bachelor of Engineering**

**Aub**, Rebecca Marybeth (Civil Engineering)  
**Bagdadi**, Raees (Civil Engineering)  
**Bentel**, Jason Rael (Mechanical Engineering)  
**Beta**, Brandon (Mechanical Engineering)  
**Carvalho**, Miguel (Electrical and Electronic Engineering) **(with distinction)**  
**Coertze**, Jacques Andre (Mechanical Engineering)  
**Dullabh**, Hitesh (Mechanical Engineering)  
**Erasmus**, Pieter (Electrical and Electronic Engineering with endorsement Information Technology) **(with distinction)**  
**Genish**, Kobi (Civil Engineering)  
**Govender**, Sean Sivanasan (Civil Engineering)  
**Grobler**, Morne (Mechanical Engineering)  
**Harvey**, Nicholas David (Mechanical Engineering) **(with distinction)**  
**Hlatshwayo**, Siphon Welcome Thabani (Mechanical Engineering)  
**Hlongwane**, Lesiba Thomas (Mechanical Engineering)  
**Jiyane**, Phindile Primrose (Mechanical Engineering)  
**Kalula**, Kaseka (Civil Engineering)  
**Karodia**, Zainul-Abedeen (Mechanical Engineering)  
**Katadi Kabongo**, Macnee Steven (Civil Engineering)  
**Khambule**, Boitshoko Idah (Electrical and Electronic Engineering)  
**Kruger**, Jean Marius (Electrical and Electronic Engineering)  
**Kumba**, Tresor Kalunga (Mechanical Engineering)  
**Langa**, Maletsatsi (Civil Engineering)  
**Le Roux**, Pieter Andries (Mechanical Engineering)  
**Le Roux**, Ruhan Dutoit (Civil Engineering)  
**Liebenberg**, Juandre Alec (Mechanical Engineering)  
**Limper**, Dean (Civil Engineering)  
**Loonat**, Abdur Rahman Adam (Electrical and Electronic Engineering with endorsement Information Technology)  
**Lotter**, Matthew Michael (Electrical and Electronic Engineering)  
**Ludere**, Thingahangwi Tracey (Civil Engineering)  
**Lugisani**, Oritonda (Civil Engineering)  
**Macpherson**, Jo-Ann Jadeen Keabetswe (Civil Engineering)  
**Maduguma**, Phumudzo (Civil Engineering)  
**Mahlangu**, Fatty Geleva (Civil Engineering)  
**Mailula**, Lebogang (Electrical and Electronic Engineering)  
**Makola**, Tebogo Mapiti (Electrical and Electronic Engineering)  
**Malan**, Michael Jodi (Mechanical Engineering)



