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# GRADUATION CEREMONY

## DECEMBER 2020

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## HONORARY DEGREE

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**James Midgley**  
**DLitt (honoris causa)**

James Midgley, a graduate of UCT, started his academic career here (1966-1972) in the Department of Sociology and Social Administration. In 1972 he was invited by Richard Titmuss to lead a new international social policy and development programme at the LSE.

Over the next decade, he travelled extensively across the developing world and published some of his most seminal works on issues of social development, social policy, social work and international social welfare. His major books include *Professional Imperialism: Social Work in the Third World*, Heinemann, 1981; *Social Security, Inequality and the Third World*, Wiley, 1984; *Comparative Social Policy and the Third World*, Harvester, 1987 (with Stewart MacPherson); *The Social Dimensions of Development: Social Policy and Planning in the Third World*, Gower, 1989 (with Margaret Hardiman); *Social Development: The Developmental Perspective in Social Welfare*, Sage, 1995; *Social Welfare in Global Context*, Sage, 1997; *Social Policy for Development*, Sage, 2004 (with Anthony Hall); *Social Development: Theory and Practice*, 2014; *Social Welfare for a Global Era: International Perspectives on Policy and Practice*, Sage, 2017. His latest book, *Inequality, Social Protection and Social Justice* will be published by Elgar in 2020. Midgley's books have been extensively translated.

Midgley has published 110 journal articles in peer reviewed journals, 13 single authored books; 28 edited co-authored books; and authored more than 107 chapters in edited collections. He has served on the editorial boards of numerous journals. He is frequently invited to be keynote speaker at major conferences and has given several named lectures. He has also given many keynote addresses at international conferences and is frequently invited to lecture at universities around the world. His work has been recognised through many academic and professional awards.

Over the course of his illustrious career, he was Professor and Dean of Social Work and Associate Vice Chancellor for Research at Louisiana State University and the *Harry and Riva Specht Professor of Public Social Services*, and Dean, School of Social Welfare, University of California, Berkeley (2006 – 2016). Since his retirement in 2016, he has been a Professor of the Graduate School, UC, Berkeley. He has maintained his ties over the past twenty years through active collaboration with South African and African scholars and since 2008 as an Honorary Professor at the Centre for Social Development in Africa, University of Johannesburg. He continues to collaborate actively with scholars at other South African Universities such as the University of Pretoria and University of Stellenbosch.

James Midgley has produced an expansive and substantive body of work on social development that is not only relevant to the Global South, but also to international social development that will continue to shape social welfare thinking, policy and practice for years to come. He is a distinguished and leading international scholar with deep connections to UCT and is a worthy candidate for an Honorary Doctorate at this University.

## NAMES OF GRADUANDS/DIPLOMATES

Graduation ceremony held virtually on 15 December 2020 because of the COVID-19 pandemic and government restrictions around indoor gatherings

A dagger † denotes that the degree or diploma will be awarded posthumously

## FACULTY OF COMMERCE

Dean: A/Professor L Ronnie

## DOCTOR OF PHILOSOPHY

† Abia, Mike

Thesis Title: *Pursuing fit: a grounded theory of e-recruitment in Namibia – an integrated jobseeker and agency perspective*

Before studying for a PhD in Information Systems Mike Abia earned a BSc(Hons) in Applied Mathematics, and a BSc(Hons) and MSc in Computer Science.

Mike Abia's thesis seeks to identify the main concerns of job seekers and recruitment agencies in electronic recruitment (e-recruitment) and how these concerns are resolved. He finds that *fit* is the main concern, and is continuously resolved by a process he labelled *pursuing fit*. Information technologies that fit activities in recruitment are adopted in as much as suitable jobseekers get employment and suitable recruiters get favourable jobseekers. *Pursuing fit* involves interpretation and positioning of information technologies and other factors associated with e-recruitment. This study will aid people seeking technologies in recruitment, those seeking employment and those seeking employees. It also provides insight into the topic for those who are developing e-recruitment systems. Mike Abia's theory of *pursuing fit* explains the interactions between information technology, job seekers, and recruitment agencies in e-recruitment, and assists stakeholders to understand these interactions.

Supervisor: Professor I Brown  
(Information Systems)

Adeyeye Oshin, Oluyomi

Thesis Title: *Identifying female mobile bully-victim characteristics in selected high schools in South Africa: towards an anti-bullying mobile application*

Oluyomi Adeyeye Oshin was awarded her BSc(Hons) in Management Information Systems from Covenant University, Nigeria in 2006. She obtained an MCom in Information Systems from UCT in 2012 after five years in the IT industry as a Software Applications Analyst.

Oluyomi Adeyeye Oshin's thesis reports on the prevalence of mobile bullying in South African high schools and focuses on females who are both victims and bullies, referred to as "bully-victims". Her study reveals that, although female bully-victims form a small percentage of the bully population, they have a complex mix of unfavourable characteristics that requires targeted interventions. She conducted a survey to investigate these characteristics and designed a mobile application as an intervention for school bullying. The study finds that trends in female bully-victim behaviour in high schoolers in South Africa are largely identical to trends in other countries, although interventions may differ, perhaps due to differences in the makeup of society across countries. Lessons were learned from the mobile application intervention designed for future initiatives that seek to intervene in mobile bullying.

Supervisor: Professor M Kyobe  
(Information Systems)

Agangiba, Millicent Akotam

Thesis Title: *Accessibility of E-government services for persons with disabilities in developing countries-the case of Ghana*

Millicent Akotam Agangiba holds a Master of Science degree in Computers, Complexes, Systems and Networks from Tver State Technical University in the Russian Federation.

She is a lecturer in the Department of Computer Science and Engineering at the George Grant University of Mines and Technology in Ghana.

Millicent Agangiba's thesis focuses on the accessibility of E-government services for persons with disabilities (PWD) in Ghana. She employs an interpretive, inductive approach, with sensitising concepts from the E-government accessibility literature, using a social exclusion framework. Her thesis identifies key stakeholders in the E-government development process and investigates the contextual drivers impeding accessibility for PWD and the role of stakeholders in reinforcing their exclusion. She further reports on the perceptions of E-government stakeholders of accessibility and the experiences of PWD. Her findings show that exclusion of PWD from E-government services is a result of the intertwining of several contextual drivers, including political, socio-cultural, technological, and personal drivers. Her major contribution is the development of an explanatory framework on E-government accessibility for PWD and propositions to aid future research studies. She also proposes practical solutions to help improve the accessibility of E-government services for PWD in Ghana.

Supervisor: A/Professor S Kabanda  
(Information Systems)  
Co-supervisor: Professor I Brown  
(Information Systems)

Ayot, Kenrick Otieno

Thesis Title: *Essays on current account dynamics and fiscal rules in sub-Saharan Africa*

Kenrick Ayot holds a BA and MA in Economics from the University of Nairobi, Kenya. He joined the School of Economics at UCT in 2015 for his doctoral studies, having previously worked as a senior economist at the National Treasury and Planning Department in the Government of Kenya.

Kenrick Ayot's thesis investigates the current account dynamics of Sub-Saharan African (SSA) countries. It is motivated by the persistent fiscal and current account deficits that have co-existed in the

past and exposed countries in the region to significant macroeconomic instability. The thesis first finds the overall current account deficits in SSA to be weakly sustainable. An investigation of the role of fiscal policy then finds that fiscal deficits drive a country's current account deficit, particularly at lower levels of public debt. However, at higher levels of public debt, private sector savings appear to offset some of the effects. Having identified the relationship between fiscal and current account deficits, Kenrick examines the role of fiscal rules, and finds them to be an effective tool for addressing fiscal deficits in the region. He concludes that fiscal rules can be an effective policy measure in stabilising fiscal and current account deficits in SSA.

*Supervisor:* Adjunct A/Professor M Ellyne (Economics)  
*Co-supervisor:* Dr L Mateane (Economics)

Berthet Valdois, Julie

*Thesis Title: Reading achievement in Kenya: the language factor*

Julie Berthet Valdois holds a Master's in International Economics and Development from Paris-Dauphine University, France. She joined the School of Economics at UCT in 2016 for her PhD studies. Before that, she worked in the area of Monitoring and Evaluation for education and health projects in Sub-Saharan Africa.

Julie Berthet Valdois's thesis focuses on the impact of home language on reading outcomes in urban Kenya. She investigates to what extent receiving instruction at school in a language different from the home language impacts early reading skills acquisition. Using survey data, she compares results from assessments run over a population of pupils who speak Kiswahili at home and those who do not. She finds that, relative to pupils who speak Kiswahili at home, pupils whose home language is different from Kiswahili perform significantly worse on reading scores, within the same schools. She then shows a relationship between English and Kiswahili reading scores of

pupils, and that pupils sufficiently proficient in both languages are not disadvantaged based on their home language. She extends her research to examine peer effects on pupils' reading outcomes, finding that peer effects on Kiswahili scores are mediated by linguistic diversity in the school.

*Supervisor:* Professor J Burns (Economics)

Delichte, Jody Marie

*Thesis Title: When identities collide: becoming founders in pastoralist Kenya*

Jody Delichte holds a BBA from Simon Fraser University, Canada and an MSc in Applied Positive Psychology (with distinction) from the University of East London, UK. Prior to joining the GSB at UCT in 2015 for her doctoral studies, she worked in the IT and telecoms industries in multiple countries.

Jody Delichte's thesis focuses on what it means to be a business founder and how founder identities emerge and change over time. For three years she followed 51 pastoralists in Northern Kenya who were newly introduced to business through an entrepreneurship programme. Pastoralists learned basic concepts such as how to buy and sell goods, calculate profit, and save money. She finds that founders experience tension between who they are and who they are learning to be, and they respond in different ways, leading to different types of founder identities that shape behaviour in diverse ways. She also finds that other important identities shape which type of founder someone becomes, and that, as founders deviate from who others expect them to be, they need to work to change how others see them. Her findings contribute to entrepreneurship theory and are informing development organisations striving to address extreme poverty through entrepreneurship initiatives.

*Supervisor:* Professor R Hamann (Graduate School of Business)

Dzwapatsva, Godwin Pedzisai  
*Thesis Title: Contextualization of instructional time utilising mobile social networks for learning efficiency: a participatory action research study for technical vocational education and training learners in South Africa*

Godwin Dzwapatsva holds a Master of Commerce in Information Management from the University of the Western Cape. He enrolled for his PhD studies in Information Systems at UCT in 2016. Before this, he worked in the Technical Vocational Education and Training sector as a programming lecturer for 10 years.

Godwin Dzwapatsva's thesis focuses on instructional time loss and estimates the extent of learning efficiency in education and training in South Africa. He investigates the use of Mobile Social Network instances such as WhatsApp for the purposes of addressing instructional time loss. He carries out a participatory action research project, collecting data from five TVET colleges in the Western Cape in South Africa. He conducts three iterations, collecting interview data, test results, and learner attendance data. The data suggests that a significant amount of time was lost throughout the year and that applications such as WhatsApp are useful in addressing the challenge and leading to improved learning efficiency within the TVET sector. The study shows that learners who participated more on the platform performed better than those who did not take part in the initiative, suggesting the need for policy-makers to include such initiatives in education and training.

*Supervisor:* Dr S Roodt (Information Systems)

Faccer, Kristie

*Thesis Title: Shifting the frame: how internal change agents contextualize and co-construct strategic responses to grand challenge issues within and beyond the firm*

Kristy Faccer holds a Bachelor of Science degree from Trent University and a master's degree from the University of Toronto. Prior to completing her PhD, Kristy spent

nearly two decades as an international advisor and manager for projects and organisations working at the intersection of the environment, economy, and society.

Kristy Faccer's thesis uses and develops framing theory to better understand how corporations come to take proactive measures to address large-scale environmental issues, or so-called "grand challenges," for which they are not directly responsible, such as climate change or water security. Drawing on case studies in retail and finance from South Africa and Europe, Kristy Faccer finds that middle managers play a key role in orchestrating the transition from a narrow profit-making perspective to an expanded approach to business that incorporates firm action on grand challenge issues. Progressing over three main stages, her model illustrates the role of context, collaboration, and the construction of supporting conditions by managers and their allies to increase the significance attached to such issues both within and beyond the firm.

*Supervisor:* Professor R Hamann  
(Graduate School of Business)

Fredericks, Jeanne Vanessa

*Thesis Title: Towards an understanding of the boundaries and characteristics of a digital business strategy*

Jeanne Fredericks holds an MCom in Information Systems from UCT, and began her doctoral studies in the Department of Information Systems in 2016. Before joining UCT, she worked as a business consultant focusing on improving organisational performance.

Jeanne Fredericks' thesis focuses on defining a Digital Business Strategy (DBS), which is a new concept formed through the amalgamation of a Business Strategy and an IT Strategy. She includes investigations on how a DBS is created, maintained and executed. She concentrates on a DBS's relationships with its internal and external environment, which includes entities such as external organisations, internal infrastructure, industries, and

customers. In addition, she places emphasis on a DBS's impact on organisational financial performance. She finds that, while the rise of the DBS is mainly as a result of the growing importance of technology, the effectiveness of a DBS requires the strategic leveraging of both digital and traditional resources in order to create sustained competitive advantage.

*Supervisor:* Dr S Roodt (Information Systems)

Gitonga, Zachary Maina

*Thesis Title: Leveraging improved seed technology, migration and climate information for building the adaptive capacity and resilience to climate risks in semi-arid regions*

Zachary Gitonga holds an MSc degree in Agricultural and Applied Economics from the University of Nairobi, Kenya. He commenced his PhD studies at the School of Economics at UCT in 2015, prior to which he was a research associate at the International Maize and Wheat Improvement center (CIMMYT).

Zachary Gitonga's thesis explores how communities vulnerable to the adverse impacts of climate change can enhance their adaptive capacity and resilience against climate risks using adaptive seed technologies and migration and climate information. He uses representative data collected across six agro-ecological zones in Kenya and three administrative regions in Northern Namibia. Zachary Gitonga's work reveals a highly skewed pattern of improved maize adoption and recommends a policy shift in the maize sector as adoption occasions food security and a higher share of marketed surplus. He finds migration to have little impact on households' welfare and adaptive capacity because many migrants lack post-school training and education. He also finds many households have no access to climate information or awareness of alternative adaptive strategies. He recommends an integrated approach that includes creating awareness about existing adaptive options and developing communication and transport

infrastructure and markets for effective utilisation.

*Supervisor:* Professor M Visser  
(Economics)

Hassa, Ishmael

*Thesis Title: The democratisation of decision-makers in data-driven decision-making in a big data environment: the case of a financial services organisation in South Africa*

Ishmael Hassa holds an MBA from the University of Birmingham, England and an MCom in Information Systems from UCT. He began full-time study towards his PhD in Information Systems at UCT in 2018. Before this, he worked in the Information Technologies industry in technical and management roles.

Ishmael Hassa's thesis focuses on understanding the impact of Big Data, which is growing rapidly and continuously, on decision-makers as they extract valuable information from Big Data for decision-making (DM) purposes. Big Data is generated from many sources, both from inside and outside organisations, it is multidimensional in nature and it is difficult to manage and control. The investigation sought to understand decision-making from a democratisation perspective rather than from an empowerment perspective, given the mentioned challenges. It emerged that information from Big Data has to be complemented with other key decision-making indicators. Together, they provide a better and more complete picture of the decision-making landscape, which adds to the confidence of decision-makers and promotes participation in data-driven DM. This, in turn, exemplifies democratisation of the decision-maker. The research contributes new theory to the field of IS and for practice, it demonstrates how the democratisation of decision-makers is achieved.

*Supervisor:* A/Professor M Tanner  
(Information Systems)  
*Co-supervisor:* Professor I Brown  
(Information Systems)

Kahn, Amy Sally

Thesis Title: *Analysing the role of language in the context of education, employment and income in South Africa*

Amy Kahn holds MCom in Economics from UCT. Following her studies, she worked in international development and was involved in running large-scale socio-economic surveys, primarily in Tanzania and South Africa. She started her doctoral work at UCT in 2017.

Amy Kahn's thesis focuses on the role of language in the labour market, schooling, and survey research in South Africa. She uses the National Income Dynamics Study data combined with school and census datasets. She starts by exploring the benefits of English proficiency in the labour market for African language speakers and finds that being proficient in English is associated with a greater probability of being employed and higher wages. She then investigates the factors related to language policies in the foundation phase of schools, highlighting the practical challenges faced by government in their attempt to promote mother-tongue instruction, which is regarded as pedagogically sound. She finds that English/Afrikaans rather than African language (mother-tongue) instruction still dominates in urban schools and therefore serious interventions are needed. Finally, she investigates the role of language in survey research and finds that language similarity between the interviewer and respondent affects survey response rates.

*Supervisor:* Professor M Leibbrandt (Economics)

*Co-supervisor:* Dr N Branson (Economics)

Katono, Isaac Wasswa

Thesis Title: *Cultural predictions of entrepreneurial orientation and the moderating role of entrepreneurial competencies on graduate entrepreneurial intentions: a cross-sectional survey of East Africa*

Isaac Katono holds a BSc (Agric) Hons (Rural Economy) and a Master's in Business Administration,

both from Makerere University, Uganda. He is a Senior Lecturer in the Faculty of Business and Administration, Uganda Christian University and has served both as Head, Department of Management and Entrepreneurship and Associate Dean.

Graduate unemployment in Kenya, Tanzania, and Uganda is high. This problem can be reduced if graduates embrace entrepreneurship. However, graduate entrepreneurial intention (EI) in these countries is low, resulting in little entrepreneurial activity. Isaac Katono's thesis focuses on the impact of culture on entrepreneurial orientation (EO) and uses data collected from students in five universities located in the study countries. Data was examined to determine the impact of culture on both EO and intention across dimensions of region, country, and gender. Findings demonstrate that both ambiguity-intolerance and power distance have a negative impact on EO, thus calling for a cultural shift and change in education systems to enable strong EO growth. Relationships between EO, intentions, and entrepreneurial competencies, such as knowledge and networking, were also examined, with the impact of knowledge and networking on EO shown to support the developing of entrepreneurial intentions.

*Supervisor:* A/Professor D Priilaid (Management Studies)

*Co-supervisor:* Professor G Human (Stellenbosch University, Business Management)

Kiley, Jerome Dominic

Thesis Title: *Identity capital and graduate employment: an investigation into how access to various forms of identity capital relates to graduate employment*

Jerome Kiley has a BA from Northwest University, honours in Psychology and honours in Human Resource Development from the University of Johannesburg, and an MA (Research Psychology) from the University of South Africa. His doctoral work emerged from his postgraduate research interest in the

impact of identity capital on South African (SA) graduates.

The Identity Capital Model of Graduate Employment (ICMGE) was developed based on Erikson and Arnett's developmental theories and Côté's identity capital model. The ICMGE was empirically tested by assessing the identity capital, race, and gender of 872 students in their final year of study at different SA higher education institutions via quantitative surveys. A year later, 508 of these participants provided data about their employment situation in telephonic interviews. The ICMGE successfully predicted employment amongst 81.9% of the respondents with race and cultural capital, in the form of type of secondary school and type of tertiary institution attended, and home language, explaining the unique variance in the probability of gaining employment. The quality of employment obtained was mostly predicted by race and agentic personality, while financial capital and home language were the most relevant predictors of the time taken to gain employment.

*Supervisor:* A/Professor S Goodman (Organisational Psychology)

*Co-supervisor:* A/Professor I Meyer (Organisational Psychology)

Klege, Rebecca Afua

Thesis Title: *Empirical and behavioural economic applications to the energy sector*

Rebecca Klege holds BA and MPhil degrees in Economics from the University of Cape Coast, Ghana. Before joining UCT, she worked with the United Nations University – Institute for Natural Resources in Africa. She joined the School of Economics at UCT in 2015 for her doctoral studies.

Rebecca Klege's thesis uses experimental and empirical approaches to investigate key challenges facing the energy sector in developing economies. Her thesis focuses on two broad areas. These are, firstly, the role of competitiveness and risk-taking and its effects on the success of energy businesses from the perspective of including more women in the energy sector. Secondly, she investigates the effectiveness of

behavioural nudges in promoting energy conservation in a non-residential sector and household energy choices. She contributes to the energy literature by combining a wide range of methodologies in her thesis: lab-in-the-field experiments, randomised control trials, and econometric analysis. Findings from her thesis demonstrate that behavioural nudges are useful tools for conserving energy. She also shows that women do not shy away from competitive situations and should be included in the energy supply chain.

*Supervisor:* Professor M Visser  
(Economics)

Koranteng, Kesewaa

*Thesis Title: How the use of information and communication technology enables school teachers to generate educational outcomes: case of South Africa*

Kesewaa Koranteng holds an MTech in Information Technology from the Cape Peninsula University of Technology. She enrolled for her doctoral studies in the Department of Information Systems at UCT in 2013. She has worked as a researcher on policy relevant projects.

Kesewaa Koranteng's thesis focuses on how teachers use Information and Communication Technologies (ICT) to produce educational outcomes. She uses a framework to explain how teachers realise ICT-related benefits. She starts by investigating teachers' ICT use and finds that teachers' level of education, personality, role models, habits, customs, beliefs, and cultural values affect how they use the opportunities provided by ICT in teaching. She finds that teaching-related outcomes that teachers realise include improvements in content delivery, communication with learners and parents, and lesson preparation. The human-related outcomes teachers realise include confidence to teach and being current with new technology. The community-related outcomes teachers realise include being able to collaborate and share resources. Teachers' realisation of benefits of ICT is influenced by infrastructure and learner engagement.