**Malematja**, Matome Arthur (Electrical and Electronic Engineering)  
**Maluleke**, Musa (Civil Engineering)  
**Maluleke**, Rito Japhter (Civil Engineering)  
**Mamabolo**, Nthabiseng Annalize (Electrical and Electronic Engineering)  
**Manyelo**, Mmakwena Noko Kendridge (Electrical and Electronic Engineering)  
**Maphumulo**, Ayanda Mackson (Electrical and Electronic Engineering)  
**Mapimele**, Fikile Valencia (Electrical and Electronic Engineering)  
**Maseko**, Khaya Thomas (Civil Engineering)  
**Mashaba**, Phindile HanyaneLenin (Mechanical Engineering)  
**Mashego**, Tebogo (Mechanical Engineering)  
**Masher**, Reginald Leonard (Electrical and Electronic Engineering with endorsement Information Technology)  
**Mathebula**, Fanafuthi Vusi (Electrical and Electronic Engineering)  
**Mathevula**, Hard Life (Electrical and Electronic Engineering)  
**Mathonsi**, Thabo Nelson (Mechanical Engineering)  
**Mavhungu**, Thilivhali (Electrical and Electronic Engineering)  
**Mazid**, Wara Srijon (Civil Engineering)  
**Mhlungu**, Mboneni James (Civil Engineering)  
**Mngomezulu**, Precious Zinhle (Electrical and Electronic Engineering)  
**Modau**, Hulisani Christina (Civil Engineering)  
**Mogotlane**, Mpho Steve (Civil Engineering)  
**Mokhele**, Lehlohonolo (Civil Engineering)  
**Mokhothu**, Eric Thapelo (Electrical and Electronic Engineering)  
**Mokoena**, Winnie Mmoelo (Civil Engineering)  
**Monale**, Omphile Bonolo (Electrical and Electronic Engineering)  
**Moolla**, Muhammad (Mechanical Engineering)  
**Moroathsehla**, Jonathan (Civil Engineering)  
**Mthukwane**, Clarence Modise (Electrical and Electronic Engineering)  
**Munyai**, Mueletshedzi (Mechanical Engineering)  
**Munyai**, Ndivhuwo Rodney (Civil Engineering)  
**Musi**, Temoso Xhanti (Mechanical Engineering)  
**Naidoo**, Rene (Electrical and Electronic Engineering)  
**Ndlovu**, Kondwa Mpumelelo (Electrical and Electronic Engineering)  
**Ndzoyiyana**, Thulani (Mechanical Engineering)  
**Nemalale**, Khuliso Jose (Mechanical Engineering)  
**Netshivhulana**, Emanuel Unarine (Mechanical Engineering)  
**Ngcobo**, Mongi Nelson (Civil Engineering)  
**Ngubeni**, Alvinah Nokuthula (Electrical and Electronic Engineering)  
**Njoko**, Sibusiso Njabulo Nkosingiphile (Electrical and Electronic Engineering)  
**Nkwanyana**, Ntokozo Crise (Mechanical Engineering)  
**Nkwinika**, Njabulo Emmanuel (Civil Engineering)  
**Norman**, Benita Elizabeth (Civil Engineering)  
**Nyoni**, Vincent (Civil Engineering)  
**Oliviera**, Leandro Filipe Dias (Mechanical Engineering)  
**Phasha**, Sphiwe Patrick (Mechanical Engineering)  
**Phokane**, Thobadingoe Craven (Mechanical Engineering)

**Pretorius, Daniel** (Civil Engineering)  
**Raats, Marcel Alexander** (Civil Engineering)  
**Raiva, Tafadzwa** (Mechanical Engineering)  
**Rakgosi, Gift** (Civil Engineering)  
**Rangraje, Shuaib** (Electrical and Electronic Engineering)  
**Rapusoane, Kgotso Raymond** (Mechanical Engineering)  
**Raseasala, Ken Joy** (Mechanical Engineering)  
**Ratshosa, Phineas** (Electrical and Electronic Engineering)  
**Ravhutsi, Tshedza** (Mechanical Engineering)  
**Roux, Trenton** (Civil Engineering)  
**Samka, Sipe** (Civil Engineering)  
**Selamale, Mpho Octor** (Civil Engineering)  
**Seleke, Itumeleng Isaac** (Electrical and Electronic Engineering)  
**Selesho, Tshepo Comfort** (Civil Engineering)  
**Seoto, Obakeng Mothusi** (Civil Engineering)  
**Shandler, Jordan** (Electrical and Electronic Engineering)  
**Shikoane, Midah Machipa** (Civil Engineering)  
**Sithole, Bheki Samson** (Electrical and Electronic Engineering)  
**Sithole, Marrin Samuel** (Mechanical Engineering)  
**Smith, Wilbur Gordon** (Civil Engineering)  
**Tapala, Ednar Nape** (Electrical and Electronic Engineering)  
**Tchani Ngankoue, Frank Aurelien** (Civil Engineering)  
**Thovhakale, RendaniByven** (Civil Engineering)  
**Thusi, Sephiwe Innocent** (Electrical and Electronic Engineering)  
**Thwala, Bongani** (Electrical and Electronic Engineering)  
**Toni, Khwezi Yanga** (Mechanical Engineering)  
**Tshehla, Thato Maleke** (Electrical and Electronic Engineering)  
**Tshiluna, Ndivhuwo Brighten** (Electrical and Electronic Engineering)  
**Tshirovha, Rendani Rudolph** (Electrical and Electronic Engineering)  
**Tsourekis, Alexandros** (Electrical and Electronic Engineering)  
**Tyczynski, Damian Darius** (Mechanical Engineering)  
**Van Der Merwe, Juann Joost** (Civil Engineering)  
**Van Der Merwe, Ruben** (Civil Engineering)  
**Van Heerden, Nikita Ansue Esra** (Civil Engineering)  
**Van Reenen, Wihann** (Civil Engineering)  
**Van Vuuren, Johan** (Civil Engineering)  
**Versfeld, Matthew Knowles Reyburn** (Civil Engineering)  
**Wright, Mark James** (Mechanical Engineering)  
**Zukulu, Thulisa** (Civil Engineering)  
**Zulu, Sindisiwe** (Mechanical Engineering)

## 2. **Magister Technologiae (MTech) Master of Technology**

**Iloy, Rama Achtar (Chemical Engineering) (with distinction)**

**Dissertation:** Effect of calcium lignosulfonate and ethylene maleic anhydride on the particulate processes during hydrogen reduction of nickel ammine sulphate solutions.

**Supervisor:** Prof F Ntuli

**Mabhena, Thembisile Annah (Operations Management)**

**Dissertation:** Improving turnaround time of iron ore wagons at Transnet

**Supervisor:** Prof C Mbohwa

**Co-supervisor:** Mr S Akinlabi

**Madubanya, Julliet Ramokone (Operations Management)**

**Dissertation:** Evaluating the operational efficiency of rail freight operations in South Africa

**Supervisor:** Prof C Mbohwa

**Co-supervisor:** Mr S Akinlabi

**Miller, Terence (Engineering: Mechanical)**

**Dissertation:** The design of a mechanically activated earth compactor used for rural dirt roads

**Supervisor:** Ms. D Ionescu

**Okoro, Chioma Sylvia (Construction Management)**

**Dissertation:** Nutritional quality and health and safety performance in South Africa's construction industry

**Supervisor:** Dr I Musonda

**Co-supervisor:** Dr J Agumba

**Phali, Caleb Motlatsi (Extraction Metallurgy)**

**Dissertation:** Recovery of base and heavy metals from nitric and aqueous solutions using grapefruit resin

**Supervisor:** Prof AF Mulaba-Bafubiandi

**Co-supervisor:** Prof B Mamba

**Sebola, Mmabyalwa Rebecca (Chemical Engineering) (with distinction)**

**Dissertation:** Studies on the improvement of Biogas production from anaerobic digestion of animal wastes

**Supervisor:** Prof E Muzenda

**Co-supervisor:** Dr HB Tesfagiorgis

**Sithole, Nastassia Thandiwe (Chemical Engineering)**

**Dissertation:** Removal of heavy metals from aqueous acidic mineral effluents by reductive precipitation

**Supervisor:** Prof F Ntuli

**Sun, Ryan Wok** (Civil Engineering)

**Dissertation:** Validation of concrete elastic modulus estimation methods

**Supervisor:** Prof G Fanourakis

### 3. **Magister Ingenieriae (MIng) (MEng) Master of Engineering**

**Basson, Hendrik Albertus** (Engineering Management) **(with distinction)**

**Minor Dissertation:** Risk mitigation of performance ratio guarantees

**Supervisor:** Prof JHC Pretorius

**De Ponte, Jules David** (Mechanical Engineering) **(with distinction)**

**Dissertation:** The design and development of a platform type wind tunnel balance with Optical Fibre Bragg grating sensors

**Supervisor:** Dr FF Pieterse

**Co-Supervisor:** Prof AL Nel

**Dorfling, Martin Frederick** (Engineering Management)

**Minor Dissertation:** An assessment of project management maturity in the banking sector

**Supervisor:** Mr D Kruger

**Co-Supervisor:** Mrs. L Newby

**Dyantyi, Ayanda Theophylus** (Electrical and Electronic Engineering) **(with distinction)**

**Dissertation:** Impact of parameters of transmission line interconnecting transformers on system performance

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr N Mbuli

**Essopjee, Yoosuf** (Civil Engineering)

**Dissertation:** Performance of concrete filled double skin circular tubes in compression

**Supervisor:** Prof M Dundu

**Fourie, Marco Louis** (Engineering Management)

**Minor Dissertation:** Significance of effective communication on project success

**Supervisor:** Mr P van Tonder

**Joubert, Daniel Johannes** (Mechanical Engineering) **(with distinction)**

**Dissertation:** Markov Chain Monte Carlo methods for Finite Element Model updating

**Supervisor:** Prof T Marwala

**Madjoe, Sean Michael** (Engineering Management)

**Minor Dissertation:** Long term overheating and its effect on coal power plant

**Supervisor:** Prof JHC Pretorius

**Co-supervisor:** Dr A Wessels

**Mncube, Innocent Mduduzi** (Electrical and Electronic Engineering) **(with distinction)**

**Dissertation:** The impact of slow uptake of renewable energy in South Africa with emphasis on the solar energy type systems