*Supervisor:* Professor W Chigona  
(Information Systems)

Lepelle, Refilwe

*Thesis Title: The gendered effects of tariff liberalisation on local labour markets in post-apartheid South Africa*

Refilwe Lepelle holds an MCom in Economics from the University of the Witwatersrand. She joined the School of Economics at UCT in 2013 to pursue her PhD studies and is currently a lecturer. Before joining UCT, she worked at South Africa's Industrial Development Corporation as an industry analyst.

Refilwe Lepelle's thesis examines the gendered effects of tariff liberalisation on employment in post-apartheid South Africa. Drawing on unique spatial data for 234 municipalities in 1996, 2001 and 2011, she finds a wide variation in employment growth across regions that is closely associated with the region's initial composition of industries. Her research shows that tariff liberalisation from 1994 is a major contributor to this outcome with adverse employment effects in manufacturing concentrated amongst female workers. Growth in services sector employment also declined as a consequence of lower derived demand, income, and infrastructure investment associated with weaker manufacturing growth. Further, tariff liberalisation induced a rise in migration of individuals, particularly females, out of regions facing relatively strong cuts in tariff protection. Refilwe Lepelle's thesis highlights how gender-based employment segregation can exacerbate and concentrate employment losses arising from tariff liberalisation.

*Supervisor:* Professor L Edwards  
(Economics)

*Co-supervisor:* Professor M Leibbrandt (Economics)

Madjdi, Farsan

*Thesis Title: The role of founder identity in the evaluation of entrepreneurial opportunities*

Farsan Madjdi completed his MSc and MBA qualifications at the Universities of Regensburg, Germany, and Henley Business School, UK, and began full-time study towards his PhD at UCT in 2018.

Entrepreneurship is a fundamental part of the economic development and value creation of societies. Value can be defined in different ways, but at its heart it is the production of new goods and services. How these outcomes are produced, how they are shared and distributed across the economy, and what is done with the earnings that are created from their production (reinvestment) are key questions in defining economic value. Ventures that are created by founders driven by economic self-interest, community development, or societal advancement bear importance in this context. When combined with identity theory, the emerging body of work in relation to founder identity indicates that an identity and social identity lens can be central in improving our understanding of founders' heterogeneous behaviours and actions in new firm creation and development.

*Supervisor:* Dr B Zolfaghari  
(Graduate School of Business)

*Co-supervisor:* Dr C Meyer  
(Graduate School of Business)

Matema, Collen

*Thesis Title: Zimbabwe's CAMPFIRE public investments: impact on education, adaptation and preferences*

Collen Matema completed his bachelor's and master's qualifications in Natural Resources Management at the University of Zimbabwe, and started full-time study towards his PhD in 2015 in the School of Economics at UCT.

Collen Matema's thesis estimates the effects of public investments by communal based wildlife programmes on education production and adaptive capacity development of communities and households. It further attempts to understand how feelings towards wildlife and related conservation programmes are triggered and how

they subsequently determine people's economic behaviour. Collen Matema reports that community based wildlife programmes in Zimbabwe improve education production and access to public physical infrastructure. The thesis also reports that negative encounters with wild animals determines people's negative feelings and behaviours towards wildlife and wildlife related programmes. His thesis further reports that stated preferences of wildlife programmes are driven by perceptions of benefits or expected utility. He therefore concludes that public investments by wildlife programmes have value in improving well-being, and that interventions which reduce negative encounters with wild animals and improve utility have value in promoting wildlife conservation in communal areas.

*Supervisor:* Professor E Muchapondwa (Economics)

*Co-supervisor:*  
Professor J Manjengwa (University of Zimbabwe, Institute of Environmental Studies)

Mulwa, Chalmers Kyalo

Thesis Title: *Managing vulnerability to risks in smallholder farming: essays on climate change adaptation and sustainable agricultural intensification in developing countries*

Chalmers Mulwa holds a BSc in Agricultural Economics and an MSc in Agriculture and Applied Economics, both from Egerton University, Kenya. He joined the School of Economics at UCT in 2015 for his PhD studies, prior to which he worked with international agricultural research centres in Kenya conducting socio-economic research.

Chalmers Mulwa's thesis investigates the management of risks facing smallholder farmers in developing countries, which are mainly climate change and unsustainable agricultural production systems. The thesis focuses on Namibia and Kenya. His investigation of the barriers to effective management of these risks reveal that lack of information plays an important role in limiting effective risk management. Smallholder

farmers lack climate information like precise weather forecasts and general information on climate change, as well as information on general farm enterprise management. He also estimates the effect of risk management strategies like farm diversification on household welfare outcomes like food security, finding that highly diversified households are generally more food secure than non-diversified ones. His assessment of how changes in market structures affect farming households' uptake of sustainable inputs reveal that involvement of large-scale grain traders in smallholder farmer markets can be key to enhancing uptake of sustainable inputs by these households.

*Supervisor:* Professor M Visser (Economics)

Townshend, Matthew John

Thesis Title: *Foundation for a national road prioritisation model for South Africa*

Matthew Townshend holds a BA Hons in Economics from Rhodes University. He joined the School of Economics at UCT in 2013 for his master's, which was upgraded to a PhD in 2015.

Matthew Townshend's thesis develops the basis for an efficient road investment policy for South Africa. The thesis evaluates policy failures in the roads sector to establish that the road maintenance backlog is too large to address within budget constraints. The thesis then demonstrates that the maintenance scheduling systems cannot efficiently prioritise road investment according to the sector mandate to (i) satisfy citizens' right of access to constitutionally protected basic services, and (ii) maximally contribute to economic growth. The thesis develops an economics-based road classification system that facilitates both access to basic services and efficient support for economic growth. The thesis includes a road network optimisation exercise and road surfacing policy that capitalises on the low shadow price of low-skilled labour, thus also addressing rural unemployment. The thesis lastly develops a road

maintenance prioritisation model that optimises the sector's contribution to economic growth.

*Supervisor:* Professor D Ross (Economics)

van Niekerk, Cordi

Thesis Title: *Building a model to improve front end project conceptualisation: introducing the Project Conceptualisation Canvas*

Cordi van Niekerk holds a Diploma in Industrial Engineering from Vaal University of Technology, a Bachelor's in Facilities Management from Hanze University, Netherlands, an MBA from Oxford Brooks University, UK, and an MSc in Programme Management from the University of Oxford, UK. He commenced his PhD studies in 2016.

Cordi van Niekerk's thesis examines project front end management as an important area for further study to improve project performance. Using Design Science as a research methodology, the knowledge contribution of this research is an artefact called the Project Conceptualisation Canvas. The Project Conceptualisation Canvas represents a process to be followed to ensure that the conceptualisation phases of potential projects are adequately performed. The Project Conceptualisation Canvas was developed using as input the results of a systematic review of the literature on the typical challenges faced during project conceptualisation. The Project Conceptualisation Canvas was evaluated through focus groups which confirmed that it contributes to the improvement of project conceptualisation practice. The relevance of the contribution of the Project Conceptualisation Canvas is that it will improve decision making during the project selection process which will ultimately result in improved project delivery and reduced opportunity costs that result from underperforming projects.

*Supervisor:* A/Professor K Sewchurran (Graduate Business School)



Wolff-Piggott, Brendon Bernhard  
Thesis Title: *Situating mHealth in the workplace: a coordination studies perspective*

Brendon Wolff-Piggott holds a BSc(Hons) in Physics from the University of KwaZulu-Natal, and an MSc in Geography from Stellenbosch University. Before commencing his doctoral studies at UCT, he worked in water resources management and the information system industry in South Africa.

Brendon Wolff-Piggott's thesis explores how clinic staff use a mobile health application in the workplace, and coordinate this with their existing work. He draws on unstructured interviews and observation in his fieldwork. The findings show that the use of the mHealth service often involves informal task-shifting among staff. Different patterns of use emerge as the staff strive to work efficiently and fit this additional work into their busy schedules. Staff respond to the additional pressure of this responsibility by either identifying more closely with the clinic as an institution and working over and above their formal obligations, or else by adopting coping strategies to minimise stress. He finds that increased integration of health intermediaries into the health system and appreciation of the work of clinic staff is important to help ensure effective and sustainable mobile health care.

*Supervisor:* Professor U Rivett  
(Information Systems)

Zhou, Ying  
Thesis Title *A Tale of Two Countries: Adapting Chinese Leadership Styles to a South African Context.*

Ying Zhou completed her BA in China (2012) and MSc in the UK (2013), and joined the GSB at UCT for her PhD in 2017. [25 words]

Ying Zhou's thesis focuses on adapting Chinese paternalistic leadership styles into the South African Zulu working culture. She investigates Chinese and Zulus' cultural values and perceptions of leadership behaviours using surveys

with over 600 non-managerial employees from the manufacturing sector, finding that the Zulu group: (1) demonstrates the values of 'being': low in power distance, collectivist in orientation, feminine, high in uncertainty avoidance, short-term oriented, and restrained; and (2) perceives Chinese leadership behaviours as being high on Authoritarianism, but low on Benevolence and Morality, when compared to the Chinese group culture as a whole. She also investigates leaders' cross-cultural experiences through 30 interviews – findings implied that Zulu employees' attitudes to authority, work-related values, communalist relationships, and communication styles are distinct from the expectations of their Chinese managers. Finally, she proposes strategies for enhancing the use of authority/decision-making, relationship-building and effective communication in leader-follower contexts of Authoritarianism, Benevolence and Morality respectively.

*Supervisor:* Professor KA April  
(Graduate School of Business)

#### MASTER OF INDUSTRIAL & ORGANISATIONAL PSYCHOLOGY

Botha, Gina  
Harrilal, Sohana  
Jardim, Jessica-Jo (with distinction in the dissertation)  
Mahlelelele, Tumelo Clement  
Malatjie, Kabelo Boipelo  
Mbolela, Aura Yombo  
Petersen, Rushda (with distinction in the dissertation)  
Pharoo, Mokabai Mary  
Pillay, Jayde Anne  
Ramdenee, Narisha Renu  
Robertson, Katelyn Jade (with distinction in the dissertation and the degree with distinction)  
Sher, Jordan Amy (with distinction in the dissertation)  
Vollenhoven, Tarquin Sumer  
Werner, Jenna Martine

#### MASTER OF BUSINESS ADMINISTRATION

Aisam, Sheperd Kudakwashe  
Avenant, Abraham Johannes  
Baiju, Sandesh  
Baloyi, Tintswalo (with distinction)  
Barden, Stephanie Louise (with distinction)  
Barends, Baziel (with distinction)  
Biga, Aima Oforiwa (with distinction)  
Braybrooke, Neill Christopher  
Bridgens, Vincent Paul McDonald (with distinction)  
Bunea, Andreea Mihaela  
Cann, Jesse Briley  
Castiglione, Nicolo  
Chawasemerwa, Tafadzwa (with distinction)  
Chiswell, James Hamilton (with distinction)  
Chouhan, Jay Suresh  
Clarke, Lisa (with distinction)  
Collen, Brendan Wainwright (with distinction)  
Cooke, Adam Richard (with distinction)  
de Necker, Morne  
de Vries, Shaheem (with distinction)  
de Wet, Meiring  
de Wet, Stefanie (with distinction)  
Dos Santos, Rosalind Tonia (with distinction)  
Draeger, Minerva  
Elliott, Terrence Peter  
Erasmus, Jakobus Johannes  
Fortes, Fiona Townley (with distinction)  
Fundakubi, Olga Nthabiseng Vuyokazi  
Funk, Nicole Madeleine  
Gaelejwe, Rebaone Francis (with distinction)  
Gangraker, Muhammad Zaid  
Garriques, Jheanelle  
Ghai, Shivani  
Goshalia, Chetan (with distinction)  
Grantham, Edward James Anthony  
Grobler, Dian Philip  
Gruter, Joseph David  
Gunda, Ronald  
Gwija, Khanyile  
Harrington, Gareth Malcolm  
Hedley, Giles Peter  
Hendricks, Colleen Sylvia  
Hlahla, Progress (with distinction)  
Hoosain, Rihana

Imasiku, Nolianga (with distinction)	Potgieter, Jean-Timothy	Botha, Pieter Barendse (with distinction)
Jasper, Malte	Prim, Sebastian Keith	Brown, Nancy Rubenia
Kemp, Matthew Alexander Flederman	Prince, Emile (with distinction)	Bunu, Takesure Goodwill
Khan, Mohammed (with distinction)	Rabinowitz, David Mark	Buxton-Tetteh, Naa Ayorkor
Kistamurthy, Deshen	Rajan, Jaison (with distinction)	Calvosa, Alessandro Vittorio Michele (with distinction in the dissertation)
Kosi, Boitumelo	Ray, Curtis James	Chidoori, Cuthbert Christian
Kotze, Sonja	Rees, Malcolm Stuart	Claassen, Theunis Cornelis
Lata, Lukasz Marcin	Retief, Clifford Frank (with distinction)	Dauids, Natheer (with distinction in the dissertation)
le Roux, Jean-Pierre	Rich, Bradley Peter	Dean, Jacqueline
Leahy, Stanley James	Rix, Douglas	de Kock, Samantha Carol (with distinction)
Louw, Morne Jaco Adrian (with distinction)	Roman, Andres	Dikoko, Viwe
Lowman, Craig Daniel	Sammy, Navin Rama (with distinction)	Dinner, Arther
Mabundza, James Abednigo (with distinction)	Scheepers, Johan Andre (with distinction)	Douglas, Rowan Robert
Mabusela, Bongive	Schiff, Evan Stanley	Falconer, Steven John
Machiridza, Georginah	Schwartz, Paul	Gcabashe, Thuso
Manina, Asanda Cwayita	Setati, Makgopa Gareth	Griessel, Jolandi
Marota, Matshediso Jeanette (with distinction)	Sheard, Nicholas Robinson	Gross, Eden Ben Michael
Mashigo, Hope Tau	Singh, Khyle	Hlabeli, Batloung Shadrack
Mashunye, Temba Mashunye	Singh, Reyna	Holliday, Terry-Sue
Masiwa, Rufaro	Standaar, Logan Kurt	Hytoolakhan Lal Mahomed, Shazeaa
Matlakala, Mmatshemo	Subramoney, Shiva Yudhishtira	Jugnandan, Shreeya (with distinction in the dissertation and the degree with distinction)
Maulloo, Pranesh	Tsauses, Barcelona Risherida (with distinction)	Jugnandan, Mishka
Mclaren, Lorna Caroline	Tshikhudo, Fulufhelo Sylvia	Kirimi, Victor
Mehlo, Mahlomola Jacob (with distinction)	Vahed, Anwar (with distinction)	Krakri, Akhona
Mguni, Nobukhosi	van der Merwe, Van Zyl (with distinction)	Lightbody, Angela Jo
Miller, Lauren (with distinction)	van Zyl, Karl Albert	Lupindo, Mongezi Nkoisemzi
Mogorosi, Moleboge (with distinction)	Venter, Marelise	Malekano, Shamiso
Moodley, Sheldon Lydell (with distinction)	Viljoen, Anika	Mapulanga, Willard
Mpakati, Mathias	Vittee, Thinesh (with distinction)	Mchunu, Siphesihle Siphamandla
Mtshali, Sizakele Phumzile	Whitaker, Kim Michaela	Mello, Tsebisio
Mwase, Joy Vuyo	Witbooi, Euston Henri (with distinction)	Mercer, Sean Anthony Beauchamp (with distinction in the dissertation and the degree with distinction)
Mzwinila, Kebuileng Hayden	Wohlfarter, Martin	Mili, Simphiwe
Naidoo, Razelle	Zahradnik, Martin (with distinction)	Modimakwane, Winnie Tebogo
Narker, Imraan (with distinction)	Zietsman, Davina Carol (with distinction)	Mokhitli, Motekoa Eva (with distinction in the dissertation and the degree with distinction)
Naude, Natalie Louise	Zireva, Tapiwa Reuben (with distinction)	Molyneux, Matthew Justin
Nderitu, Douglas Kuira	Zwane, Tsakane Millicent	Moshikaro, Lesego Patiance
Nel, Stefan Christiaan		Moyo, Nigel Albert Peey
Ngethe, Emily Wanjiku		Mvovo, Sinesipho
Nhlangulela, Mpumelelo Godfrey		Mwangi, Edwin Macheru
Oaten, Ferose		Mynhardt, Tertius Mader
Obree, Jane Elizabeth (with distinction)		Ncube, Justice
Olakanmi, Oluseye Olaniyi		Ndebele, Nomphumelelo Cindy
Pahlke, Timo Julian		Ndlela, Mandlakazi
Pecher, Edouard Olivier Pascale		Paskert, Niklas
Phoku, Rhenia Thabang (with distinction)		Pieterse, Allison Anthea Christie
Pillay, Hazel Trusha (with distinction)		Puskas, Princess Refilwe
Pillay, Thirushen (with distinction)		
Plummer, Clayton		

Rickens, Carl  
 Scott, Thabo Reginald  
 Setati, Tsholofelo Kgalalelo  
 Shamsoodien, Sihaam  
 Smith, Jacques  
 Smith, Shirlynn Suzette  
 Tew, Mark  
 Toperesu, B-Abee  
 Vakirayi, Tafara Zadzisai Shiku  
 van der Westhuizen, Kyla  
 Vickery, Jonathan  
 Vilakazi, Mlungisi Bongani  
 von Berg, Danae  
 Walker, Grant John  
 Wewege, Sarah Joy (with distinction in the dissertation and the degree with distinction)  
 Wilson, Amy

**MASTER OF COMMERCE IN  
 APPLIED FINANCE**

Qaba, Aphiwe Andile  
 Davids, Fareez (with distinction)

**MASTER OF COMMERCE IN  
 DEVELOPMENT FINANCE**

Amadhila, Beatus Twelitega  
 Dendere, Getrude Paidamwoyo  
 Dlamini, Zanele Fortunate  
 Gaqa, Nandipa (with distinction in the coursework component)  
 Gasealahwe, Boitumelo Reitumetse  
 Gongxeka, Ncebazimi  
 Hlengwa, Samukelisiwe  
 Kandjii, Fabiola  
 Kgomo, Elizabeth Mapatane  
 Kungwane, Reabetswe Florence  
 Malebo, Uhuru Tumelo Sekhopi  
 Marimo, Mercy  
 Mathlako, Dineo  
 Mhlanga, Mduduzi Lastborn  
 Milne, James Bruce Dalgarno (with distinction in the coursework component)  
 Mingeli, Benedictus  
 Mokoena, Nkateko  
 Mugwabana, Tsimbe (with distinction in the dissertation)  
 Mulenga, Ben (with distinction in the coursework component)  
 Munanga Makore, Day  
 Munyengeterwa, Karyn Ivy (with distinction in the coursework component)

Muramba, Faith (with distinction in the dissertation and the degree with distinction)  
 Nare, Boitumelo (with distinction in the dissertation)  
 Ncube, Thulani Remigius  
 Ndzululeka, Khanya Precious (with distinction in the coursework component)  
 Nghifindaka, Twapandula Ester  
 Ngqola-Sebone, Lumka  
 Nkungwana, Sihle Charity (with distinction in the dissertation)  
 Nonyati, Sibusiso (with distinction in the coursework component)  
 Nsomi-Mukuka, Nonde  
 Nzo, Khulile Vuyisile  
 Perrie, David (with distinction in the coursework component)  
 Radebe, Thandwefika Lebogang  
 Sheya, Etuna Tangeni  
 Sishuba, Christian (with distinction in the dissertation)  
 Siwisa, Lungelwa Lyvenette  
 Skepe, Siphelo  
 Thatho, Teboho Charles  
 Tsokodayi, Jade Takudzwa (with distinction in the coursework component)  
 Wanjohi, Alex Karuiru  
 Wildschutt-Prins, Alvino Vernal (with distinction in the dissertation)  
 Yengeni, Sandisiwe Eletu (with distinction in the dissertation)  
 Zilwa, Portia

**MASTER OF DEVELOPMENT  
 POLICY & PRACTICE**

Amulungu, Ndeutalala Ndapwoudja  
 Bleki, Melisizwe Peacemaker  
 Masuka, Authur  
 Milimo, Ian  
 Mulindwa, Paul  
 Ntsekhe, Refiloe  
 Timm, Jonathan Peter

**MASTER OF PHILOSOPHY**

Albeldas, Melissa  
 Amos, Shereen  
 Bangure, Kudzanayi  
 Broodryk, Ryan Michael  
 Clark, Jonathan David Stuart (with distinction)

Cowen, Nicholas Norval (with distinction in the dissertation and the degree with distinction)  
 de Kock, Gary Shaun  
 de Kruijff, Arie Johannes  
 Debere, Hailu Refera  
 Jain, Rohin (with distinction in the dissertation and the degree with distinction)  
 Jankelow, Adam Samuel (with distinction in the dissertation and the degree with distinction)  
 Kokera, Sandra Betty (with distinction in the dissertation)  
 Lala-Sides, Kaylarsh  
 Landman, Jayson Henry  
 Makala, Gerald Lukuni  
 Mbele, Buhlebezwe Bandle  
 Sthombe (with distinction in the dissertation and the degree with distinction)  
 Modiba, Mothupi Phaladi  
 Mokhele, Reitumetse Brigitte  
 Moses, Lea-Anne (with distinction)  
 Mwanza, Jacob  
 Naina, Ruweida  
 Nkhoma, Nelly Ruth  
 Ogg, Richard James  
 Pather, Vegan  
 Pienaar, Yandri  
 Prozesky, Justin Victor  
 Rauch Jansen van Vuuren, Lidia  
 Rollinson, Benedict Douglas  
 Sitzer, Bradwin  
 Swingler, Susan Anne (with distinction in the dissertation and the degree with distinction)  
 Sylvester, Matthew John  
 Turner, Fergus Eoin  
 Yeung, Alan (with distinction in the dissertation and the degree with distinction)

**BACHELOR OF COMMERCE  
 HONOURS**

Abrahams, Arshad  
 Bechem, Carl Agbor  
 Behari, Philicia Ashmika  
 Bhagaloo, Aaliyah Keisha  
 Brownlee, Christopher James (in the first class)  
 Budhal, Sandisha Kishore  
 Coetzer, James Jacques  
 Dunk, Jason Phillip  
 Dywili, Lulamile Sivuyile  
 Hendricks, Andrew George

Jable, Muzammil Mohammed  
 Jamangile, Nobathembu Noba  
 Karjiker, Safiya  
 Khan, Bashaarit Ali  
 Kinghorn, Emma  
 Ledingwane, Molebogeng Omolemo  
 Lendor, Bronwen Chantal  
 Mabandla, Mngqweni  
 Mabaso, Mpilonhle  
 Mabunda, Rixongile Ronnet  
 Mahlare, Tumelo Taole  
 Maida, Gift Mathews  
 Malope, Letlotlo  
 Maluleke, Thulani Mikhael  
 Manana, Nhlanhla Shedrack  
 Maseko, Letlhogonolo Henry  
 Mashele, Tiyani Marvin  
 Maury-Jheengoor, Mathieu Daryl  
 Mazukwana, Mpumelelo  
 Mbokwane, Laurence Mlungisi  
 Mcoseli, Zintle  
 Mohlabane, Keamogetswe Olive  
 Mokhatholane, Motshidisana  
 Moodley, Riyentha (in the first class)  
 Msomi, Mukeliwe  
 Mtakati, Ludwe  
 Muzanya, Shelton Zaba  
 Narismulu, Nikhal  
 Nemchund, Saijil  
 Nkala, Paul Neo  
 Nthala, Kearabetswe Winfred  
 Ntuli, Mendi  
 Nyezi, Sihle Sibongile  
 Pakade, Mongezi Wordsworth  
 Paruk, Ziyaad Hassen  
 Patel, Yusuf  
 Pilane, Kefilwe Francinah Motlatsi  
 Solombela, Ayabulela  
 Swartz, Megan Celest (in the first class)  
 Xubuzani, Wilsan

POSTGRADUATE DIPLOMA IN  
 BUSINESS ADMINISTRATION

Gundani, Kumbirai

POSTGRADUATE DIPLOMA IN  
 DEVELOPMENT POLICY &  
 PRACTICE

Ngwenya, Destelia

POSTGRADUATE DIPLOMA IN  
 MANAGEMENT IN BUSINESS  
 COMMUNICATION

Ritchie, Anja Amanda  
 Skhosana, Itumeleng Comfort

POSTGRADUATE DIPLOMA IN  
 SURVEY DATA ANALYSIS FOR  
 DEVELOPMENT

Makou, Gopolang Helen Mororiseng  
 Mullajie, Aliyah

POSTGRADUATE DIPLOMA IN  
 MANAGEMENT IN  
 ENTREPRENEURSHIP

Damico, Cayla  
 Hirsch, Julia Sarah

POSTGRADUATE DIPLOMA IN  
 MANAGEMENT IN SPORT  
 MANAGEMENT

Gumede, Kwanele Khethelo

POSTGRADUATE DIPLOMA IN  
 ACCOUNTING

Bridgmohan, Shasteel  
 Buys, Lauren  
 Jacobs, Keagan  
 Mangcotywa, Melissa Zicwengile  
 Sipoko, Kwame Asamoah  
 van As, Thomas Peter

POSTGRADUATE DIPLOMA IN  
 ACTUARIAL SCIENCE

Koraheng, Kwadwo Owusu  
 Majara, Mathe Susan

POSTGRADUATE DIPLOMA IN  
 MANAGEMENT PRACTICE

Adams, Sam  
 Behitsa, Anna Neza  
 Bezuidenhout, Celeste  
 Braaf, Lizette Serene  
 Buthelezi, Katleho  
 Cloete, Wesley Brett

Damba, Luyanda  
 Dhlamini, Sibusiso  
 Esau, Charlene Alicia Gladys  
 Feris, Janetta Elizabeth  
 Gibson, Lauren Leigh (with distinction)  
 Gichubi, Lilian Jemo  
 Gigi, Fezeke Florence  
 Gowne, Aloysious Dennis  
 Harkers, Ethienne  
 Heugh, Donovan Arthur  
 Hilarides, Brett William (with distinction)  
 Ilunga, Inonge Precious  
 Jaffer, Uthmaan  
 Jafta, Siseko Buhlebethu  
 Kaphe, Refilwe Given  
 Karuuombe, Kimera  
 Kasese, Suwilanji  
 Kidney, Warren Douglas Desmond  
 Luthingo, Mhlonishwa Oscar  
 Maema, Kgomotso Rahab  
 Massimba, Tasiana  
 Mbugua, Carolyn Kadenge  
 Mdope, Mariam  
 Mdzinwa, Awonke Wendy  
 Mncube, Fisani Gerald (with distinction)  
 Mogotsi, Chimane Bernard  
 Motaung, Puseletso Alice  
 Motaung, Victoria Popie  
 Mthembu, Nokulunga Surprise  
 Mugerwa, Sajja Steven Nsubuga  
 Nakale, Julius Twamanguluka  
 Narker, Noorifah  
 Nawa, Maliwa Mulunga  
 Ngqebe-Jako, Asanda  
 Nqandela, Mandilakhe  
 Nyandeni, Stanley Praisegod Sthembiso  
 Okwiri, Benson  
 Padayachee, Chontal  
 Patel, Shiraaz Ahmed  
 Pereira, Garreth John  
 Price, Ganief  
 Ramayin, Elaine  
 Sables, Sherry-Lynn  
 Shehab, Shaun Michael  
 Simachela, Nchelwa Mayando  
 Steglin, Zachary  
 Stevens, Lee Arthur  
 Tseko, Relebohile Calvin  
 Tsogang, Thulaganyo Pamela  
 van Eeden, Donovan (with distinction)  
 van Neel, Warren John (with distinction)  
 van der Vent, Kelly Jackie

Vandeyar, Trinisha (with distinction)  
Victor, Riaan Konrat (with distinction)  
Wambua, Stephen Kasyula  
Watson, Maureen Diedre  
Webb, Fredrick Teto  
Witbooi, Glenroy

**POSTGRADUATE DIPLOMA IN  
MANAGEMENT IN MARKETING**

Kader, Mohammed Junaid  
Kheswa, Landiwe Nomkhitha  
Mbuku, Sabelo Jeffrey  
Pinto, Maria Helena  
van Ross, Janine  
van Tonder, Chanel

**POSTGRADUATE DIPLOMA IN  
MANAGEMENT**

Masimirembwa, Stewart  
Njati, Jolando

**POSTGRADUATE DIPLOMA IN  
PUBLIC SECTOR ACCOUNTING**

Mnyatheli, Phiwe

**ADVANCED DIPLOMA IN  
BUSINESS PROJECT  
MANAGEMENT**

Johannes, Matias Tataleni  
Sako, Sello Abie

**BACHELOR OF BUSINESS  
SCIENCE**

Naidu, Leeson  
O'Brien, Cailin Alexandra

**BACHELOR OF BUSINESS  
SCIENCE IN ACTUARIAL  
SCIENCE**

Rajdev, Tashiq Naveen

**BACHELOR OF COMMERCE**

Abrahams, Wafiq

Adam, Mikael Bazylo  
Akram, Ahmed Danial  
Aubin, Greg Andrew  
Barnard, Kirsty Lee  
Bester, Edward Edgar  
Bitumba, Jerome Roland  
Brindley, Ciaran Dominic  
Bucwa, Bongane Alridge Neighbour  
Calana, Thando  
Carter, Daniel Austin  
Chibisa, Tatenda  
Darling, Paul Darrin  
Darling, Simeon Christian  
Davies, Daniel Kenneth  
Dlamini, Zanenhlanhla Mpumelelo  
Ely, Ethan John  
Europa, Donna-Lee  
Gazi, Victoria Mphokuhle  
Green, John Elslie  
Helms, Zak Udo  
Hlophe, Mvelo Mpilo Ettiene  
Hoyo, Amahle  
Ivy, Hubert Tebogo  
Jekwa, Siyolise Nadia  
Kepkey, Wilbur Adam  
Kwinana, Sikelelwa Siki  
Lamula, Sifundo Innocent  
Mabusela, Lesego  
Mahlangeni, Zenande Linathi Zizo  
Malgas, Vusumzi Sheperd  
Mashaba, Bheki  
Masipa, Kachipa Lucky  
Maunye, Lethabo Fanny  
Mbatha, Thandolwethu  
Mjwara, Bongiwe Nokwanda  
Mohamed, Yusuf  
Moodley, Viasha  
Moodley, Yudhisthira Dasaratha  
Moshodi, Kebone Katlego  
Mukhondo, Rofhiwa Josephine  
Naanyane, Jacob Kgosana  
Netshifhefhe, Phangami Gerson  
Nkoana, Tshepo  
Ntambwa, Ana Kanda  
Ntoni, Joy Kakulu  
Nyembe, Bhekisisa Abednigo  
O'Reilly, Conor Kiefer  
Pieterse, Reuben Dean  
Radebe, Sinhle Nthabiseng  
Rajab, Timon  
Ramaloo, Denisha  
Rossouw, Melissa Sue  
Seitsiro, Karabo Answer  
Shangase, Zandile  
Sibanda, Amanda Natasha  
van der Sandt, Tamarin Lara  
Vilakazi, Langelihle Wandile Leon  
Wonani, Mushabase

Woollam, Luke Jared  
Yu, Yongxin  
Zaloumis, Georgina Irene Mangisi  
Sophie  
Zuma, Naledi

**BACHELOR OF COMMERCE IN  
ACTUARIAL SCIENCE**

Aronoff, Joshua Albert  
Chitambo, Nigel Elton Nyasha  
Davnarain, Ryan  
Finder, Aaron Joseph  
Jacobs, Steven  
Ke, Jiaqi  
Lee, Dayang  
Mahlalala, Thembelihle Thobile  
Teresa  
Maswoswere, Gabriel Nyevero  
Mbanjwa, Nolwazi Nomathamsanqa  
Mogwera, Olorato  
Moolla, Ziyaad  
Mrwetyana, Augustine  
Mullah, Hamima (with distinction in  
Mathematical Statistics and the  
degree with distinction)  
Nkwabulo, Choolwe Elisha Saliyah  
Nyati, Thato Galaletsang  
Strous, Jordan Harry Louis

**FACULTY OF ENGINEERING &  
THE BUILT ENVIRONMENT**

*Dean: Professor A Lewis*

**DOCTOR OF PHILOSOPHY**

Aminu, Muhammad  
Thesis Title: *Development of new  
methods for nonintrusive induction  
motor energy efficiency estimation*

Muhammad Aminu completed his BSc and MSc(Eng) qualifications at Modibbo Adama University of Technology, and University of Maiduguri, Nigeria, respectively. He joined the Faculty of Engineering and the Built Environment at UCT in 2016 for his PhD studies.

Muhammad Aminu's thesis focuses on the development of new methods of estimating efficiency in induction motors (IMs) for on-site energy usage assessment. He uses a

simplified equivalent circuit with a robust swarm-based algorithm known as ‘Chicken Swarm Optimization (CSO), to identify the induction motor parameters using only a few motor terminal measurements. This allows him to estimate the efficiency of IMs with results comparable to the more expensive and highly intrusive standard methods. He went further to investigate power supply challenges in field efficiency estimation and developed models to successfully account for these challenges. He extends his research to propose a methodology of testing efficiency for variable speed applications based on the IEC 6004-2-3 technical specification for converter-fed IMs. The findings will be useful to industries in taking informed decisions on energy-saving strategies in both line-fed as well as converter-fed motors.

*Supervisor:* Professor Paul Barendse (Electrical Engineering)  
*Co-supervisor:* Professor Azeem Khan (Electrical Engineering)

Bukenya, Patrick

*Thesis Title: Structural performance evaluation of concrete arch dams using ambient vibration monitoring and GNSS systems*

Patrick Bukenya holds a Bachelor of Science (Hons) in Civil Engineering from Makerere University in Uganda, and an MSc in Structural Engineering from UCT.

Patrick Bukenya’s thesis focuses on understanding the influence of environment and operational loads (reservoir water level and temperature) on dam structural responses, namely deformations and natural frequencies, through the development of machine learning models. The main case study is the monitoring campaign of Roode Elsberg dam located in Western Cape Province, South Africa. The study shows that water level is the driving factor in the variation of natural frequencies, while temperature is the dominant factor that drives the variation of dam deformations. The study also indicates that machine learning-based models, namely Gaussian process regression models, accurately predict the variation of

dam responses using environmental and operational loads. The study helps dam engineers to detect any abnormal behaviour of concrete dams to avoid dam failure.

*Supervisor:* Professor P Moyo (Civil Engineering)

Campbell, Anita Lee

*Thesis Title: Enabling ‘growth mindsets’ in engineering students*

Anita Campbell achieved BSc, BSc(Hons), HDE and MSc qualifications from the University of Kwazulu-Natal. Since 1999 she has enthusiastically taught first-year mathematics students. She joined UCT in 2011 and is a senior lecturer in the Academic Support Programme for Engineering.

Anita Campbell’s thesis concerns ‘growth mindsets’, which are self-beliefs about intelligence not being fixed at birth but able to be improved through effective efforts. Since beliefs drive behaviour, understanding how to develop growth mindsets is important for educators who want students to persist when challenged, to welcome feedback as a guide to improvement, and who are motivated by learning rather than by grades. To better understand how growth mindsets are developed, Anita developed a framework relating learning theories to mindset characteristics. Literature on mindset interventions for engineering students was systematically reviewed, social psychology theories were used to explain shortcomings with mindset interventions and the assessment of mindsets, and literature-sourced examples of how learning environments can support the development of growth mindsets were summarised and compared to students’ experiences. Findings imply that mindset interventions should focus on developing mindsets in learning environments and not just in individuals.

*Supervisor:* Professor B Collier-Reed (Engineering Education)  
*Co-supervisor:* Dr TS Craig (Mathematics education)

Chirindo, Mathews

*Thesis Title: Non-intrusive efficiency estimation of inverter-fed induction machines*

Mathews Chirindo holds BEng (Hons) and MPhil degrees in Electronic Engineering from the National University of Science and Technology, Bulawayo and has been pursuing a PhD in Electrical Engineering at UCT. He works for the National Research Foundation at the Square Kilometre Array project in Cape Town.

Mathews Chirindo’s thesis focuses on non-intrusive efficiency estimation of induction machines when fed from inverter supplies using limited measured values. Evolutionary optimization techniques were used to estimate the machine’s harmonic parameters based on harmonic analysis of the measured values. The thesis further investigates the estimation of additional harmonic losses that are specifically caused by inverter supplies. The quantification and segregation of additional harmonic losses due to inverter supplies including their effects on the machines were investigated. The speed of the machine was derived from the rotor speed dependent harmonics extracted from the machine’s current data. The estimated machine efficiency was benchmarked against that obtained from the direct method and the IEC-60034-3-2 Technical Specification at different loading conditions. The developed online efficiency estimation technique(s) can be used for energy audits of in-service machines.

*Supervisor:* Professor A Khan (Electrical Engineering)  
*Co-supervisor:* Professor P Barendse (Electrical Engineering)

Chitaka, Takunda Yeukai

*Thesis Title: Inclusion of leakage into life cycle management of products involving plastic as a material choice*

Takunda Chitaka completed her BSc(Eng) in Chemical Engineering at UCT. She pursued her master’s studies as a member of the inaugural class for an MPhil specialising in Sustainable Mineral Resource Development, and was the first

graduate from this programme. She began her PhD studies in 2016.

Takunda Chitaka's thesis focuses on the integration of plastic leakage into product life cycle management. She estimated product leakage rates from Cape Town, finding that products associated with food consumed on-the-go are highly prone to leakage into the marine environment. She went on to investigate how plastic value-chain actors in South Africa are responding to the global concern surrounding plastic pollution, observing an increased focus on recycling, but also that their strategy development is constrained by a lack of reliable data on product-specific leakage rates. This thesis demonstrates that product-specific leakage rates have the potential to facilitate the development of targeted strategies to address plastic pollution, through the identification of items which are highly prone to leakage.

*Supervisor:* Professor H von Blottnitz (Chemical Engineering)

Covary, Theodore

*Thesis Title: A historical institutionalist analysis of the evolution of South Africa's municipal electricity sector within the broader electricity supply industry*

Theodore Covary obtained a BCom from the Rand Afrikaans University in 1991, and an MBA from the University of Pretoria's Business School in 2006. He enrolled for doctoral studies at UCT in 2014. His master's research prompted him to become an environmental strategist in the energy sector, a primary contributor to climate change.

Theodore Covary's thesis, which focuses on energy efficiency, quickly identified the split incentive that exists between national efforts to conserve energy and local government's high reliance on the revenue generated from electricity sales; a scenario that was laid bare by the persistent national rolling electricity blackouts from 2008. In tracing the origins of the arrangements between these two governmental institutions, the research identifies the complex dynamics that exist between them and

which are complicated further by Eskom. The findings provide a detailed historical account of the evolution of the municipal electricity supply industry and offer a more nuanced understanding of the long-term contributors to the current crisis, and insights for reform.

*Supervisor:* Dr A Marquard (Energy Research Centre, Mechanical Engineering)

*Co-supervisor:* Dr G Steyn (Meridian Economics)

De Klerk, Gary Brett

*Thesis Title: A methodology to investigate the cause of quenching in once-through tower type power plant boilers*

Gary de Klerk holds a BSc and an MSc from The University of the Witwatersrand. He is a registered professional engineer and undertook his PhD degree part-time while working as a chief engineer at Eskom in the turbine plant engineering centre of excellence.

Gary de Klerk's thesis focuses on unwanted quenching that can occur in large utility boilers after shut-down. This results in high stresses when the hot superheater and main steam piping system are unintentionally exposed to water. He developed a new methodology to determine the root cause of quenching, and applied it successfully to identify a previously unknown siphon effect that caused a large number of damaging quench events at a power plant. The methodology includes a heat transfer model of the boiler that identifies condensation in the superheater, and a liquid tracking model that estimates the level of liquid in the superheater. He also measured through-wall temperature gradients in main steam piping undergoing quenching and evaluated the thermal stresses. His research provides plant operators with a tool to investigate quenching and to determine through-wall temperature gradients for calculating the fatigue life of high temperature boiler components.

*Supervisor:* Professor PG Rousseau (Mechanical Engineering)

*Co-supervisor:* Professor L Jestin (Mechanical Engineering)

Gambu, Gorden Thobani

*Thesis Title: The mobility of oxygen containing species (OCS\*) over Pt-based catalyst surfaces: impact on the oxygen reduction reaction (ORR) activity*

Gorden Thobani Gambu completed BSc and MSc qualifications in Chemical Engineering at UCT, before enrolling as a doctoral student in the same department in 2016.

Gorden Thobani Gambu's thesis investigates the oxygen reduction reaction activity over multifaceted platinum catalysts using *in silico* methods. As a first step his thesis investigates the catalytic activity and mechanism and how this is influenced by surface intermediates, establishing the importance of lateral interactions in catalytic activity models. His thesis further extends the potential role of inter-facet cooperation of adjacent facets on real catalyst surfaces. He found that the exchange of reaction intermediates between adjacent catalytic surfaces of different type can improve or worsen the overall catalytic activity. More specifically, the exchange of hydroxyl intermediates improves the reaction activity of the most abundant surface by more than two orders of magnitude at high temperatures. This thesis concludes that modifying catalyst surfaces with gold and silver atoms can in general improve the mobility of hydroxyl intermediates and hence the reaction activity even at low temperatures, making these structures interesting for experimental exploration in the future.

*Supervisor:* Professor E van Steen (Chemical Engineering)

*Co-supervisor:* Dr M Petersen (Chemical Engineering)

Gopinath, Rakesh

Thesis Title: *Concrete carbonation prediction for varying environmental exposure conditions*

Rakesh Gopinath completed his Master of Science at the Indian Institute of Technology Madras, India in 2010. Thereafter he joined the Faculty of Engineering and the Built Environment at UCT for his PhD studies.

Rakesh Gopinath's thesis focuses on developing a model for predicting the rate of natural carbonation of concrete exposed to different environmental conditions. He investigated the influence of different concrete material parameters as well as environmental factors on the rate of carbonation by conducting extensive site-based experiments on concrete specimens, under different environmental conditions. Based on experimental data and fundamental knowledge, he developed a carbonation model with the permeability coefficient from the Oxygen Permeability Index test as key input parameter. One of the key features of this model is that it can predict the rate of carbonation of concrete structures exposed to rain as well as sheltered from rain. His model is therefore useful to predict the rate of natural carbonation, and can be used to design durable concrete structures.

*Supervisor:* Emeritus Professor M Alexander (Civil Engineering)

*Co-supervisor:* Professor H Beushausen (Civil Engineering)

Griffiths, Emma Talmash

Thesis Title: *Micromechanical modelling of advanced hierarchical composites*

Emma Griffiths completed her BSc(Eng) in Mechanical Engineering at the University of the Witwatersrand, and began studying for her master's degree in 2015 at UCT. In 2016 she upgraded and began full-time study towards her PhD.