**Supervisor:** Prof B Twala

**Mohlamme, Sabata Matthews** (Engineering Management)

**Minor Dissertation:** Towards developing an engineering management approach to resolving developmental issues faced by graduate engineers

**Supervisor:** Dr A Malan

**Co-supervisor:** Prof JHC Pretorius

**Nyoni, Ezekiel** (Mechanical Engineering)

**Dissertation:** Laser power interaction effect on the evolving properties of laser metal deposited titanium

**Supervisor:** Prof ET Akinlabi

**Seakamela, Tshepo Tlou Eric** (Engineering Management)

**Minor Dissertation:** Project alignment to organisation strategy to deliver benefits

**Supervisor:** Dr A Marnewick

**Tagatio Mawafa, Josette Carine** (Electrical and Electronic Engineering)

**Dissertation:** Facial recognition for authentication on Android mobile devices

**Supervisor:** Prof WA Clarke

**Tekane, Yanga Chicco** (Electrical and Electronic Engineering) **(with distinction)**

**Dissertation:** Landscape aware miniature vehicles

**Supervisor:** Prof B Twala

**Co-supervisor:** Prof T Marwala

**Watts, Christine Jane** (Engineering Management) **(with distinction)**

**Minor Dissertation:** Effective operations management of centrifugal pumps

**Supervisor:** Prof JHC Pretorius

**Co-supervisor:** Dr P Henning

**Xezile, Ronald Mbulelo** (Electrical and Electronic Engineering) **(with distinction)**

**Dissertation:** Stochastic estimation of the impact of distributed synchronous generation on voltage sags

**Supervisor:** Dr N Mbuli

**Co-Supervisor:** Prof JHC Pretorius

#### 4. **Magister Philosophiae (MPhil) Master of Philosophy**

**Koroma, Evelyne Ingabire** (Engineering Management)

**Minor Dissertation:** Integrating software quality into an agile development environment

**Supervisor:** Dr A Marnewick

**Mashamba, Rendani** (Engineering Management)

**Minor Dissertation:** Factors impacting on the implementation of total quality management in the mineral processing industry

**Supervisor:** Dr A Marnewick

**Mopaka, Papatso Ronald** (Electrical and Electronic Engineering)

**Dissertation:** A foreground and background region segmentation approach to facial recognition identification photographs

**Supervisor:** Prof AL Nel

**Co-supervisor:** Mr Y Roodt

**Nyathi, Bongani Benedict** (Engineering Management)

**Minor Dissertation:** The advancement of train-set wheels management system based on ISO 55001 and the IRIS standard

**Supervisor:** Prof JHC Pretorius

**Co-supervisor:** Mr A Rooney

**Ramohlale, Ntjana George** (Engineering Management)

**Minor Dissertation:** Quality principles and supplier selection during electricity network construction projects: A comparative study

**Supervisor:** Prof JHC Pretorius

**Co-supervisor:** Dr A Marnewick

#### 5. **Doctor Ingeneriae (DIng) Doctor of Engineering**

**Erinosho, Mutiu Folorunsho** (Mechanical Engineering)

**Thesis:** Advance coating and surfacing: The enhancement of surface integrity of laser metal deposited titanium alloy with copper

**Supervisor:** Prof ET Akinlabi

**Co-supervisor:** Prof S Pityana

**Ikotun, Bolanle Deborah** (Civil Engineering)

**Thesis:** Modification of fly Ash structure using Cyclodextrin for concrete strength and durability development

**Supervisor:** Prof GC Fanourakis

**Co-supervisor:** Prof SB Mishra

**Kruger, Sunita** (Mechanical Engineering)

**Thesis:** A numerical evaluation of multi-dimensional heat transfer effects in greenhouses

**Supervisor:** Prof L Pretorius

**Co-supervisor:** Prof RF Laubscher

**Mutingi, Michael** (Engineering Management)

**Thesis:** Fuzzy heuristic approaches for healthcare staff scheduling

**Supervisor:** Prof C Mbohwa

## 6. **Doctor Philosophiae (DPhil) Doctor of Philosophy**

**Roodt, Yuko** (Electrical and Electronic Engineering)

**Thesis:** Super features: a probabilistic approach to feature matching and correction

**Supervisor:** Prof AL Nel



**Erinosho, Mutiu Folorunsho, (DIng) Mechanical Engineering**

Mr Mutiu Erinosho graduated from the Department of Mechanical Engineering, Federal University of Technology, Akure, Nigeria in 2005 with a BEng *cum laude*. He also completed his Master's degree *cum laude* at the University of Lagos, Nigeria in 2010. He later enrolled for doctoral studies at the University of Johannesburg, South Africa in 2013. He is currently a postdoctoral research fellow at the University of Johannesburg.

The candidate's research study focused on improving the surface integrity of laser deposited Titanium alloy with copper for medical and marine tailored applications. He used the design expert software to optimise and validate his experimental results. He produced four ISI-listed journal articles, ten peer reviewed conference papers and one accepted book chapter. He received the best paper award at the 2015 International Conference of Manufacturing Engineering and Engineering Management.

**Supervisor:** Prof ET Akinlabi

**Co-supervisor:** Prof S Pityana





## **Ikotun, Bolanle Deborah (DEng) Civil Engineering**

Bolanle Deborah Ikotun graduated as the best student in the BEng degree at the Department of Civil Engineering at the Federal University of Technology in Akure, Nigeria, in 2000. In 2001, she began her academic career as a lecturer at the Federal Polytechnic Idah, Nigeria, where she worked for six years. She obtained her Master's degree in 2009 from the University of the Witwatersrand, South Africa. Subsequently, in 2010, she embarked on research towards her doctoral degree at the University of Johannesburg, South Africa.

Her doctoral thesis focused on investigating the effectiveness of using Fly Ash-cyclodextrin (an enzymatic modification of starch) composite and a novel composite, to beneficially modify the hydration products of concrete and hence increase Fly Ash usage in concrete technology. She synthesised Fly Ash-cyclodextrin composite and studied the chemical characteristics of the composite using X-ray diffraction, Fourier transform infrared spectroscopy and scanning electron microscopy. She further optimised the inclusion of the newly formed composite in concrete production. The optimised parameters were used to study the effect of Fly Ash,  $\beta$ -cyclodextrin and Fly Ash- $\beta$ -cyclodextrin composite on the hydration products and rheological properties (viscosity and setting times) of cement paste and the strength and durability of concrete. From her thesis, she published two papers in ISI-listed international journals, two peer-reviewed international conference papers and submitted or compiled an additional three journal papers and one conference paper. She has also authored and co-authored other articles in peer-reviewed conference proceedings and reputable journals. Bolanle serves as a reviewer for reputable journals. She was one of the recipients of the Women in Research, Developing Researcher Award (UNISA), in 2010.

**Supervisor:** Prof GC Fanourakis

**Co-supervisor:** Prof SB Mishra



## **Kruger, Sunita (DIng) Mechanical Engineering**

Sunita obtained her BEng (Mechanical) degree from Rand Afrikaans University in 2003 and completed her MEng (Mechanical) *cum laude* at the University of Johannesburg in 2006. She joined Clyde Bergemann Africa in 2004 as a Candidate Engineer. She was primarily involved in bulk materials handling and boiler online cleaning technology. She joined the University of Johannesburg in 2005. She also lectured for a brief period at the University of Pretoria. Sunita joined the University of Johannesburg again in 2009, where she has since been lecturing third- and fourth-year students, and supervised numerous Design and Project Investigation dissertations, as well as Master's students.

In her thesis, "A Numerical Evaluation of Multi-Dimensional Heat Transfer Effects in Greenhouses", the candidate numerically and experimentally investigated heat transfer in naturally ventilated greenhouses using Computational Fluid Dynamics (CFD). The main objective of the research was to determine the effect of dimensional and geometrical influences on the heat transfer characteristics of greenhouses. One of the main original contributions of the candidate's research was that the flow results obtained from reduced scale or full scale CFD models developed and presented could be used for enhanced design purposes of greenhouses. It was also established that multi-dimensional heat transfer effects were present in all the investigated cavities. New heat transfer Nusselt-Rayleigh number relationships were deduced for specific Rayleigh number ranges for single-span pitched roof greenhouses. The reduced-scale CFD and experimental models developed were also shown to be useful to investigate the flow inside a full-scale greenhouse. The presence of plant benches inside a greenhouse was found to have a significant effect on the indoor climate at plant level. The original research findings have already been published in more than 10 peer-reviewed articles and presented at international conferences.