Emma Griffiths' thesis investigates the behaviour of a complex composite comprising a nanoporous gold material and an impregnated polymer. Using computational models, she studied the

phenomena of fracture and electrically stimulated actuation on the microscale, under the assumption of linear elasticity. This permits an investigation of the influence of material and geometric properties of this material on the macroscopic response, and also allows for the observation of micromechanical mechanisms that would otherwise be difficult to probe. In doing so, this work adds substantially to the knowledge base of the link between the micromechanical properties of the material, and its macroscopic response. These insights are useful in determining means of further enhancing the properties of the nanocomposite, and in promoting its use in a variety of applications.

*Supervisor:* Professor BD Reddy (Mathematics and Applied Mathematics / CERECAM)

*Co-supervisor:* Professor S Bargmann (Chair of Solid Mechanics, University of Wuppertal, Germany)

Harding, Theodor Heinrich

Thesis Title: *A prototype dynamic model for the co-treatment of a high strength simple-organic industrial effluent and coal-mine drainage*

Theodor Harding obtained bachelor's degrees in Chemical Engineering and Environmental Engineering from Pretoria University, and an MSc(Eng) degree from UCT. He also worked as a process engineer for over 16 years in industries such as Sasol, SAPPI and SABMiller.

Theodor Harding's thesis evaluates the feasibility for the use of biological treatment technologies for the co-treatment of coal-mine water and Fischer-Tropsch reaction water at Sasol Secunda Operations. This research developed a prototype dynamic model describing the co-treatment of these effluent streams in a continuously stirred tank reactor and a gas-lift integrated biological sulfate reduction system. The research found that the gas-lift integrated biological sulfate reductions system gave up to 40% improved removal of sulfate contaminants from the effluent stream than in the case of the continuous stirred tank reactor (CSTR) system. The final calibrated model enables

cost comparison studies of this technology with currently used technologies and helps with the design of biological sulfate removal systems.

*Supervisor:* Emeritus Professor GA Ekama (Civil Engineering)

*Co-supervisor:* Dr D Ikumi (Civil Engineering)

Hessler, Tomas

Thesis Title: *A comparative analysis of the performance and the microbial ecology of biological sulphate reducing reactor systems*

Tomas Hessler completed his BSc(Hons) in Molecular and Cell Biology at UCT before registering for a MSc at the Centre for Bioprocess Engineering Research, in the Department of Chemical Engineering. He upgraded his MSc to a PhD specialising in bioprocess engineering, to integrate process engineering, biochemistry, microbiology and molecular biology so as to enhance biological sulphate reduction systems.

Tomas Hessler's thesis focuses on linking the performance of six sulphate reducing bioreactor systems to the dynamics of mixed microbial communities catalysing the process. These microbial systems hold promise for sustainably treating acid rock drainage (ARD) effluents. He operated these bioreactors for over 900 days, while collecting detailed performance data, and used Next-generation DNA sequencing to characterise and monitor the microbial communities within these bioreactors. In collaboration with Prof Banfield (UC Berkeley), he reassembled and annotated 163 microbial genomes and resolved their respective metabolisms to reveal evidence of extensive syntrophic interactions. Integrating the reactor performance and microbial community structure enabled him to identify key microorganisms associated with the process. These findings have implications for the design and operation of Biological Sulphate Reducing reactor systems for the sustainable biological treatment of low-volume acidic mine water effluents.



*Supervisor:* Dr R Huddy (Chemical Engineering)

*Co-supervisor:* Professor STL Harrison (Chemical Engineering)

Jones, Bevan Walter Stewart

*Thesis Title: An algebraic volume of fluid method for strongly coupled spacecraft fuel slosh modelling*

Bevan Walter Stewart Jones holds a BSc(Eng) and MSc(Eng) from UCT and started full time study toward a PhD in 2015. The involved research was conducted in collaboration with the Ariane Group, which is the largest space company in Europe

The increase in commercial space missions has placed renewed impetus on efficient spacecraft design. A key strategic tool required for improved designs is the accurate prediction of fuel slosh loads during in-orbit manoeuvres, particularly due to the large fuel-to-solid mass ratios involved. This thesis details the development of a high-resolution mathematical model capable of achieving this with unrivalled efficiency. This is achieved through 4 key scientific developments:

1. A volume fraction initialisation scheme for unstructured computational meshes. This is an essential precursor to efficient satellite modelling.
2. A conservative and stable algebraic Volume-of-Fluid (VoF) method with unrivalled efficiency.
3. Achieving exact balance for the modelling of surface tension pressure jumps.
4. Developing a non-linear rigid body dynamics capability followed by its coupling with a multi-phase solver to enable accurate satellite manoeuvre modelling.

*Supervisor:* Professor A Malan (Mechanical Engineering)

Khan, Akrama

*Thesis Title: Development of a power conditioner for a PMSG-based wind energy system integrated into a weak grid*

Akrama Khan holds a BSc in Electrical Engineering from University of The Punjab, Pakistan. He joined the Department of Electrical Engineering at UCT in 2011 as a postgraduate student and completed his MSc in 2014. In April 2015, he commenced his doctoral studies.

Akrama Khan's thesis focuses on the integration of wind energy systems in rural areas where the electric power network is usually considered to be weak. Due to remote site location, these networks also lack supplementary support during fault conditions. To deal with the given scenario, he suggested that permanent magnet synchronous generator would be an ideal configuration to be used in conjunction with the power converters. He went on to investigate that the available conventional power converters must be utilised in such a way to allow maximum power transfer into the network. For that, he proposed efficient current injection algorithms to mitigate the faults and achieve stable voltages on the network. He validated the idea by modelling a complete wind energy system in the Lab and also emulated weak grid conditions. His research findings proved to be a useful contribution in the modern grid codes.

*Supervisor:* Professor A Khan (Electrical Engineering)

*Co-supervisor:* Emeritus Professor MMalengret (Electrical Engineering)

Lawrence, Claire Victoria

*Thesis Title: Performance of microstructural finite element models in predicting the effective modulus of trabecular bone*

Claire Lawrence completed her BSc(Eng) in Mechanical Engineering at UCT in 2016 and subsequently upgraded master's studies to a PhD.

In a clinical setting, doctors require information about the stiffness and strength of bone in order to perform corrective surgery and design effective prostheses. This information

is usually provided through X-rays and CT scans, but a more detailed description of the bone would benefit the surgical process and recovery. To understand the fine architecture of bone structure, researchers are turning to Finite Element Analysis to develop accurate models. Claire Lawrence's work investigates two Finite Element models to determine the accuracy of Finite Element Analysis in this application. Specifically, her thesis investigates the viability of a time-efficient microstructural beam-shell Finite Element model as an alternative to the computational "gold-standard", the voxel-based model. She develops numerical methodology which automatically determines the apparent stiffness of a bone specimen based solely on a micro-CT scan of the bone microstructure, and validates the developed methodology by performing over 3000 simulations on various artificial structures. Using the developed methodology, she determines the apparent and effective moduli of 127 trabecular bone specimens and concludes that the beam-shell Finite Element model is capable of accurately predicting trabecular bone moduli. This research paves the way for the application of the more efficient beam-shell method in future research.

*Supervisor:* Mr T Cloete (Mechanical Engineering)

*Co-supervisor:* Emeritus Professor G Nurick (Mechanical Engineering)

Marais, Tynan Steven

*Thesis Title: A novel semi-passive process for sulphate removal and elemental sulphur recovery centred on a hybrid linear flow channel reactor*

Tynan Marais completed a BSc(Honours) in Biotechnology at the University of the Western Cape. He embarked on a master's degree at the Centre for Bioprocess Engineering Research in Chemical Engineering at UCT, upgrading to a PhD in bioprocess engineering.

Tynan Marais's thesis focuses on using biological sulphate reduction and partial sulphide oxidation to treat acidic sulphate-rich acid mine drainage, a widespread

problem in the mining areas in our country. He demonstrates the use of a semi-passive reactor system, the linear flow channel reactor, for the development of anaerobic, anoxic and oxic zones in the reaction space to facilitate sulphate reduction to sulphide and its subsequent partial oxidation to elemental sulphur using mixed microbial communities. This sulphur product allows value generation from wastewater owing to its potential as an organic fertiliser. Further, the treated water itself provides value. The study centres on process performance as a function of operating conditions. It superimposes on this an understanding of the microbial ecology dynamics and the specific mixed microbial communities that facilitate the tandem process. Proof of concept is in place; performance indicators are established, and understanding of microbial ecology dynamics has been established, leaving the process ready for demonstration at a pilot scale level.

*Supervisor:* Professor STL Harrison (Chemical Engineering)  
*Co-supervisors:* Dr RJ Huddy (Chemical Engineering); Dr RP van Hille (Chemical Engineering)

Ngonda, Tiyamike Nyozeni  
Thesis Title: *An exploration of mechanical engineering students' perceptions of the influence of their work placement experiences on their employability*

Tiyamike Ngonda holds a BSc(Eng) in Mechanical Engineering from the University of Malawi, a Postgraduate Diploma in Project Management from Stellenbosch University, and a Master of Engineering from the University of the Witwatersrand.

Tiyamike Ngonda's thesis explores how mechanical engineering students' work placement experiences facilitate or hinder their occupational competency and self-efficacy. Previous studies agree that work placement is an effective strategy for facilitating the integration of theory and practice and enhancing student employability, without explaining how these outcomes are realised. Using qualitative data collected from mechanical engineering students

undergoing year-long work placements, Tiyamike Ngonda found that occupational competency and self-efficacy are emergent outcomes of interactions among the following variables: the learning environment, the industry mentor, quality of work affordances, student characteristics, students' agentic disposition, student performance and participation, and the student learning trajectory. Furthermore, he identified the combinations of these variables that promote and those that hinder the growth of the students' occupational competency and self-efficacy and illustrated their relationships using qualitative systems dynamics. The findings address the explanatory shortcomings of previous studies and could inform work placement practices by universities in a manner that facilitates rather than hinders the growth of student employability.

*Supervisor:* Dr C Shaw (Mechanical Engineering)  
*Co-supervisor:* Dr B Kloot (Mechanical Engineering)

Nnene, Obiora Amamifechukwu  
Thesis Title: *Simulation-based optimisation of public transport networks*

Obiora Nnene holds a BEng and MSc in Civil Engineering from the University of Nigeria and UCT, respectively. He began his PhD studies at the Centre for Transport Studies at UCT in 2015. Before joining UCT, he worked as a transportation engineer focusing on the design of roads and other transport infrastructure.

Obiora Nnene's thesis proposes an innovative simulation-based optimisation model that can improve the design of public transport networks. The major scientific contribution of his work was the integration of agent-based transport modelling techniques with multi-objective genetic algorithms to design optimised public transport networks. In the research, an optimised network is considered as one that simultaneously minimises network-related costs for both the users and operators of the network. Obiora used the Multi-agent Transport Simulation model (MATSim) to simulate

travellers' interactions on the public transport network in combination with the Non-dominated Sorting Genetic Algorithm (NSGA) as the optimisation model to search for the efficient network solution. He then applied the model to the MyCiTi Bus Rapid Transit system in Cape Town. The results show that the model designs network solutions that reduce travel times for commuters and minimises the total operational costs for the service provider.

*Supervisor:* Professor M Zuidgeest (Civil Engineering)  
*Co-supervisor:* Professor J Joubert (Industrial Engineering, University of Pretoria)

Oladele, Temitope Philip  
Thesis Title: *A study of impact breakage of single rock specimen using discrete element method*

Temitope Oladele completed his BEng in Metallurgical and Materials Engineering at the Federal University of Technology, Akure in Nigeria in 2009. He worked at Zenith Bank Plc in Nigeria before obtaining his MEng in Extractive Metallurgy from the University of Stellenbosch in 2015, and began his PhD at UCT in 2016.

Temitope Oladele's thesis reports on the development of a robust numerical approach to create a "virtual laboratory" for rock breakage tests in mineral processing. He proved the validity of this method by calibrating the macroscopic ore response against conventional rock mechanics experiments and expounded on this approach to produce an empirical relationship which could provide a wide spectrum of rock properties. He subsequently utilized this methodology to interrogate the effect of pre-weakening and mineralogical composition on the macro- and micro-scale ore response under impact loading, basing his analyses on fundamental principles. The results of this work contribute toward quantifying some of the factors that lead to wasted energy during ore breakage in mineral processing, and provides a platform to assess means of improving the efficiency of the process.

*Supervisor:* Dr LS Bbosa (Chemical Engineering)

*Co-supervisor:* Dr DK Weatherley (The University of Queensland, Sustainable Minerals Institute)

Olayiwola, Olufemi Isaac

Thesis Title: *Characterization and condition monitoring of silicon wafer-based photovoltaic cells*

Olufemi Isaac Olayiwola holds a BSc (Hons) degree in Physics from the University of Ibadan, and MSc in Electrical Engineering degree from Obafemi Awolowo University, Ile-Ife, both in Nigeria.

Olufemi Olayiwola's research addresses the problem of real-time detection and monitoring of fault conditions in photovoltaic modules. He proposes the use of an optimized broadband signal applied via existing photovoltaic power electronic plants for rapid system assessment. By application of the optimized broadband signal procedure developed at UCT in electrochemical impedance spectroscopy, an alternating current-equivalent circuit model is developed. The parameters extracted from the developed model are used to determine the internal characteristics, as well as operational status of the photovoltaic cell or module. The signal acquisition period defined by this approach is less than 1 sec making it suitable for real-time application. The new approach is optimized to enable online application for installed modules considering the dynamic nature of the Sun's irradiance. The process can also be applied by photovoltaic cell manufacturers to identify processes that enhance or limit the cell's efficiency.

*Supervisor:* Professor PS Barendse (Electrical Engineering)

Plano, Christopher Evan

Thesis Title: *Towards evening paratransit services to complement scheduled public transport in Cape Town: exploring alternative policy interventions from the minibus-taxi industry's perspective*

Christopher Plano completed his BSc in the United States, beginning master's work at UCT in 2017 before upgrading to a PhD. Prior to commencing postgraduate study, he worked as a transport consultant.

Christopher Plano's thesis engaged with minibus-taxi drivers and owners to understand their opinions on public transport reform. MyCiTi bus rapid transit (BRT) in Cape Town was met with resistance and has proven costly and difficult for government to implement and sustain, so this thesis considered alternative ways to improve public transport that would avoid these issues. Results show that taxi drivers and owners want improved security at loading points and will need monetary incentives to extend service in the evening when passenger demand makes their business unviable. However, the cost of these incentives to government are much less than the contracting approach used in Phase 1 of MyCiTi; taking these alternative reform approaches will likely enable more residents to benefit more quickly from public transport improvements compared to BRT.

*Supervisor:* Professor R Behrens (Civil Engineering)

*Co-supervisor:* Professor M Zuidgeest (Civil Engineering)

Tsoeunyane, Lekhobola Joachim

Thesis Title: *SdrLift: a domain-specific intermediate hardware synthesis framework for prototyping software-defined radios*

Lekhobola Tsoeunyane completed a BSc(Eng) in Electrical and Computer Engineering and an MSc(Eng) in Electrical Engineering at UCT. He began full-time study towards a PhD in 2016.

Lekhobola Tsoeunyane's thesis presents an intermediate-level compiler framework for facilitating high-level rapid prototyping of software-defined radio (SDR)

applications that run on field-programmable gate array architectures. The entry-point to the compiler framework is a high-level language based around functional language constructs and design patterns to specify the structural behaviour of the SDR application. This input language can either be used directly by radio experts to develop SDR applications or be used as an intermediate-representation compiling stage for a higher-level language or a domain-specific language. The compiler framework represents fine-level components and coarse-level hardware blocks in a dataflow graph. The coarse-level hardware blocks are either synthesized by the compiler or integrated into the synthesis flow from existing Intellectual Property (IP) core libraries. These hardware blocks are then composed into complete throughput-constrained SDR applications represented in a compiler using a static dataflow model that supports data access patterns. The results show that high-performance applications can be obtained with reduced resource and energy usage using a high-level design approach.

*Supervisor:* Dr S Winberg (Electrical Engineering)

*Co-supervisor:* Professor MInggs (Electrical Engineering)

Tucker, Chelsea Lyn

Thesis Title: *Waste to fuel: designing a cobalt based catalyst and process for once-through Fischer-Tropsch synthesis operated at high conversion*

Chelsea Lyn Tucker completed her BSc(Eng) in Chemical Engineering at UCT. She began her MSc at the Catalysis Institute in 2016 and upgraded to a PhD in 2017.

Chelsea Lyn Tucker's thesis focuses on the design of a novel Fischer-Tropsch process that can be used to convert biogas to liquid transportation fuels, enabling the decentralised production of fuels from waste in Sub-Saharan Africa. Central to this design is the development of a cobalt based catalyst that can withstand the harsh conditions of high conversion within the Fischer-Tropsch synthesis required for the

process. She investigated the mechanisms that led to the negative activity, selectivity and stability of an industrial cobalt catalyst under high conversion conditions. She further showed that by the addition of a manganese promoter and zinc aluminate support material, cobalt-based catalysts can be modified to operate optimally under these conditions. Using her catalytic results, she developed a process design and simulation of the once-through biogas to distillate process and evaluated it to determine an ideal conversion for the production of fuel.

*Supervisor:* Professor E van Steen  
(Chemical Engineering)

Van Der Meer, Willem Arie

*Thesis Title: A thermofluid network-based methodology for integrated simulation of heat transfer and combustion in a pulverized coal-fired furnace*

Willem van der Meer holds a BEng (Mechanical) degree from the University of Pretoria and an MEng (Nuclear) degree from North-West University. He completed his PhD part-time while working as a specialist engineer consulting on a range of thermofluid projects in power generation, mining and agriculture.

In his thesis, Willem van der Meer proposes a thermofluid network-based methodology to simulate the heat transfer and combustion in a pulverized coal-fired furnace while accounting for the interaction between the steam and flue gas sides, in an integrated manner. The methodology can be integrated with process models to study the complex interaction between the various subsystems to ensure plant availability, reliability, efficiency and safety, while limiting emissions. The model captures the three-dimensional radiation effects, flue gas exit temperature profile, carbon burnout as well as the oxygen and carbon dioxide concentrations. It was validated and calibrated via test data and detailed CFD results for a single-burner furnace as well as a full-scale wall-fired furnace operating at full load. The model was shown to scale well to other load conditions and

real plant measurements. Consistent results were obtained for sensitivity studies involving coal quality, particle size distribution, furnace fouling and burner operating modes.

*Supervisor:* Professor P Rousseau  
(Mechanical Engineering)  
*Co-supervisor:* Professor L Jestin  
(Mechanical Engineering)

#### MASTER OF CITY AND REGIONAL PLANNING

Ruiz Delgado, Alma Rosalia

#### MASTER OF ENGINEERING

Blignault, Samantha Paige  
Buop, George Onyango  
Byron, Paimaan Husseini  
Chirembo, Kondwanie Frank  
Mayotcha  
Ellis, Benjamin Warren (with distinction in the dissertation)  
Fredericks, Brandon Carl  
Gwanxu, Neliswa Gracia  
Hartnick, Angelo Tyronne  
Isaacs, Benedict Eric  
Kodzai, Carlton  
Mabe, Malesiba Millicent  
Matu, Unathi Neo  
Monyatsi, Lemohang  
Mosito, Katlego Ernest  
Murphy, Katelyn  
Muukua, Mervin Mbakekua  
Mwenye, Ronald (with distinction)  
Naidoo, Krishantha  
Nashilongo, Mweneni Mwafangeo  
Oosthuizen, Michael Johann (with distinction in the coursework component)  
Qwemesha, Mbuyisi  
Rammutla, Koketso John (with distinction in the dissertation)  
Richards, Enaas  
Saaymans, Natalie (with distinction in the coursework component)  
Shumba, Josiah  
Smith, Delwin Winston  
Strassberger, Divan Gustav

#### MASTER OF GEOTECHNICAL ENGINEERING

Mawila, Edith Elizabeth Tintswalo  
Ssekayita, Andrew (with distinction)

#### MASTER OF PHILOSOPHY

Dlamini, Reuben Mkhuleko  
Featherstone, Keith Gordon (with distinction)  
Harrison, John Derek  
Himunchul, Alexandra Elizabeth-Joan (with distinction in the coursework component)  
Kamalie, Mariam  
King, Barbara Amelia  
Mokone, Bothokgami  
Onyeagoziri, Onyekachi John  
Ross, Katherine Elizabeth (with distinction)  
Wilson, James (with distinction in the coursework component)

#### MASTER OF SCIENCE IN ENGINEERING

Adeleke, Daniel Damilare (with distinction)  
Callanan, Gareth Mitchell (with distinction)  
Chen, Qin  
Chetty, Shaylin  
Christopher, Ross Laurence (with distinction)  
Collair, Wesley (with distinction)  
Curry, Andrew Michael  
De Sousa Alves, Melissa  
Dollery, Devin Paul (with distinction in the dissertation)  
Dudley, Darren Richard (with distinction)  
Du Preez, Jean-Pierre  
Faloye, Omolola Mosunmola  
Ferreira, Lizé-Mari  
Fischer, Dustin Ashley (with distinction in the dissertation)  
Gibson, Borbor A K K (with distinction)  
Graham, Aaron Michael (with distinction in the coursework component)  
Guseva, Olga  
Harrisankar, Naomi  
Hill, Herbert Edward (with distinction)

James, Valontino Ruwhelon (with distinction in the coursework component)	Van Zyl, Willem Francois (with distinction in the dissertation)	BACHELOR OF SCIENCE HONOURS IN MATERIALS SCIENCE
Kamanzi, Brian Ihirwe	Williams, Faizel (with distinction in the coursework component)	Mancapa, Neo
Kang, Gi Ah (with distinction)	MASTER OF SCIENCE IN PROJECT MANAGEMENT	Mnguni, Mmangaliso (in the first class)
Kekana, Dime	Abdullah, Mohammed Perwez	BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING
Khobo, Rendani Yaw-Boateng Sean	Buhlungu, Simbarashe	Baum, Hayden
Knutsen, Christopher John (with distinction)	Campbell, Benjamin Gibran	Bawden, Ivan Ronald
Ku, Do Yeou (with distinction in the dissertation)	Chimwe, Tapera (with distinction)	Henriques, Samuel Jose
Labi, Tita Ntow (with distinction in the dissertation)	Companie, Fabio Giacomo	Hossanee, Jibraan Mohammad Shameel
Laighton, Michael Ross	Duku, Leju Luke	Khan, Muhammed Yusuf
Liu, Bodi	Mavundla, Lungisa	Madzingaidzo, Raphael Tapiwa
Macwilliam, Kathleen Clare (with distinction)	Ncube, Charlene Gladys	Makombe, Tinashe Rumbidzai
Matesun, Joshua Ayomikun	Osborne, Jeremy Sean (with distinction)	Mjikeliso, Xabiso
Mbuyisa, Mbali Fortunia (with distinction)	Viljoen, Etienne	POSTGRADUATE DIPLOMA IN POWER PLANT ENGINEERING
Mehlo, Brenda	MASTER OF SCIENCE IN PROPERTY STUDIES	Baloka, Ashley Daniel
Mias, Candice Chanelle (with distinction)	Bronkhorst, Johan	Chitlango, Siphwe Maria
Mkhize, Sthembiso	Jooste, Frederik van Wyk	POSTGRADUATE DIPLOMA IN PROPERTY STUDIES
Mkhonta, Sizwe	Young, Dean Kevin	Emmett, Alexander Cheere
Mohamad Anfar, Mohamad Rimas (with distinction)	MASTER OF WATER ENGINEERING	BACHELOR OF ARCHITECTURAL STUDIES
Muchinapaya, Abel	Nkonyane, Musawenkosi Mfundo	Mpungose, Zamakhuba
Mutsakatira, Innocent Tapiwa	BACHELOR OF SCIENCE HONOURS	Ngcobo, Thandokuhle Mthokozisi Noel
Mzilethi, Donattelo Junior	Patel, Ridwaan	BACHELOR OF SCIENCE IN ENGINEERING IN MECHANICAL & MECHATRONIC ENGINEERING
Naidu, Rushavya	Isaacs, Mogamat Natheem	Burditt, Sam Edward Elgar
Nchupang, Mojalefa Prince	Yende, Msindisi	Jappie, Abid
Nhlapo, Thabo Johannes	BACHELOR OF SCIENCE HONOURS IN CONSTRUCTION MANAGEMENT	Marz, Christopher Adam
Nsengiyumva, Olivier	Isaacs, Mogamat Natheem	Matjila, Lucky Simon
Ogundana, Bayode Omokuniwa	Yende, Msindisi	Roets, Nicholas Lee
Olasoji, Azeez Oladoyin	BACHELOR OF SCIENCE HONOURS IN GEOGRAPHICAL INFORMATION SYSTEMS	
Paul, Mikyle	Letsoalo, Ntshwarangwako	
Polorigni, Christian Leprince (with distinction in the coursework component)	Mdluli, Simphiwe Wiseman	
Polton, Cheriska		
Prestele, Marc Patrick (with distinction)		
Qi, Ruixuan (with distinction in the dissertation)		
Rajan, Ziba Shabir Hussein Somjee (with distinction in the dissertation)		
Rosslee, Pieter Johannes (with distinction)		
Swanson, Liam David (with distinction)		
Taylor, Mark Robin		
Tetlow, Sarah Frances		
Tshaaai, Dineo Christina		
Turan, Evren Mert (with distinction)		
Van Tonder, Daniël Pieter		
Van Wyk, David (with distinction)		

BACHELOR OF SCIENCE IN  
ENGINEERING IN ELECTRICAL  
& COMPUTER ENGINEERING

Angwenyi, Dancan  
Buckinjohn, Ethan  
Chehore, Mugove Thembinkosi  
Fletcher, Warren Hamilton  
Hassam, Mahomed Asif Yousuf  
Heald, Dillon Alexander  
Heylen, Muhammad Yusuf  
Joffee, Callum  
Maluleke, Mapula Cathrine  
Maminimini, Munesu  
Singh, Harjot  
Singh, Jehan Rajendra  
Tema, Thabo Hebert  
Wanna, Mcmoses Malima

BACHELOR OF SCIENCE IN  
ENGINEERING IN CHEMICAL  
ENGINEERING

Gibbons, Lucy Pola  
Hlongwane, Langa Thembinkosi  
Mbhalati, Basani (with honours)  
Pather, Radhia  
Syed, Ahmed

BACHELOR OF SCIENCE IN  
ENGINEERING IN CIVIL  
ENGINEERING

Hendriks, Anke Micaela

BACHELOR OF SCIENCE IN  
ENGINEERING IN ELECTRICAL  
ENGINEERING

Arestide-Mangani, Lionel  
Mukudzeishe  
Arnold, Zayd  
De Beer, Zacharias Hermanus  
Dywili, Simplicity Sicelile  
Joubert, Petrus Johannes  
Maqhajana, Thabiso  
Mathunjwa, Nonhlelo Zinhle  
Mukandi, Nigel Mapiye  
Ngcobo, Nondumiso  
Salie, Mogamad Zain  
Siziba, Simcelile Thabang

BACHELOR OF SCIENCE IN  
ENGINEERING IN MECHANICAL  
ENGINEERING

Butcher, Carissa Nicole Desiree  
Chan, Ibrahim  
Chitungo, Kudzai Andrew  
Mtutu, Warren Tashinga  
Mubaiwa, Dean  
Nemalili, Orifha

BACHELOR OF SCIENCE IN  
ENGINEERING IN  
MECHATRONICS

Barbaressos, Dimitri  
Chernotsky, Max Low  
Goodall, Kai  
Gordhan, Uvir  
Luvhengo, Mukonanyi  
Markey, Matthew Sean  
Mbanjwa, Thando Mthunzi  
Mufford, William Edward  
Ngobeni, Nkateko Precious  
Peddie, John Richard  
Pillay, Saylin  
Solomon, Zamuxolo Gladwill  
Tainton, Robin Ashton Wei-Chen

BACHELOR OF SCIENCE IN  
GEOMATICS

Mthembu, Sifiso Collen

BACHELOR OF SCIENCE IN  
CONSTRUCTION STUDIES

Harnekar, Muhammad Yaseen  
Hookham, Wade Lloyde  
Motloun, Neo Lennox  
Opio-Ikuya, Paul Tshepo

BACHELOR OF SCIENCE IN  
PROPERTY STUDIES

McFarlane, Jade Alex  
Musungu, Kent David

FACULTY OF HEALTH  
SCIENCES

Dean: A/Professor L  
Green-Thompson

DOCTOR OF PHILOSOPHY

Agesa, Carolyne  
Thesis Title: *Utilization of a multi-sectoral approach in strengthening cross-sectoral referrals of survivors of sexual violence from the health sector in Kenya*

Carolyne Ajema Agesa holds a BA(Sociology) degree from the University of Allahabad, and a Master's in Social Work from the Shivaji University. She enrolled at the Department of Public Health at UCT in 2012 for her PhD studies.

Carolyne Ajema's thesis focuses on understanding the current gaps and opportunities in the provision of services to survivors of sexual violence. She investigates how the current fragmented sectoral responses to sexual violence can be addressed adapting the multi-sectoral sexual violence management framework. She reviewed the quality and comprehensiveness of service statistics obtained from survivors in two Kenyan districts accessing services from June 2013-June 2014. She uses qualitative research perspectives from providers and survivors in assessing the influences for reporting sexual violence and use of services. She assesses the predisposing enabling/hindering and needs related factors that influence survivor behaviour with a focus on reporting, access to services and readiness to access services from different sectors and providers. The findings contribute new knowledge and used in strengthening sexual violence response using multi-sectoral approaches.

*Supervisor:* Professor D Cooper  
(Public Health and Family Medicine)  
*Co-supervisor:* Professor L Artz ( Gender Health and Justice Research Unit)

Akinrinmade, Olusiji Alex

Thesis Title: *Generation and evaluation of novel CD64-specific immunotherapeutic agents to selectively target dysregulated macrophages*

Olusiji Akinrinmade holds a BSc(Hons) in Human Anatomy from Ladoko Akintola University of Technology, Nigeria and Master of Sciences of medicine specialising in Medical Biosciences from the University of the Western Cape. He joined the Department of Integrative Biomedical Sciences (IBMS) at the University of Cape Town in 2016 for his PhD studies.

Olusiji Akinrinmade's thesis focuses on developing four different recombinant immunotherapeutics targeting the Fc gamma receptor I (CD64) to eliminate disease-causing macrophages in monocyte-derived leukemia, chronic inflammation, as well as in Leishmaniasis. Results from this project show specific detection and killing of CD64-positive cell lines as well as *ex vivo* differentiated human M1-type macrophages, while sparing normal macrophages. His work confirms the efficiencies of different CD64 targeting immunotherapeutics on Leishmania hosting macrophage, confirms initial killing of macrophage as well as Leishmania and paves a novel approach for the treatment of Leishmania once confirmed in a preclinical *in vivo* model.

*Supervisor:* Professor Dr S Barth (Integrative Biomedical Sciences)

*Co-supervisor:* Dr S Chetty (Integrative Biomedical Sciences)

Amoah, Vida Maame Kissiwaa

Thesis Title: *Heidegger's hermeneutic phenomenology and the application to Ghanaian women's experiences of unsuccessful In Vitro Fertilisation (IVF) treatment*

Vida Amoah holds a BA Nursing with Psychology and MSc Health Services degree from the University of Ghana Legon, and Kwame Nkrumah University of Science and Technology. She has worked as a nurse and lecturer in Ghana.

Vida Amoah's thesis seeks to gain an in-depth understanding of

the *meaning* of the experiences of unsuccessful in vitro fertilisation (IVF) treatment and how the IVF treatment failure affects the women in their everyday life. Through phenomenological conversations, the women's narratives reveal a range of challenges in undergoing IVF treatment. This study makes a significant contribution by broadening the understanding of the experience of unsuccessful IVF treatment among Ghanaian women. Following the insights from the women's narratives, an adapted Dual Process Model of coping has been developed incorporating Heidegger's philosophy of the three modes of *being*. She highlighted that the model may be useful in guiding the assessment and offer appropriate patient-centred fertility care and support for patients preparing for IVF treatments.

*Supervisor:* Dr N Fouché (Health and Rehabilitation Sciences)

Blumenthal, Melissa Jayne Walcott

Thesis Title: *Characterisation of Kaposi's sarcoma-associated herpesvirus (KSHV)-driven pathology and disease outcome in HIV-infected South African patients*

Melissa Blumenthal holds a BSc and BSc(Hons) degree from UCT, and graduated with an MSc in Medical Biochemistry in 2017. From 2017 to 2019 she studied full-time towards her PhD.

Melissa Blumenthal's thesis reports on the impact of virological and molecular parameters of Kaposi's Sarcoma-associated herpes virus (KSHV) infection for KSHV-associated disease outcome in high HIV settings. She identified elevated blood KSHV viral load in a cohort of critically ill HIV-infected patients presenting with suspected but unconfirmed tuberculosis to be an important but as yet unrecognised parameter in the differential diagnosis. She linked genetic variants in the KSHV entry receptor, EPHA2, to increased risk for Kaposi's sarcoma disease development. She also functionally confirmed the impact of these patient-derived EPHA2 mutations *in vitro*, generating state-of-the-art molecular engineered cell

lines and recombinant KSHV infection assays. These findings have important implications in future KSHV-associated disease management by contributing to the development of novel diagnostic and surveillance tools.

*Supervisor:* Dr GSchäfer (Integrative Biomedical Sciences)

*Co-supervisor:* Professor A Katz (Integrative Biomedical Sciences)

Bunyasi, Erick Wekesa

Thesis Title: *Transmission of tuberculosis in high school students in Worcester, South Africa*

Erick Bunyasi holds an MBChB degree from the University of Nairobi, Kenya, and an MPH degree from UCT. He worked as a physician in the Kenya Ministry of Health and the Kenya Medical Research Institute before starting his PhD studies in 2015.

Erick Bunyasi's thesis investigates temporal trends in prevalence of *Mycobacterium tuberculosis* infection and tuberculosis disease among South African adolescents. He evaluates classroom air quality, symptom screening and air sampling for *Mycobacterium tuberculosis* DNA as a screening strategy for tuberculosis disease. He demonstrates that adolescent prevalence of *Mycobacterium tuberculosis* infection remained high and relatively unchanged between 2005–2015 but adolescent tuberculosis disease notification rates fell 45% in the same community over the same period. More than one-third of 72 high school classrooms were inadequately ventilated and one-fifth of classrooms had evidence of airborne *Mycobacterium tuberculosis* DNA detected by ddPCR air sampling. The average risk of inhaling a copy of *Mycobacterium tuberculosis* DNA copy was more than 100% over one academic year. However, yield from symptom-based tuberculosis disease screening was low, consistent with the presence of undiagnosed subclinical tuberculosis cases and risk of ongoing transmission in high schools.

*Supervisor:* Professor M Hatherill (Medicine)

*Co-supervisor:* Emeritus Professor R Wood (Medicine)

Chia, Julius Ebua

Thesis Title: *The role of IL-4 receptor alpha signalling on Foxp3 T regulatory cells in listeriosis and tuberculosis*

Julius Chia holds a BSc (Hons) in Biochemistry and Medical laboratory Technology degree from the University of Buea, Cameroon and a MSc degree in Medical Virology from the University of Yaounde I, Cameroon. He started his PhD studies in 2016 and received a ICGEB Arturo Falaschi Pre-Doctoral Fellowship.

Julius Chia's thesis focuses on the role IL-4 receptor alpha signalling on Foxp3 regulatory cells and the immunological responses during infection in murine models of *Listeria monocytogenes* and *Mycobacterium tuberculosis (Mtb)*. The study reveals a major role of the loss of IL-4R alpha on Foxp3, by affecting the CD4 effector function in both models. This was most obvious in Listeriosis. The loss of function led to an increase in CD8 that produced important Th1 cytokine and granzyme B demonstrated enhanced Th1 profile. This led to better survival during primary infection. During *Mtb* infection, absence of the receptor on Foxp3 T regulatory cells did not significantly affect the animals compared to their litters but affected important cell populations.

*Supervisor:* Professor F Brombacher (Pathology)

*Co-supervisor:* Dr S Parihar (Pathology)

Chiwaridzo, Matthew

Thesis Title: *Development and validation of the School Clinical Rugby Measure (SCRuM) test battery: understanding the qualities or skills defining good male adolescent rugby union players*

Matthew Chiwaridzo holds a BSc degree in Physiotherapy from the University of Zimbabwe and an MSc in Physiotherapy from UCT. He joined the Division of Physiotherapy at UCT for his PhD studies in 2015,

and is currently working as a physiotherapy lecturer in Zimbabwe.

Matthew Chiwaridzo's thesis aims to understand qualities or skills defining good male adolescent rugby players. He starts by developing a test battery called the School Clinical Rugby Measure (SCRuM) which he subjects to a series of evaluations to ensure that it is face-and-content valid, practically feasible and inclusive of reliable test items. He further investigates the ability of SCRuM test items to discriminate elite rugby players from sub-elite rugby players and elite non-rugby players at Under-16 and Under-19 age categories. His study shows that the attributes defining good adolescent rugby players are age-dependent and include physiological characteristics and game-specific skills. The Under-16 adolescent rugby players require high levels of prolonged high-intensity intermittent running ability, lower-body muscular power, tackling proficiency and running-and-catching ability to achieve higher playing standards, whereas Under-19s require upper-body muscular power, upper-and-lower-body muscular strength, 40m sprinting ability, repeated high-intensity exercise performance ability, and passing ability.

*Supervisor:* Dr GD Ferguson (Health and Rehabilitation Sciences)

*Co-supervisor:* Professor Dr BCM Engelsman (Health and Rehabilitation Sciences)

Cloete, Elsabé

Thesis Title: *Interdependence between geometric, tensile and chemical bond behaviours of untreated hair fibres*

Elsabé Cloete holds BSc, Hons (Math), Hons (Chemistry), MSc and PhD (Computer Science) degrees and works as a chemist in the Cosmetic and Natural Health Product industries.

Elsabé Cloete's thesis investigates the dynamic complexity between different hair fibre attributes to improve the robustness and accuracy of hair data interpretation for medicinal, toxicology, forensic and cosmetic applications. The work gives insight into the phenotypical

nature of fibre shape. It also describes the discovery of a chemical bond network and pre-elastic tensile behaviour in curly hair, which are both lacking in straight hair. Explaining these novelties, a structural model and mathematical equation have been developed and are presented in her thesis to describe the interrelationship between fibre curliness, strength and chemical bonds. The investigation also highlighted the insufficiency of current methods to accurately measure fibre strength. The work contributes to the fundamental understanding of hair.

*Supervisor:* Dr M Ngoepe (Mechanical Engineering)

*Co-supervisor:* Professor NP Khumalo (Medicine)

Coetzee, Devon Ross

Thesis Title: *Understanding risk of injury in novice runners: exploring the link between runner characteristics, biomechanics and injury outcome*

Devon Coetzee holds a BSc degree in Sport Science from Stellenbosch University, and a BSc(Med)(Hons) in Exercise Science and Biokinetics from UCT. He started his MSc in 2014, and upgraded to a PhD in 2016.

Devon Coetzee's thesis examines the biomechanical and clinical outcomes that occur in novice runners throughout a progressive three-month running intervention. The thesis proposes a model linking runners' characteristics, namely strength, flexibility and body composition, to running biomechanics and ultimately injury outcome. The role of footwear is assessed within this model, as it is suggested that footwear with reduced cushioning may reduce injury risk. Footwear has limited effect on biomechanics and injury outcome, whilst training structure is more influential for injury prevention. The findings allow Devon Coetzee to explore potential interventions that can be prescribed by clinicians to mitigate injury risk and better understand the complex mechanisms of running injuries.

*Supervisor:* Dr YAlbertus (Human Biology)



*Co-supervisors:* Dr RTucker (Human Biology) and NTam (Human Biology)

Correia Fontes, Mayara

Thesis Title: *An equity analysis of the burden from alcohol consumption in South Africa*

Mayara Correia Fontes holds a BA in Economics and an MA in Applied Economics from the University of Massachusetts Boston, USA. She interned at UCT in 2014 as a research fellow for the Mount Sinai International Research Training Program, and returned to the School of Public Health and Family Medicine in 2016 to start her PhD studies.

Mayara Correia Fontes' thesis combines aspects of epidemiology, economics and social science. It represents an initial attempt to assess inequalities and inequity in alcohol consumption in South Africa at the household and individual levels using national household data. She starts by critically investigating the usability of data from different surveys in South Africa containing alcohol variables. She then uses two datasets – Income and Expenditure Survey and the National Income Dynamics Study to assess socioeconomic inequality and inequity in alcohol consumption including expenditures on alcoholic beverages. Her research finds that alcohol consumption in South Africa may be a reflection of genuine differences in consumption patterns among socioeconomic status, and the burden of consumption and expenditure falls most heavily on poorer households and individuals. Comprehensive alcohol harm-reduction policies are needed to further reduce regressivity of alcohol expenditure to protect public health.

*Supervisor:* Professor L London (Public Health and Family Medicine)

*Co-supervisors:* A/Professor J Ataguba (Public Health and Family Medicine); Dr N Harker Burnhams (South African Medical Research Council)

Cunningham, Charmaine

Thesis Title: *The adaptive capability of the operational team to respond to challenges in the emergency centre: a SenseMaker® study in emergency centres within Cape Town*

Charmaine Cunningham holds an MBA and a BSocSc (Nursing) degree. She joined the UCT Division of Emergency Medicine in 2016 for her doctoral studies. Before that she worked as Emergency Centre manager in the private health sector.

Charmaine Cunningham's thesis focuses on collective team-based sense-making of operational challenges in large emergency centres in Cape Town. The interprofessional study considered team dynamics, information sharing and communication. She uses a method of storytelling where participants self-analysed their story within a specially designed framework that visually displayed patterns of behaviours, attitudes and beliefs across the emergency centres. The findings showed that the emergency centre team respond to challenges with quick fixes that result in constant fire-fighting. The impact of this response could be seen by the extensive use of war-related metaphors in their stories. By changing the daily stories, the culture could be changed allowing the team to collectively respond to challenges.

*Supervisor:* Professor LA Wallis (Surgery)

*Co-supervisor:* Dr M Vosloo (DataSense Consulting)

de Boer, Candice

Thesis Title: *Development of a multi-stage purification process for serum-derived exosomes and evaluation of their regenerative capacity*

Candice de Boer holds a BSc and BSc(Hons) from the University of KwaZulu-Natal. She was awarded the 2014 SASBMB Best Honours student. She began full-time study towards her PhD in 2015.