**Supervisor:** Prof L Pretorius

**Co-supervisor:** Prof RF Laubscher



## **Mutingi, Michael (Ding) Engineering Management**

Michael Mutingi obtained a BEng and an MEng in Industrial Engineering from the National University of Science and Technology, Zimbabwe. He served as a Research Fellow and a Lecturer at the same University. He also served as a Research Associate at the National University of Singapore, Singapore, and as a Lecturer at the University of Botswana, Botswana. His research interests are in healthcare operations management using fuzzy heuristic algorithms.

Motivated by the presence of fuzzy patient expectations, staff preferences and management aspirations, this research proposes fuzzy multi-criteria heuristic approaches for solving healthcare staff scheduling problems.

The research contributions are threefold: First, an enhanced fuzzy simulated evolution algorithm and a novel fuzzy simulated metamorphosis algorithm are developed for nurse scheduling. The algorithms use constructive heuristics and fuzzy evaluation techniques to model fuzzy preferences and decision maker's choices. Second, a novel fuzzy multi-criteria grouping particle swarm optimisation algorithm is proposed for home healthcare staff scheduling, where patient preferences, staff preferences, and management aspirations are fuzzy. Third, by viewing the healthcare task assignment problem as a job shop, based on characteristics such as earliness, tardiness, and make-span, a fuzzy grouping genetic algorithm is developed to address the problem. The algorithm uses biologically inspired grouping heuristics to iteratively permute groups of tasks and individual tasks assigned to care workers. In all cases, the goal is to obtain high quality solutions with minimal violation of preferences and management aspirations.

Overall, computational results are competitive. Research output includes 5 book chapters, 3 journal papers and more than 20 conference papers. Three best paper awards were obtained at The International Conference on Industrial Engineering and Operations Management in 2013 (Thailand) and 2015 (Dubai), and at The International Conference on Systems Engineering and Engineering Management in 2014 (San Francisco).

**Supervisor:** Prof Charles Mbohwa



## **Roodt, Yuko (DPhil) Electrical and Electronic Engineering**

Yuko Roodt was born on 1 April 1984. In 2006 and 2010, respectively, he obtained his BSc and BSc (Hons) degrees in Information Technology from the University of Johannesburg. In 2012, he fulfilled all requirements for an MPhil (Electrical and Electronic) *cum laude* for research entitled “NIFT: Noise Invariant Feature Transform”. From 2007 to date, he has worked on various industry projects as a Research and Development Specialist, where he obtained professional membership of the IEEE and was awarded Fellow of the British Computer Society (FBCS) in 2013. Currently, he is a Lecturer in the Department of Electrical and Electronic Engineering at UJ, where he is involved at the Hypervision Research Laboratory. During his career, he has acquired a number of patents and has published extensively in the fields of Computer Vision and Image Processing.

The candidate has proposed a probabilistic feature matching and correction framework for use in low level Image Processing. The reliable detection and matching of visual features is an important problem in the field of computer and robotic vision where it mimics the behaviour and function of the parts of the visual cortex required for object recognition, scene understanding and three-dimensional reconstruction. Unfortunately, reliable feature detection and matching is hindered by a number of environmental and optical effects such as occlusions, duplicate features, illumination variance, image noise, optical distortion as well as global and local motion. Methods of improving the matching results for these situations have been proposed in the past but with limited success. The candidate has demonstrated that the insights provided by local and global geometric relationships observed between clusters of different neighbouring features can be used to construct Super-feature clusters. These Super-feature clusters allow features to be matched using visual similarity as well as geometric consistency – a constraint not previously applied in feature detection. The application of this constraint based solution enables many matching issues to be resolved. The candidate has further presented a probabilistic framework that allows reliable estimation of a feature’s position in a new coordinates frame derived from the geometric relationships of the Super-feature cluster. Extending the framework, he has been able to classify and correct invalidly matched features without prior knowledge of camera or object motion. One of the many benefits of the new method is that the framework can be applied in conjunction with many of the existing state-of-the-art feature detectors dramatically improving their performance.

**Supervisor:** Prof AL Nel



See the back cover for the words of the National Anthem.



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