Candice de Boer's thesis focuses on the function and purification of blood-derived exosomes (biological nanoparticles implicated in cellular communication). Exosomes from

blood have been recently reported to possess regenerative medicine potential but were isolated with sub-optimal methodology. She uses size exclusion chromatography purification, confirming exosomal proliferative and angiogenic functions. Their functionality is shown to be stable, greatly enhancing their therapeutic promise. Further to this, she developed a novel multi-step purification method that removes contaminating lipoproteins, the presence of which significantly impedes gaining proper understanding of blood exosomes. She shows these highly purified exosomes to be amenable to proteomic analysis revealing several new exosome-associated proteins and that they are stimulatory for capillary ingrowth in a pre-clinical animal model. These findings help clarify the role of blood exosomes and facilitate future research into their properties and functions.

*Supervisor:* A/Professor NDavies (Surgery)

de Kock, Miné Cheri

Thesis Title: *Pharmacokinetic modelling for preventative treatment in African pregnant women and young children vulnerable to malaria*

Miné de Kock holds a MSc (Med) in Biomedical Engineering from the University of Cape Town (2012). She began full-time study towards her PhD in 2013.

Using non-linear mixed effects modelling, Miné de Kock's thesis reports the pharmacokinetics of antimalarial combination sulfadoxine/pyrimethamine in pregnant women and young children for preventative treatment of malaria and suggests dosing recommendations. Her thesis also examines the pharmacokinetic properties of a new antimalarial drug OZ439 co-administered with mefloquine in healthy volunteers to assist in its possible development into preventative treatment as an alternative to sulfadoxine/pyrimethamine. Finally, she evaluates the use of normalised prediction distribution error values to detect data errors caused during sample collection, labelling, and

handling. These findings will be useful in improving preventative treatment in pregnant women and children to ease the burden of malarial disease in these vulnerable groups.

*Supervisor:* A/Professor P Denti (Medicine)

*Co-supervisor:* Professor KI Barnes (Medicine)

de Moor, Warren Ralph Josephus

Thesis Title: *The design, development and characterization of a self-replicating DNA expression technology*

Warren de Moor was born in Makhanda (formerly Grahamstown), in the Eastern Cape where he grew up and attended high school. He holds a BSc, Honours and Masters in Biochemistry from Rhodes University. He followed this with a PhD in Medical Virology at the University of Cape Town.

Warren de Moor studied the design, development and characterisation of self-replicating DNA expression systems for use as novel vaccine development tools. He was able to develop a self-replicating DNA expression system that exhibits enhanced expression capabilities and characteristics designed to improve antigen presentation and T-cell immune activation. Derived from the single stranded beak and feather disease virus the DNA expression system he developed was able to meaningfully improve gene expression at a cellular level and was shown to function in both mammalian cell cultures and in a live mouse model. These capabilities have the potential to be leveraged for developing enhanced DNA vaccine designs for use in animals and humans.

*Supervisor:* Professor A-L Williamson (Pathology)

*Co-supervisors:* Professor E Rybicki (Molecular and Cell Biology); Dr G Regnard (Molecular and Cell Biology)

Den Hollander, Stefanus

Thesis Title: *Measuring tackle and ruck technique in rugby union*

Steve den Hollander holds a BSc in Sports Science degree from UKZN and a BSc (Med) (Honours) in Biokinetics degree from the University of Cape Town. He began full-time study towards his master's in 2015 and upgraded to a PhD in 2017.

Steve den Hollander's thesis validates a training tool that measures tackle and ruck technique in rugby union. Tackles and rucks are the most frequently occurring contact events in rugby, and the ability to engage effectively in these events has been associated with match success. The nature of these events also exposes players to a high risk of injury. Tackle and ruck injuries account for approximately 64% of all injuries in rugby. Given the importance of these skills and the associated risk of injury, strategies to assess and develop tackle and ruck technique in training is a high priority for stakeholders in the sport. After establishing the validity of the tool, he tested factors which may affect the degree to which tackle, and ruck technique developed in training transfers to match performance. He identified physical conditioning and contact technique training as key factors that optimises the transfer of skills from training to matches.

*Supervisor:* Dr S Hendricks (Human Biology)

*Co-supervisors:* Professor M Lambert (Human Biology); Professor B Jones (Leeds Beckett University, Carnegie School of Sport)

Docrat, Sumaiyah

Thesis Title: *Economic costs, impacts and financing strategies for mental health in South Africa*

Sumaiyah Docrat holds a BSc (Hons) in Health Sciences from the University of Ottawa and an MPH in Health Economics from UCT. She joined UCT in 2013 as a health economic researcher and began her PhD studies in 2015.

Sumaiyah Docrat's thesis focuses on generating new knowledge on the economic costs,

impacts and financing strategies for mental health in South Africa. She quantifies the economic burden of depression symptoms to households through a household survey, and the inefficiencies of existing mental health investments and inequities in resourcing and access to mental health care, through a national survey and cost-analysis. She contributes to the burgeoning economic research on mental health systems by employing a mixed-methods approach, generating the evidence required to build the case for improved investment for mental health care, as part of universal health coverage. Through this lens, based on a qualitative study including key stakeholder consultations, and synthesising the experiences of other low- and middle-income countries, through a systematic review, her thesis develops recommendations for key priorities for health service and financing reforms towards the scaled-up delivery of mental health services in South Africa.

*Supervisor:* Professor C Lund (Psychiatry and Mental Health)

*Co-supervisor:* A/Professor S Cleary (Public Health and Family Medicine)

du Toit, Francesca

Thesis Title: *An investigation into variations in the venous drainage pattern in brains of adolescents and adults*

Francesca du Toit holds an MSc(Med) in Anatomy from UCT. She completed her undergraduate and honours degrees at the Stellenbosch University and University of the Free State respectively. Francesca currently works for a clinical research organisation specialising in clinical trials.

Francesca du Toit's thesis focuses on blood drainage patterns and variations of these patterns in the human brain. Furthermore, she investigated the persistence of embryological drainage patterns into adulthood and the clinical implications of drainage variations on surgical interventions. She compiled a complete list of different drainage patterns seen in a South African population. She also compiled three dimensional models of certain blood

vessels in the brain and used them in describing anatomical variations within the sample population. For the study magnetic resonance images from two different academic hospitals in Cape Town were manually reviewed and statistically analysed. The study included magnetic resonance images from 302 individuals. It is also the first study to establish a protocol to visualise blood volume to determine cerebral dominance and describe variations of the dural venous sinuses.

*Supervisor:* Emeritus Professor G Louw (Human Biology)

Elsheikh, Samar Salah  
Mohamedahmed

*Thesis Title: Integration of multi-omic data and neuroimaging characteristics in studying brain related diseases*

Samar Elsheikh holds a BSc and MSc degree in Statistics, and then completed a Masters degree at the African Institute for Mathematical Sciences in Ghana. She joined the Faculty of Health Sciences at the University of Cape Town in 2015 for her PhD studies.

Samar Elsheikh's thesis integrates a range of neuroimaging characteristics and multi-omic data to understand their associations in the context of brain-related diseases. Her thesis uses various association study designs and analysis pipelines in imaging genetics and radiogenomics applied to Cancer and Alzheimer's datasets. A genome wide association of the longitudinal global brain connectivity was performed with a longitudinal association analysis of targeted gene expressions with local and global network-based connectivity metrics to study clinical dementia score changes and the relationship with the changes in local and global connectivity. The project developed a robust and unbiased imaging genetics model using the idea of the structural equation model, which integrates brain imaging, multi-omic and clinical features, and applies this method to an Alzheimer's dataset. Overall, the findings provide an understanding of the complex relationships between genetics and neuroimaging in the context of brain

diseases, which can be utilised in therapeutic improvements and disease diagnosis.

*Supervisor:* Professor N Mulder (Integrative Biomedical Sciences)

*Co-supervisors:* Dr E Chimusa (Pathology); Dr A Crimi (University Hospital Zürich, Institute of Neuropathology)

Farley, Elise Sarah

*Thesis Title: Noma in northwest Nigeria: a neglected disease in neglected populations*

Elise Farley holds a BA and honours degree from Rhodes University. She worked in the non-profit sector for 10 years before studying for an MPH at UCT. She began her PhD in Public Health Medicine while continuing working in the non-profit sector.

Elise Farley's thesis examined the biopsychosocial features, epidemiology and surgical treatment of noma, a neglected rapidly progressing necrotising orofacial disease, in northwest Nigeria. The prevalence study found many simple gingivitis cases indicating a substantial population at risk of progressing to the later stages of disease. Risk factors associated with noma included social conditions and childhood feeding practices. Following their last surgical intervention, noma patients did report improvements in their quality of life, but continued to face functional challenges. She found that the language used to describe noma and the beliefs about its causes impacted on healthcare choices. Traditional healers could play a crucial role in the early detection of noma and the health seeking decision-making process of patients. The combined findings of this thesis highlight the neglected nature of noma and make a strong case for placing noma on the World Health Organisation Neglected Tropical Diseases list.

*Supervisor:* Dr U Mehta (Public Health and Family Medicine)

*Co-supervisors:* A/Professor M-A Davies (Public Health and Family Medicine) Ms A Lenglet (Médecins Sans Frontières)

Fok, Ezio Tony

*Thesis Title: Uncovering the hidden mechanisms governing the transcriptional regulation of inflammation*

Ezio Fok holds a BSc and MSc in cell and molecular biology from the University of the Witwatersrand. He joined the Faculty of Health Sciences at the University of Cape Town in 2016 for his PhD studies.

Ezio Fok's thesis investigates the functional role of the non-coding genome in regulating inflammation. Key findings in his thesis implicate 3D nuclear architecture and previously uncharacterised long non-coding RNAs in the activation and progression of the inflammatory response. In particular, Ezio Fok has uncovered a novel biphasic genetic circuit that coordinates the two functionally opposed states of inflammation: pro-inflammation to anti-inflammation. These findings deepen our current understanding of the molecular mechanisms that govern innate immunity and illuminate potential drug targets for novel therapies.

*Supervisor:* Professor M Mhlanga (Medicine)

*Co-supervisor:* Dr S Fanucchi (Integrative Biomedical Sciences)

Fortuin-De Smidt, Melony Cathlin

*Thesis Title: The effect of an exercise intervention on insulin sensitivity, insulin secretion and insulin clearance in black obese South African women*

Melony Fortuin-de Smidt holds a MBChB and MSc in Epidemiology and Biostatistics degree from the Universities of Stellenbosch and the Witwatersrand, respectively. Prior to starting her PhD in Physiology at UCT in 2016, she worked in public health, pharmacovigilance and clinical trials.

Melony Fortuin-de Smidt's thesis focuses on the mechanisms of insulin resistance and pancreatic beta-cell function prior to type 2 diabetes onset in obese, black South African premenopausal women, who characteristically presents with insulin resistance and

hyperinsulinemia. Paradoxically, they exhibit lower visceral, hepatic and pancreatic fat accumulation. This thesis showed that peripheral insulin clearance is an important determinant of beta-cell function, and that visceral adiposity, through its association with insulin secretion and hepatic insulin clearance, is the strongest determinant of lower beta-cell function in this cohort. Another important finding is that exercise training increases insulin sensitivity and beta-cell function, despite minimal weight loss. Notably, hyperinsulinemia remains unchanged, suggesting that hyperinsulinemia may not only occur as a compensatory mechanism for low insulin sensitivity. Visceral adipose tissue and ectopic fat are unaltered after exercise training and are not important determinants of the changes in insulin sensitivity and beta-cell function in this cohort.

*Supervisor:* Professor J Goedecke (Human Biology)  
*Co-supervisor:* Dr A Mendham (Human Biology)

Gcanga, Lona Na

*Thesis Title:* *IL-4/IL-13-inducible lincRNA-MIR99AHG regulates macrophage polarization and promotes intracellular survival of Mycobacterium tuberculosis*

Lona Gcanga holds a BSc, BSc Hons and an MSc in Biological Science from the University of KwaZulu-Natal. She started her PhD studies in 2016 at UCT, funded by the NRF scholarship for Innovation and Scarce skills.

Lona Gcanga's thesis concentrates on the bioinformatics analysis of large transcriptomics data on murine macrophages infected with a clinical strain of *Mycobacterium tuberculosis*. The in-depth analysis reveals many coding and non-coding RNA transcripts which might have a potential role in host responses and immune evasion mechanisms against the pathogen. She shows that one of the identified lincRNAs, lincRNA-MIR99AHG, is upregulated by IL-4/IL-13 and downregulated by Mtb infection in macrophages. Knockdown of lincRNA-MIR99AHG in mouse and human macrophages resulted in reduced intracellular Mtb growth and

inflammatory responses. She further shows that knockdown of lincRNA-MIR99AHG in Mtb-infected mice results in reduced mycobacterial load in the lungs and spleen with decreased immunopathology compared to the control group. These findings provide novel functions of lincRNA-MIR99AHG in tuberculosis pathogenesis and paves the way for future studies as a potential host-directed therapy for tuberculosis.

*Supervisor:* A/Professor R Guler (Pathology)  
*Co-supervisors:* Professor F Brombacher and A/Professor O Tamgue (Pathology)

Greeff, Marlie

*Thesis Title:* *The morphology of the intraparietal sulcus in children prenatally exposed to alcohol in a sample of children from the Western Cape, South Africa and its potential relationship with number processing*

Marlie Greeff holds a BSc from the North-West University. She joined UCT to complete her postgraduate studies and began full time study towards her PhD in 2016.

Marlie Greeff's thesis describes a way of manually tracing the intraparietal sulcus in the brain from which volumetric measurements can be calculated in children prenatally exposed to alcohol. Prenatal alcohol exposure is common in the Western Cape and children with prenatal alcohol exposure suffer intellectual deficits, particularly in arithmetic. The intraparietal sulcus is a region in the parietal lobe of the brain which is activated when numbers are processed. This thesis aimed to establish if particular parts of the intraparietal sulcus are smaller in prenatal alcohol exposure children and which areas are functioning differently. The findings suggest the cortex of the intraparietal sulcus is sensitive to prenatal alcohol exposure and that the neuronal function may provide the reason for decreased abilities in number processing. This study adds to research on this preventable problem and that children with prenatal alcohol exposure may be better understood.

*Supervisor:* Dr. CMR Warton (Human Biology)  
*Co-supervisors:* Professor EM Meintjes and Dr FL Warton (Human Biology)

Hendricks, Gaironeesa

*Thesis Title:* *Prenatal alcohol exposure and the early neurodevelopmental outcomes of children in a South African birth cohort study*

Gaironeesa Hendricks holds an MA in Psychology from the University of the Western Cape. She joined the Department of Psychiatry and Mental Health at UCT in 2016 for her PhD studies.

Gaironeesa Hendricks' thesis focuses on the impact of maternal alcohol consumption in the prenatal period on the early neurodevelopmental outcomes amongst very young children situated in two poor communities in South Africa. She used data from the Drakenstein Child Health Study and investigated the effects of prenatal alcohol consumption on motor, language, and cognitive functioning in children at 6, 24 and 42 months of age in the same cohort. She further compares the conversational interaction of alcohol-using mothers and their exposed children to those in unexposed groups. She found that prenatal alcohol consumption impacts early motor development at 6 months, and that the interaction of alcohol and smoking appears to exacerbate this impact through 24 months of age. Prenatal alcohol consumption was also demonstrated to have an impact on mother-child conversational interactions. Final recommendations include that contextual factors (smoking, socioeconomic disadvantage) continue to put these vulnerable children at risk in addition to prenatal alcohol exposure and that they be supported into school years and beyond.

*Supervisor:* Professor K Donald (Paediatrics and Child Health)  
*Co-supervisors:* A/Professor S Malcolm-Smith (Psychology); Professor D Stein (Psychiatry and Mental Health)

Henst, Rob Henricus Petrus

Thesis Title: *A sleep behaviour intervention to improve cardiometabolic health in adults with overweight and obesity*

Rob Henst joined UCT in 2012 for a research internship while studying towards his BSc in Life Science at the HAN University in the Netherlands. He registered with UCT for a MSc in Exercise Science in 2013, and for his PhD in Physiology in 2015.

Rob Henst's thesis tests a sleep improvement intervention and its ability to improve cardiometabolic health in overweight/obese adults. His systematic literature review finds that sleep extension interventions may improve insulin sensitivity and reduce appetite and dietary intake. He compares the sleep characteristics of lean, overweight and obese individuals, and finds that individuals with class II obesity have more fragmented, shorter, lighter (i.e. less NREM3) sleep than lean and overweight/obese class I individuals. He shows that participation in an exercise and diet lifestyle programme does not alter the sleep of overweight and obese individuals. Finally, he shows that an 8-week sleep behaviour intervention (nested within a lifestyle programme) shifts sleep timing (earlier get-up times and midpoints of sleep), improves glycaemic control (measured with HbA1c) and increases resting metabolic rate in overweight and obese individuals. He concludes by providing a framework for implementation of future sleep behaviour interventions.

*Supervisor:* Dr D Rae (Human Biology)

*Co-supervisor:* Dr LC Roden (Life Sciences, Coventry University)

Humuza, James

Thesis Title: *Towards sustainability: examination of the implementation and cost of community performance-based financing, and critical assessment of fiscal space for health in Rwanda*

James Humuza holds a degree in medicine from the National University of Rwanda and a master's degree from Brandies University, USA. He started his PhD in the Health

Economics Unit at UCT in 2013. He currently lectures in the Department for Health Policy, Economics and Management, National University of Rwanda.

James Humuza's thesis looks at the community performance-based financing system in Rwanda. The community performance-based financing provides incentives to community health worker cooperatives based on the performance of community health workers. The study examines how the program has been implemented, how much the government has spent running the program, and how government fiscal policy affects the mobilization of domestic resources to run the community performance-based financing program in the health system. In recent times, a number of African countries have introduced community performance-based financing into their health systems as means to increase utilisation of healthcare services by local communities. This study provides useful insights and viable policy options for the detailed design of similar programmes and mobilisation of resources to maintain similar programmes in comparable settings.

*Supervisor:* A/Professor Ayako Honda (Public Health and Family Medicine)

*Co-supervisor:* Emeritus Professor D McIntyre (Public Health and Family Medicine)

Jordaan, Sandra

Thesis Title: *Novel angiogenin mutants as lead enzymes in targeted human cytolytic fusion proteins for the treatment of triple negative breast cancer*

Sandra Jordaan holds a BSc and MSc degree from the University of Stellenbosch. She spent several years as a technician at a cancer research laboratory at UCT and began full-time study towards her PhD with the Medical Biotechnology and Immunotherapy Research Unit at UCT in 2016.

Sandra Jordaan's thesis reports the development of targeted recombinant human cytolytic fusion proteins (hCFPs), based on improved mutants of the human

ribonuclease enzyme angiogenin, as highly selective anti-cancer therapeutics developed in collaboration with computational simulation scientists at Forschungszentrum Jülich in Germany. These next generation hCFPs, tested for their efficacy as lead enzymes in hCFPs designed to target the tumor-associated biomarker chondroitin-sulphate proteoglycan 4 (CSPG4). She managed to demonstrate both tumor-specificity and improved biological activity of these angiogenin mutants as ribotoxic agents in CSPG4-positive tumour cell lines. Her work validates the efficacy of angiogenin-based hCFPs for the suppression of solid tumors and confirms the best-performing angiogenin mutant as a new state-of-the-art human ribonuclease for targeted anti-cancer immunotherapy.

*Supervisor:* Professor S Barth (Integrative Biomedical Sciences)  
*Co-supervisor:* Dr S Chetty (Integrative Biomedical Sciences)

Kamdem, Donald Severin

Thesis Title: *Identification of regulatory factors of liver fibrosis in schistosomiasis-diseased children in Cameroon*

Donald Kamdem holds a BSc in Biochemistry from the University of Yaoundé 1, Cameroon and a MSc degree in Medical Immunology from the School of Health Sciences of the Catholic University of Central Africa. He joined the Division of Immunology at the University of Cape Town in 2018 for his PhD studies.

Donald Kamdem's thesis focuses on the control of schistosomiasis and associated liver fibrosis. His work first describes the social, environmental, geographical and behavioural bases of host susceptibility to schistosomiasis. He then builds a radiological referential to define the immunopathological liver lesions in children from a schistosomiasis-endemic area. He reveals a central role for host genetic factors in schistosomiasis-driven liver fibrosis and defines by literature mining and next generation

sequencing a novel and comprehensive atlas of these factors that primarily associates with inflammation. His findings provide novel tools of value in the control of schistosomiasis i.e. i- WASH-specific requirements to sustainably control schistosomiasis infection and disease in persistent sites in rural Cameroon, ii) a potential biomarker of schistosomiasis infection, IL-33, iii) an ultrasonographical referential to assess liver fibrosis in Central Africa and iv) an atlas of host factors that could be potential targets for host-directed therapeutics against liver fibrosis.

*Supervisor:* Dr J Komgwap Nono (Pathology)  
*Co-supervisor:* Professor F Brombacher (Pathology)

Karisa, Moses Amani  
Thesis Title: *Understanding father involvement in the education of learners with intellectual disabilities in a special school in Kenya: a case study*

Moses Amani Karisa holds a bachelor's and a master's degree in special education from Kenyatta University, Kenya. He worked with NGOs implementing programmes on human rights, disability rights, gender and education in Kenya. He joined the Faculty of Health Sciences at UCT in 2017 for his PhD studies.

Moses Karisa's thesis focuses on father involvement in the education of learners with intellectual disabilities in a special school in Kenya. He established that the intersection between patriarchy and masculinity impacts on normative gender roles that influence father involvement in the education of disabled children in a dynamic context. It is also evident that the cost of disability is greater than that of non-disability and this impacts on how fathers are involved in the education of their disabled children. Additionally, fathers want the best for their disabled children but different views about the purpose of the special school influence their involvement in education. Furthermore, the meaning of disability influences father involvement in the education of disabled learners. He concluded that

father involvement in the education of disabled learners in this African setting is complex and presents itself in ways that are different from what formal-western-education expects.

*Supervisor:* A/Professor J McKenzie (Health and Rehabilitation Sciences)  
*Co-supervisor:* Dr T de Villiers (Health and Rehabilitation Sciences)

Kwobah, Edith Wanjiku  
Thesis Title: *Cardiovascular risk profile of adults with psychotic disorders in Eldoret, Kenya*

Edith Kwobah holds an MBChB and Master of Medicine in Psychiatry from the University of Nairobi, Kenya. She is a consultant psychiatrist at Moi teaching and referral hospital and undertook her PhD research in the setting of her outpatient clinic between 2016 and 2019.

Cardiovascular disorders are among the leading cause of death among patients with mental illness. While much has been published on risk for these disorders in psychosis in high income countries, less is known about low- and middle-income settings. This thesis therefore sought to investigate the risk of patients with psychosis in Eldoret Kenya developing cardiovascular disorders. Prevalence of a range of risk factors was determined in both patients with psychotic disorders and healthy controls. Socio-demographic and clinical associations of such risk factors were also determined. Findings indicate a high prevalence of both lifestyle risk factors such as smoking, poor diet and physical inactivity, as well as of relevant disorders such as hypertension and metabolic syndrome in Eldoret, Kenya. These findings are useful to inform the development of programs to improve outcomes by reducing these risk factors in Kenya and other low resource settings.

*Supervisor:* Professor DJ Stein (Psychiatry and Mental Health)  
*Co-supervisors:* Professor L Atwoli Moi University School of Medicine, Kenya; Dr N Koen ((Psychiatry and Mental Health)

Laing, Lizahn  
Thesis Title: *The characterization of pharmacokinetic properties and evaluation of in vitro drug combination efficacies of novel antimalarial compounds*

Lizahn Laing holds a BSc in Human Physiology and BSc(Hons) in Pharmacology degree from the University of Pretoria. She began her MSc(Med) at UCT in 2015 and upgraded her project to a PhD in 2017.

Lizahn Laing's thesis focuses on identifying and evaluating novel antimalarial combinations that are proposed to induce and maintain oxidative stress within the malaria parasite's proliferating environment, through a process known as redox cycling. She firstly selected compounds that showed potent activity against the blood stage of the malaria parasite. She determined the properties that would make them ideal compounds for further study through *in vitro* and *in vivo* pharmacokinetic testing. She found two favourable candidates to be tested in combination with an artemisinin derivative, artemisone. She further shows that when used in combination with artemisone, they significantly improve the antimalarial activity of artemisone, than when used alone. The findings described in Lizahn Laing's thesis supports further investigation of the combination of artemisinin derivatives with redox-active compounds as antimalarial therapy with the aim to delay the onset of resistance to new drugs.

*Supervisor:* A/Professor L Wiesner (Medicine)  
*Co-supervisors:* Dr L Gibbard (Medicine); Professor R Haynes (North-West University, Centre of Excellence for Pharmaceutical Sciences)

Lindemann, Jessica Danielle  
Thesis Title: *The surgical management and prevention of laparoscopic cholecystectomy associated bile duct injuries*

Jessica Lindemann holds a BS degree in Biology, Chemistry and Ethics from Millikin University, USA and an MD degree from the University of

Rochester School of Medicine. Before joining the Department of Surgery at UCT in 2017, she was a surgery resident at Washington University, USA.

Jessica Lindemann's thesis focuses on management and prevention of the uncommon, but potentially severe laparoscopic cholecystectomy (LC) associated bile duct injury (BDI) in South Africa. Utilising thirty years of data from a prospectively maintained database at a tertiary referral centre she determines the local incidence of BDI and describes how management has evolved. She then investigates context-specific factors that may influence patient outcome after repair of BDI, including geographic distance from referral centre, timing of referral and repair and healthcare sector in which patients receive treatment. Based on three decades of local experience, she proposes a treatment algorithm for resource constrained environments. To reduce the incidence of BDIs, she implemented a change of practice for LC across the Cape Metro West health district and established a LC database. Her intervention helped to identify areas of improvement and increased knowledge about appropriate steps to prevent BDI in LC.

*Supervisor:* Professor E Jonas (Surgery)

*Co-supervisors:* Emeritus Professor JEJ Krige (Surgery) and Professor S Strasberg (Washington University, Surgery)

Lourens, Andrit

Thesis Title: *Developing an in-depth understanding of acute pain assessment and management in the prehospital setting in the Western Cape, South Africa, the factors influencing practice and what improvement measures could advance prehospital acute pain management*

Andrit Lourens holds an NDip and a BTech in Emergency Medical Care from the Cape Peninsula University of Technology and an MSc in Clinical Epidemiology from Stellenbosch University. She began studying towards her PhD at UCT in 2016.

Pain is a significant global health problem which often goes unnoticed and is undermanaged. Acute pain is a common reason for seeking emergency care and prehospital pain research is an area with limited evidence. Andrit Lourens's thesis focuses on prehospital acute pain assessment and management in the Western Cape, South Africa. She identified and encapsulated the body of evidence on acute prehospital pain assessment and management in Africa. Further, she described the knowledge, attitudes and practices regarding prehospital acute pain assessment and management among emergency care providers. She also described current prehospital acute pain assessment and management practices in trauma patients in the Western Cape. She used qualitative research methods to explore and describe emergency care providers' perspectives of acute pain assessment and management as well as their perceived barriers and facilitators of pain care. These findings will be useful to focus future research and advance prehospital pain care.

*Supervisor:* A/Professor P Hodkinson (Surgery)

*Co-supervisor:* A/Professor R Parker (Health and Rehabilitation Sciences)

Lubega, Samuelsaul Kiwanuka

Thesis Title: *Best medical care practices in sport: investigating the barriers to the implementation in the developing countries. Uganda as a case study*

Samuel Lubega holds an honours and MSc in physiotherapy from the University of the Western Cape. He worked as a physiotherapist treating athletes in Uganda before starting his PhD in the Division of Exercise Science and Sports Medicine at UCT in 2013.

Samuel Lubega's thesis reports on the barriers to providing best medical care services in sports in a developing country, using Uganda as an example. He started by investigating the athletes' injury management by sports health care providers. He also measured the knowledge of sports resource

providers in managing exercise-induced injuries. He conducted an audit of best practice principles in sports and health facilities. Lastly, he examined the national sports policy. He showed a lack of compliance to best medical care practices in all the phases of athletes' health care. The barriers to best practice were confirmed as: (i) the lack of adequate knowledge and awareness on various best practice strategies, (ii) the sports and health facilities were below the required standards, and (iii) there were no national sports health care policies to support and facilitate the implementation of best practices in Uganda.

*Supervisor:* Professor MI Lambert (Human Biology)

Magagula, Loretta Qinisile

Thesis Title: *The chromatin landscape of cancer cells*

Loretta Magagula holds a BSc degree from the University of Witwatersrand, a BSc(Hons) degree from the University of Pretoria, and an MSc from UCT. She began full-time study towards her PhD at the end of 2016.

Loretta Magagula's thesis focuses on the development of a bioinformatic pipeline to analyze the differential binding of a key chromatin organisation and insulation protein, CTCF, onto chromatin in colorectal cancer. The developed pipeline integrated open-source bioinformatic tools to identify differential CTCF binding alterations in the chromatin landscape that influence local chromatin organisation and transcriptional activity using publicly available genomic datasets. The integration of this pipeline with data from various genomic and epigenomic databases revealed a subset of genomic loci with unique and specific epigenetic signatures associated with reductions in the enrichment of the CTCF protein in colorectal cancer compared to wild-type colonic cells. These non-coding genomic loci will be useful in the diagnosis of colorectal cancer as well as the development of targeted therapeutic interventions.

*Supervisor:* Professor M Mhlanga (Medicine)  
*Co-supervisor:* Professor JA Skok (NYU Langone Medical Center, Pathology)

Makatsa, Mohau Steven

Thesis Title: *Characterization of Mycobacterium tuberculosis-specific Th22 cells in HIV-TB co-infection*

Mohau Makatsa holds a BSc and B.Med.Sc (Hons) degree in Medical Microbiology and an MSc in Biotechnology from the University of the Free State. He had a DST-NRF internship at UCT, and in 2016 started his PhD in the Division of Medical Virology.

Tuberculosis (TB) is the infectious disease that causes the greatest mortality worldwide. There is an urgent need for an effective TB vaccine. Mohau Makatsa's thesis focusses on the contribution of a specific CD4 T helper (Th) subset to TB immunity, namely Th22 cells, producing the cytokine IL-22. He provides a detailed characterisation of *Mycobacterium tuberculosis* (Mtb)-specific Th22 cells in latent TB infection and TB disease and investigates the impact of HIV co-infection on these immune responses. He reports abundant TB-specific Th22 responses in latent TB and demonstrates that Th22 responses are depleted during TB and HIV co-infection. He further describes specific characteristics of the biology of Th22 cells enabling their detection in immune assays. This thesis provides novel insights into TB immunity during Mtb infection and disease, as well as HIV co-infection.

*Supervisor:* A/Professor WA Burgers (Pathology)  
*Co-supervisor:* Dr C Riou (Pathology)

Manhanzva, Monalisa Tatenda

Thesis Title: *Characterisation of the HIV inhibitory activity of vaginal lactobacilli isolates from young South African women at high risk of HIV acquisition*

Monalisa Manhanzva holds a BSc(Hons) in Medical Laboratory

Sciences and MPhil in Virology from the University of Zimbabwe. She started full-time study towards her PhD at UCT in 2016.

Monalisa Manhanzva's thesis reports on the biotherapeutic-relevant, immunomodulatory and HIV inhibitory characteristics of 103 vaginal *Lactobacillus* isolates obtained from South African women. She shows that the protective and immunomodulatory characteristics of these *Lactobacillus* isolates are highly strain-specific and differ between isolates obtained from women with non-optimal compared to those obtained from women with optimal vaginal microbiota. She also compares the biotherapeutic-relevant characteristics of the vaginal lactobacilli to probiotics obtained on the South African market, finding that several of the novel isolates performed better than commercial probiotics. Her work further shows that 16 of the *Lactobacillus* isolates were suppressive of HIV infectivity *in vitro*. Finally, by measuring metabolite production, determining interactions with vaginal epithelial cells and characterising the protein profiles of the vaginal lactobacilli, her research provides a better understanding of the mechanisms underlying their immunomodulatory properties.

*Supervisor:* Dr L Masson (Pathology)

*Co-supervisors:* A/Professor J-A Passmore (Pathology), Dr Z Woodman (Integrative Biomedical Sciences)

Matter, Rebecca Ann

Thesis Title: *What works to increase access to assistive technology in southern Africa*

Rebecca Matter holds an MA in Public Policy from the University of Minnesota. She worked in the field of disability rights at the University of Washington for 10 years. In 2014 she started her doctoral program in the School of Public Health and Family Medicine at UCT.

Rebecca Matter's thesis focuses on access to assistive technology in Southern Africa. Organised into three sub-studies, her research aimed to identify and

describe the facilitators and barriers to assistive technology access and inform strategies to increase assistive technology access. Quantitative and qualitative methods were applied to gather and synthesise data about the regional assistive technology sector. This generated a series of conceptual models to explain how and why assistive technology is unavailable, unaffordable and often inappropriate. She then developed strategic levers derived from the data that could serve to increase resources invested in the assistive technology sector while reducing system-wide inefficiencies.

*Supervisor:* Professor CJ Colvin (Public Health and Family Medicine)  
*Co-supervisor:* Professor AH Eide (SINTEF, Global Health and Welfare)

Mhandire, Doreen Zvipo

Thesis Title: *Role of antiretroviral therapy exposure host genetics on cytomegalovirus infection status and association with gut microbiome profiles among pregnant black African women*

Doreen Mhandire holds a Bachelor of Medical Laboratory Sciences (Hons) and an MSc from the University of Zimbabwe. In 2016 she began full-time study towards her PhD in the Division of Human Genetics at UCT.

Doreen Mhandire's thesis reports on the prevalence of antenatal cytomegalovirus (CMV) infection in a cohort of Zimbabwean pregnant women. Her research investigated factors that are associated with differential susceptibility to antenatal CMV infection in an HIV affected population. She reports on the significance of host genetic variation and variability in antiretroviral therapy exposure on the observed differential outcomes in CMV exposure. In addition, she reports on the possible effects of CMV infection and host genetics on shaping gut bacterial profiles of pregnant women. Gut bacterial profiles affect the health of the developing foetus. Doreen Mhandire's study suggests possible roles for host genetic targeting, better management of antiretroviral therapy and of probiotics in attenuating CMV related health consequences, through



development of interventions including effective CMV vaccine.

*Supervisor:* Professor C Dandara (Pathology)  
*Co-supervisor:* Dr M Kaba (Pathology)

Minnies, Deon

*Thesis Title: The graduates of the Postgraduate Diploma in Community Eye Health: how do they manage?*

Deon Minnies completed the Master of Public Health degree at UCT while being the Operational Manager of the SA Tuberculosis Vaccine Initiative. He left in 2006 to become the Director of the Bureau for Prevention of Blindness and returned in 2009 to lead the activities of the Community Eye Health Institute.

Deon Minnies' thesis focuses on the factors that enabled and constrained the graduates to apply the management competencies acquired through the Postgraduate Diploma in Community Eye Health (PgDCEH) in practice in African countries. The research shed new light on how PgDCEH graduates interact with their work environment and uncovered ways to improve management training for eye health workers in the future. It also helped to explain how a health system strengthening intervention like the PgDCEH struggled to result in improved eye care programme performance. The utilisation of the project management approach, a greater focus on maintenance of health processes and health care workers' personal motivations are important drivers of performance and achievement on programme level. His work shows that the constituent elements of the health system are not inanimate objects, as commonly portrayed, but people, who are connected in intimate, complex and multi-dimensional ways to deliver the desired health outcomes.

*Supervisor:* Professor S Reid (Public Health and Family Medicine)  
*Co-supervisors:* Emeritus Professor C Cook (Surgery); Dr N Hartman (Health Sciences Education)

Mnika, Khuthala

*Thesis Title: Pharmacogenomics of sickle cell disease therapeutics: pain and drug metabolism associated gene variants and hydroxyurea-induced post-transcriptional expression of miRNAs*

Khuthala Mnika holds a BSc Honours degree in Genetics from the University of the Free State (2013). She joined the Human Genetics division at UCT in 2015 as an intern. She began full time study towards her MSc in 2016 and upgraded to a PhD.

Khuthala Mnika's thesis focusses on clinical predictors of a vaso-occlusive painful crisis and the use of hospital services in a unique group of hydroxyurea and opioid naive participants living with sickle cell disease (SCD) in Africa. The study identifies specific variants in targeted pain-related genes, and 50 in pharmacogenes, associated with pain and health care utilization in sickle cell disease, and associations of pain crisis with established genetic modifiers of SCD, such as *HBA1/HBA2*, HbF-promoting loci and *APOLI*. Altogether, the results improve our ability to identify SCD patients who are at elevated risk for a painful crisis and will contribute to refining the elaboration of risk model for secondary preventions, that integrate both genetic and clinical information. In investigating the mechanisms of action of hydroxyurea, the study has identified novel HU-induced miRNA that specifically target HbF regulatory genes and are therefore strong candidates for post-transcriptional therapeutic exploration in SCD.

*Supervisor:* Professor A Wonkam (Pathology)

*Co-supervisors:* Professor C Dandara (Pathology); A/Professor E Chimusa (Pathology); Dr G Mazandu (Pathology); Dr Shaheen Mowla (Pathology)

Mthiyane, Thuli Carol Penelope

*Thesis Title: Diagnostic and therapeutic biomarker responses in HIV and tuberculosis co-infected patients*

Thuli Carol Penelope Mthiyane holds an MPH degree from Sefako

Makgatho Health Sciences University (2002) and works as a tuberculosis (TB) researcher at the South African Medical Research Council. Her research interests include the management of TB diagnostics, new drug development, and treatment monitoring.

Thuli Mthiyane's thesis focused on firstly investigating two biomarkers for monitoring treatment response in TB-HIV co-infected patients receiving combined therapy for both diseases. She showed that the interferon gamma release assay (QuantiFERON-TB Gold) assay cannot be used as a treatment monitoring tool as previously suggested. By contrast, a health-related quality of life tool added value to treatment monitoring if a short self-applied questionnaire was used. Second, she investigated the effect of NAT2 polymorphisms on the metabolism of the anti-TB drug (isoniazid) and found that although the patients were mostly slow and intermediate metabolisers, this did not lead to an increase in liver toxicity. Finally, she showed that the use of urine LAM as a TB diagnostic biomarker in sputum smear-negative and seriously-ill HIV-coinfected patients led to early TB treatment initiation, and reduced empiric antibiotic usage, thus promoting antibacterial stewardship. Collectively, this work has facilitated the improved diagnosis and management of TB, which remains the most sustained common cause of death in South Africa.

*Supervisor:* Professor K Dheda (Medicine)

*Co-supervisor:* Professor H McIlleron (Medicine)

Ndlovu, Andrew Khulekani

*Thesis Title: Molecular characterization of female breast cancers from Botswana*

Andrew Ndlovu holds an MSc Cellular Pathology from UWE, UK and a BSc Medical Science, from Curtin University, Australia. He is a lecturer and coordinator of BSc Cytotechnology and Histotechnology Sciences at the University of Botswana.

Andrew Ndlovu's thesis reports molecular classification of 125 female breast cancers from Botswana and their intrinsic characteristics that aggravates disparities in breast cancer care and treatment outcomes. He investigates molecular characteristics associated with breast cancer aggression and their association with 5-year overall survival. He also investigates genetic factors which aggravates breast cancer and the possibility of harnessing data from these molecular events for better stratification, prognostication and targeted therapy. He shows that female breast cancers from Botswana are highly heterogeneous. They are rich in stem cells and EMT markers. He also found a SNP rs1060915 associated with downregulated PR expression. The 5-year-overall survival across molecular subtypes was 44%. Tumour heterogeneity could be overcome by expanding the IHC diagnostic panel from 4 to 6.

*Supervisor:* Emeritus Professor D Govender (Pathology)  
*Co-supervisor:* A/Professor R Naidoo (Pathology)

Nono Nankam, Pamela Arielle  
Thesis Title: *Depot differences in adipose tissue metabolism and function in obese black South African women and changes in response to an exercise training intervention.*

Pamela Nono Nankam holds a BSc and MSc in Animal Physiology from the University of Dschang in Cameroon. She started her PhD studies in August 2016 within the Department of Human Biology at UCT.

Pamela Nono Nankam's thesis focuses on adaptations in gluteal and abdominal subcutaneous adipose tissue (SAT) metabolism and function and the associated improvements in metabolic status in response to moderate-to-high intensity exercise training in obese black South African (SA) women. She reports changes in circulating fatty acid profiles in response to exercise training that was associated with lower systemic inflammation and liver fat. Further, she found

depot-specific changes in the SAT inflammatory profile that were associated with a reduction of gynoid fat. These findings highlight the "flexibility" of gluteal SAT, which provides lipid storage space to limit excess lipids being distributed centrally and to ectopic depots, thereby indirectly contributing to a reduction in metabolic risk in obese black SA women. Finally, she showed divergent depot-specific transcriptomic profiles in response to exercise training, highlighting the functional differences between SAT depots following an external stimulus and explaining their differential effects on metabolic health status.

*Supervisor:* Professor J Goedecke (Human Biology)  
*Co-supervisor:* Dr A Mendham (Human Biology)

Nwosu, Chukwubikem Emmanuel  
Thesis Title: *Brain morphometry of HIV-infected children on early antiretroviral therapy (ART) from age 5 to 9 years*

Chukwubikem Nwosu holds a BTech in Biomedical Technology from the Federal University of Technology Owerri, Nigeria, and an MSc(Med) in Biomedical Engineering from UCT. He began full-time study towards his PhD in 2016.

Chukwubikem Nwosu's thesis first examines the validation of a software tool for automated subcortical brain segmentation and cortical reconstruction from MRI images in children living with HIV. It further investigates cortical measures implicated in pediatric HIV infection, specifically cortical thickness and gyrification, during a critical period of brain development (5-9 years) using both cross-sectional and longitudinal analysis. The effects of early antiretroviral therapy (ART) initiation, ART interruption, disease severity at ART initiation and HIV-related encephalopathy on brain development are investigated. Emmanuel Nwosu's thesis shows that in perinatally HIV infected children on early ART, although ART interruption and disease severity before initiation affect cortical morphometry at age 5 years, the

longitudinal developmental trajectory of cortical thickness and gyrification until age 9 is not different from that of HIV-negative children. This provides further evidence of the benefits of early ART on neurodevelopment in HIV-positive South African children.

*Supervisor:* Dr F Robertson (Human Biology)  
*Co-supervisor:* Professor E Meintjes (Human Biology)

Olagbuji, Biodun Nelson  
Thesis Title: *Meeting the contraceptive needs of HIV positive adolescent females living in urban townships in Western Cape, South Africa: perspectives of clients and primary health care providers*

Biodun Olagbuji holds a MBBS and MPH degree from the University of Benin, Nigeria, and Johns Hopkins University, United States, and began full-time study towards his PhD in 2014.

Biodun Olagbuji's thesis focuses on contraception among female adolescents living with HIV (ALHIV) in Western Cape, South Africa. He uses a mixed-methods study including an exit survey of female ALHIV (N=303) and in-depth interviews with health care providers. He reports multilevel influences on female ALHIV's contraceptive behaviours and related outcomes. He extends his analysis to explore the link between the mode of HIV acquisition and contraceptive-related outcomes and preferences, finding that peri/postnatally infected ALHIV are more likely to report unintended pregnancy and preference for receiving contraceptive services at stand-alone youth clinics providing HIV services. Also, he finds that perceived HIV-specific hormonal contraceptive-related safety concerns does not significantly influence contraceptive method use among female ALHIV. Finally, his findings show that stand-alone youth clinics are no better than a general primary health care clinic providing adolescent-friendly services in achieving ALHIV's client contraception-related outcomes. These results provide support for

socioecological-based approaches to female ALHIV's contraception.

*Supervisor:* Professor J Moodley (Public Health and Family Medicine)  
*Co-supervisor:* Professor C Mathews (Public Health and Family Medicine); Professor D Cooper (Public Health and Family Medicine)

Olayanju, Olatunde Ayodeji

*Thesis Title: Efficacy and safety of novel and repurposed drugs for the treatment of drug-resistant tuberculosis*

Olatunde Olayanju holds a MBBS (Medicine and Surgery) and MSc degree from the University of Ibadan, Nigeria. He was a Senior Registrar at the University College Hospital Ibadan, Nigeria before joining the Centre for Lung Infection and Immunity, Department of Medicine, UCT in 2016 for his PhD.

Olatunde Olayanju's thesis focuses on the efficacy and safety of new and repurposed drugs for the treatment of multiple drug resistant tuberculosis patients in Cape Town. In this study, drug resistant tuberculosis patients who were started on bedaquiline, linezolid and delamanid were followed up for at least 24 months. At the end of the study, these patients had reduced death rate, reduced treatment failure rate and a substantially improved cure rate compared to patients who did not receive these drugs. In patients who are HIV co-infected, these drugs were well tolerated, and their treatment outcomes were also substantially better. These findings have been published and have informed changes in treatment guideline of drug resistant tuberculosis in South Africa and globally.

*Supervisor:* Professor K Dheda (Medicine)  
*Co-supervisor:* Dr A Esmail (Medicine)

Omar, Rehana

*Thesis Title: Identification of molecular mechanisms regulating the tumour suppressor role of TBX3 in fibrosarcoma*

Rehana Omar holds a BSc in Parasitology and Entomology from the University of Zambia and an MSc in Molecular Biology from the University of Queensland. She registered for a PhD in 2015 under the supervision of Professor Prince in Medical Cell Biology at UCT.

Rehana Omar's thesis focuses on identifying and characterising the mechanisms that regulate the novel tumour suppressor role of the T-box transcription factor, TBX3 in fibrosarcoma. Her research confirms that TBX3 inhibits fibrosarcoma cell proliferation and migration. Importantly, she identifies the PI3K/AKT signalling pathway as a key upstream activator of TBX3 protein levels and fully characterises COL1A2 and fibronectin as direct TBX3 target genes that mediate its anti-migratory role in fibrosarcoma. This raises important implications regarding the use of AKT inhibitors to treat fibrosarcoma. Finally, she employs mass spectrometry to identify TBX3 interacting partners that may contribute to the tumour suppressor role for TBX3 in fibrosarcoma.

*Supervisor:* Professor S Prince (Human Biology)

Phuti, Angel

*Thesis Title: Health related quality of life, perceptions and experiences of female patients with systemic lupus erythematosus in South Africa: exploring unmet needs using a mixed methods approach*

Angel Phuti is a nursing sister and midwife with 10 years of experience as a researcher. She recently worked for paediatric and adult Systemic Lupus Erythematosus (SLE) registries at UCT. She holds Baccalaureus Curationis, Honours in Advanced Midwifery and Neonatology and Master of Nursing degrees.

Angel Phuti's thesis focuses on health-related quality of life, perceptions and experiences of female

patients with Systemic Lupus Erythematosus. She reviewed studies of SLE patients in developing countries, and used a mixed methods qualitative and quantitative study of lived experiences of 25 South African women with SLE, collating individual in-depth interviews with patient reported outcomes. The review highlighted the association between poverty and poor SLE outcomes, and the urgent need for more quality of life studies from developing countries. The major themes from the interviews were fatigue, pain, impaired functioning, depression, difficulties with conception and pregnancy, aesthetic concerns and sexuality issues. This study underscores the complex, chronic and challenging life experiences, often exacerbated by poverty, of South African women with SLE, and offers strategies to improve the negative outcomes in SLE including holistic consultations with healthcare workers, improved patient and public awareness of SLE, and stronger collaboration with psychosocial services.

*Supervisor:* Professor B Hodkinson (Medicine)

*Co-supervisor:* A/Professor M Schneider (Psychiatry and Mental Health)

Ramasamy, Vinasha

*Thesis Title: The tetrapeptide Ac-SDKP and angiotensin converting enzyme in tuberculous pericarditis and fibrosis*

Vinasha Ramasamy holds a BSc(Hons) in medical science from the University of Mauritius. She later joined UCT where she completed a BSc(Med)(Hons) in Medical Biochemistry, registered for her MSc and upgraded to a PhD.

Vinasha Ramasamy's thesis focuses on the study of the biological tetrapeptide acetyl-serine-aspartate-lysine-proline (Ac-SDKP), which prevents fibrosis. Her thesis investigates the dysregulation of Ac-SDKP in a form a tuberculosis affecting the pericardium (the sac which encloses the heart), which often results in a fibrosing condition. Vinasha compared levels of Ac-SDKP and the enzymes involved in its

metabolism between tuberculous pericardial fluid and controls. She also investigated the molecular mechanism of Ac-SDKP in a cell culture system and interrogated the antifibrotic potential of Ac-SDKP analogues and inhibitors of angiotensin converting enzyme, the enzyme that degrades Ac-SDKP. Her thesis identifies a deregulation of Ac-SDKP metabolism in the TB pericardial environment, outlined various proteins involved in the antifibrotic action of Ac-SDKP and demonstrated an antifibrotic effect for Ac-SDKP analogues and inhibitors. These findings pave the way for future testing of these compounds in the management of various fibrotic conditions, particularly in fibrosing tuberculous pericarditis.

*Supervisor:* Professor E Sturrock (Integrative Biomedical Sciences)  
*Co-supervisor:* Professor M Ntsekhe (Medicine)

Rogers, Christine Jane  
Thesis Title: *The feasibility and potential effectiveness of a conventional and exergame intervention to alter balance-related outcomes including fall risk: a mixed methods study*

Christine Rogers holds an MSc in Audiology from UCT. She is a senior lecturer in Audiology at UCT and clinical lead of the Vestibular Service at Groote Schuur Hospital.

Christine Rogers' thesis explores falls in older adults and the impact of exercise-based interventions to improve balance and strength and reduce the risk of falls. She investigated a gold-standard intervention (Otago Exercise Programme) and a novel interactive video exergaming intervention using the Wii Fit™ compared with a no-intervention group. The framework was a feasibility study and used stringent randomised control trial methodology. Besides answering questions regarding the feasibility of a future large-scale trial in an emerging country setting, participants' experiences of the Wii Fit™ intervention were explored with qualitative focus groups. Results showed a substantial (37%) reduction in falls in the exercise groups over six

months; and that the exergame intervention was fun and has similar or better outcomes regarding physical measures than the gold standard intervention. Lessons learned from the study suggest further research is warranted and can potentially inform public health policy at a national and African level.

*Supervisor:* A/Professor D Shamley (Human Biology)  
*Co-supervisor:* Emeritus Professor S Amosun (Health and Rehabilitation Sciences)

Rotich, Everlyne Chepkemoi  
Thesis Title: *Development of woman-centred midwife-led model of care through participatory methods for the Uasin Gishu County Hospital, Kenya*

Everlyne Rotich holds a BSc Nursing from the University of Eastern Africa Baraton (UEAB) (1997) and an MSc Nursing (Midwifery) from the University of Nairobi (2006). She has worked in nursing practice, administration, education, regulation and policy, and was recently appointed Minister of Health for Uasin Gishu County.

Everlyne Rotich's thesis applied the Appreciative Inquiry 4-D Cycle (discovery, dream, design and destiny) to develop the UPENDO-S woman-centred midwife-led model of care in Uasin Gishu County Hospital, Kenya. The theory for Human Scale Development guided aspects included in the model. Midwives, women and health service managers participated in the four phases of the study - identifying what works well at the facility and other maternity units, envisioning what best care would look like, and developing the model. The acronym UPENDO-S ("Upendo" meaning "love" in Swahili) represented the components of the model; User-friendliness, Person-focused care, Excellence in evidence-based care, Networking, Dedicated supported workforce, Organization of care and Supportive leadership. In the "destiny" phase strategies for implementation of the model were developed. The research process was emancipatory, and participants drew on best practices to inform the

model of care. The model will be used to provide woman-centred midwife-led care.

*Supervisor:* A/Professor M Coetzee (Paediatrics and Child Health)  
*Co-supervisor:* A/Professor S Clow (Health and Rehabilitation Sciences)

Sims, Danica Anne  
Thesis Title: *Factors influencing lecturer assessment practice in diverse southern contexts*

Danica Sims holds a BSc, BMedSc (Hons) and MScMed degree from the University of Cape Town. She began full-time study towards her PhD in 2017.

Danica Sim's thesis explores assessment practice of Health Professionals Education lecturers across diverse Southern sites. Using Health Behaviour Theory, a model of lecturer assessment practice was developed, describing how personal and contextual factors interact to drive assessment practice. A Phenomenographic methodology was used to explore lecturers' conceptions of assessment, which ranged from "Detached practitioner" to "Scholar". The findings from this study contribute to Southern theory and extend towards faculty training and continued professional development.

*Supervisor:* Professor F Cilliers (Health Sciences Education)

Sinkala, Musalula  
Thesis Title: *Leveraging big data resources and data integration in biology: applying computational systems analyses and machine learning to gain insights into the biology of cancers*

Musalula Sinkala holds a BSc in Biomedical Sciences and MSc in Chemical Pathology degree from the University of Zambia. He joined the Institute of Infectious Disease and Molecular Medicine at the University of Cape Town in 2016 for his PhD studies.

By mining several biological data repositories, Musalula Sinkala's thesis reveals the molecular disease subtypes of various cancers, reveals

proteins that might be targeted to treat particular cancer subtypes, and identifies sets of therapeutic molecules that could potentially be used to inhibit these target proteins. Further, he characterizes aberrations in multiple cell signalling and metabolic pathways that may be responsible for observed differences between the cancer types. The methodological advances made in this thesis will increase the accuracy with which drug targets can be identified and facilitate the development and deployment of more precise and personalised cancer therapies that will yield better clinical outcomes at a much lower cost than is currently achievable.

*Supervisor:* A/Professor DP Martin (Integrative Biomedical Sciences)  
*Co-supervisors:* Professor N Mulder (Integrative Biomedical Sciences); Professor S Barth (Integrative Biomedical Sciences)

Tomes, Hayley Sarah

*Thesis Title:* *Investigating neural responses in models of neurocysticercosis*

Hayley Tomes holds a BSc, BSc(Hons) and MSc(Med) degree from UCT. She started full-time study towards her PhD in the middle of 2014.

Hayley Tomes' thesis investigates the disorder of neurocysticercosis, the largest cause of acquired epilepsy in Africa, which is caused by tapeworm larvae infecting the brain. To do so she generates novel *in vitro* and *in vivo* rodent models of neurocysticercosis. Firstly, using patch-clamp electrophysiology she discovers that the homogenate of tapeworm larvae excites neurons and can trigger seizure-like events *in vitro*. This is because the larvae contain and generate glutamate. Secondly, she finds that longer-term exposure of brain slices to tapeworm larval homogenate does not change the intrinsic properties of neurons nor the excitability of neuronal networks. Thirdly, using a sophisticated *in vivo* rodent model where brain activity can be recorded and analysed continuously for 3 months, she finds that injection of the homogenate into

the brain does not cause seizures, but did cause some changes in glial cells. These findings are important for understanding disease mechanisms in neurocysticercosis.

*Supervisor:* Dr J Raimondo (Human Biology)

*Co-supervisor:* Emeritus Professor L Kellaway (Human Biology)

Trauernicht, Christoph Jan

*Thesis Title:* *Measured and calculated dose distributions in the "claws" – a specially designed gold applicator loaded with I-125 seeds*

Chris Trauernicht holds a BSc in Physics and Applied Mathematics, a BSc(Hons) in Theoretical Physics and an MSc in Medical Physics, all from UCT. He now heads the Medical Physics Division at Tygerberg Hospital.

Chris Trauernicht's thesis describes and formalises the "Claws" – a gold applicator that is loaded with radioactive Iodine-125 seeds for use in the treatment of retinoblastoma, a childhood cancer of the eye. Under general anaesthesia, a pericorneal ring is attached to the four extra-ocular muscles, and four legs, each loaded with I-125 seeds, are temporarily inserted beneath the conjunctiva in-between each pair of muscles and attached anteriorly to the ring. Monte Carlo simulations of the dose distribution in and around the eye have for the first time allowed the dose to critical structures, such as the bony orbit or the optic nerve, to be determined accurately. The clinical impact is improved patient outcome.

*Supervisor:* Professor ER Hering (Radiation Medicine)

*Co-supervisor:* Dr FCP du Plessis (University of the Free State, Medical Physics)

Van Diepen, Michiel Theodoor

*Thesis Title:* *Generation and characterization of HIV-1 subtype C candidate vaccines that will induce high titre antibody responses to HIV-1 envelope glycoprotein*

Michiel van Diepen holds a master's degree in neurobiology from the

University of Amsterdam. He held a research position at King's College London, and later supervised a small team at Novartis. He was recruited as a Chief Scientific Officer at UCT working on pre-clinical HIV-1 vaccines.

Developing an effective vaccine against HIV would be a large step towards the eradication of AIDS. Michiel van Diepen's thesis focuses on stimulating the immune system to produce antibodies against a South African HIV-1 envelope glycoprotein derived from a patient who developed broadly cross neutralising antibodies. To investigate if different vaccine platforms would result in better immune responses, DNA, recombinant MVA and protein vaccines were made and characterised. Subsequently, the immunogenicity of these different vaccines was tested in various combinations in rabbits. This led to the identification of one specific vaccine regimen which was particularly effective in stimulating extremely strong antibody responses in rabbits, especially when the HIV-1 Gag protein was included in the DNA and recombinant MVA vaccines. Efforts to improve the immunogenicity further by combining parts of the glycoproteins of HIV-1 and influenza were unsuccessful, emphasising the importance of well-folded HIV-1 Env glycoproteins for stimulating an effective immune response.

*Supervisor:* Professor A-L Williamson (Pathology)

*Co-supervisors:* Dr R Chapman (Pathology) and Professor E Rybicki (Molecular and Cell Biology)

Van Pinxteren, Myrna

*Thesis Title:* *Tracing 'paper', discovering people: three ethnographic case studies exploring the use of health information to improve health services in Gugulethu, Cape Town*

Myrna van Pinxteren holds a Bachelor's in Journalism from the University of Applied Sciences in Utrecht, and a Master's in Social Anthropology from UCT. She joined the School of Public Health for PhD studies in 2016.

Myrna van Pinxteren's thesis explores the demand for and use of health information to improve health services within Gugulethu, a peri-urban area in Cape Town. Health information forms an integral part of the larger health system and is crucial for informing new policies, guidelines and daily decision-making. Although there have been important innovations in the design and implementations of health information systems to improve access to high-quality information, little is known about the daily use of information in practice. Through three interconnected ethnographic case studies, this PhD research highlights the wide interest among both health and community stakeholders for health information. When information is not directly available, actors employ creative strategies to obtain the data needed. Findings stress the need to rethink health information systems and develop more inclusive information solutions that can be used effectively by a diverse group of health and community actors to strengthen the broader health system.

*Supervisor:* A/Professor C Colvin (Public Health and Family Medicine)  
*Co-supervisor:* Dr S Cooper (Public Health and Family Medicine and South African Medical Research Council)

Vava, Akhona

*Thesis Title: Characterising the mechanism of DCUN1D1 activity in prostate cancer and identifying DCUN1D1 inhibitors for prostate cancer treatment*

Akhona Vava holds a BSc in Biochemistry, a BSc Med (Hons): Medical Biochemistry and a MSc Med: Medical Biochemistry degree from UCT. She started her PhD in Chemical Biology in 2014.

Akhona Vava's thesis reports on the mechanism by which DCUN1D1 performs its role in prostate cancer using a mass spectrometry-based proteomics approach and western blot analysis. She also uses the Connectivity Map database to screen 1 million profiles for similarity to the signature of prostate cancer when DCUN1D1 is

expressed at very low levels. She found that it performs its activity by impacting processes called neddylation and ubiquitination by preferentially modifying the cullin family of proteins after protein translation. She also found that this implicated pathways involved with transcription, translation, metabolic processes and inflammation. Findings from the quantitative measurement of changes in the DCUN1D1 protein signature then identified that drugs involved in kinase inhibition and anti-inflammatory activities were among the drugs that strongly connected to the signature. These findings could lead to improved understanding of DCUN1D1 and its potential for molecular target-based treatment of prostate cancer.

*Supervisor:* Dr L Zerbin (Integrative Biomedical Sciences)

Watson, Daniel John

*Thesis Title: Screening of actinobacteria for novel antimalarial compounds*

Daniel Watson holds a BSc in Biochemistry and Microbiology and a BScMed Hons in Clinical Pharmacology from UCT. Daniel started his MScMed in 2016 and upgraded his project to a PhD at the end of 2017.

Daniel Watson's thesis focuses on evaluating the ability of a group of bacteria, known as the actinobacteria, to produce new antimalarial compounds. He starts by growing and, extracting strains of actinobacteria and testing them against the blood stage of the malaria parasite. He determines that a high number of actinobacteria can produce antimalarial compounds. He selects the most active actinobacterial strain and studies it further to identify the compounds it's producing. He isolates two groups of ion binding compounds known as ionophores. The first is a new group of plastic derivatives, which are weakly active against the malaria parasite. The second is a series of highly active cyclic peptides. He shows that when mixed together, the plastic derivatives improve the antimalarial activity of the cyclic peptides. His research supports further study of the

actinobacteria as sources of antimalarial compounds and the use of plastic derivatives in combination drug treatments.

*Supervisor:* A/Professor L Wiesner (Medicine)

*Co-supervisor:* Dr P Meyers (Molecular and Cell Biology)

Webster, Christopher Charles

*Thesis Title: Preliminary investigations for studying the effects of low carbohydrate high fat diets on gluconeogenesis in type 2 diabetes patients*

Christopher Webster holds a BSc undergraduate degree from the University of the Western Cape and a BSc(Hons) Biokinetics from UCT. He completed his MSc(Med) in 2015 and began full-time study towards his PhD that same year.

Christopher Webster's thesis focuses on the properties of low carbohydrate high fat diets which had been adopted by individuals with type 2 diabetes. He found that most study participants had experienced large improvements in health, including the complete reversal of type 2 diabetes in several cases. A key feature of the diet appeared to be an improved control of eating via reductions in cravings and appetite. He also advanced tracer methodologies for measuring liver glucose production to further study whether low carbohydrate high fat diets can reverse type 2 diabetes by better regulating liver glucose production.

*Supervisor:* Dr J Smith (Human Biology)

*Co-supervisor:* Emeritus Professor T Noakes (Human Biology)

Zinyemba, Cliff

*Thesis Title: Characterising the role of climate change in perpetuating Zimbabwean farmers' health risks from exposure to endocrine disrupting pesticides*

Cliff Zinyemba is a Health Geographer with an interdisciplinary educational background. He holds a BA Honours in Geography from the University of Zimbabwe and an MSc

in Human Ecology from the Vrije Universiteit Brussel. He joined the School of Public Health and Family Medicine in 2013 for his PhD studies.

Cliff Zinyemba's thesis focuses on how the relationship between climate change and endocrine (hormone) disrupting agricultural pesticides impact the health of smallholder farmers in Zimbabwe. Through in-depth interviews, he explores how Zimbabwean smallholder farmers' climate change adaptation strategies and practices impact their use of, and exposure to endocrine disrupting pesticides. His research shows how these farmers have changed their pesticide practices to adapt to the impact of climate change on pests and crops. He then identifies which of the pesticides commonly used by these farmers have a high potential of acting as endocrine disruptors. He attributes these pesticides with altering farmers' health, limiting their capacity to adapt to climate change and compromising their livelihoods. These findings are important for limiting sales of endocrine disrupting pesticides, as well as informing climate change adaptation strategies.

*Supervisor:* Professor H-A Rother (Public Health and Family Medicine)  
*Co-supervisor:* Professor E Archer (Geography, University of Pretoria)

#### MASTER OF MEDICAL SCIENCE IN GENETIC COUNSELLING

Diedericks, Angelique (with distinction in the dissertation)

#### MASTER OF MEDICAL SCIENCE IN NUTRITION

Lasker, Gabrielle Lana

#### MASTER OF MEDICINE

Ahmed-Rajie, Tasneem (with distinction in the dissertation)  
Arthur-Baiden, Emmanuel  
Barouni, Elyas Hassan  
Bezuidenhout, Carel Willem (with distinction in the dissertation)

Bhagaloo, Visham  
Bhim, Nazreen  
Boloko, Linda Patrick  
Chabilall, Joshna Amrith  
Chisha, Mike  
Cole, Justine (with distinction in the dissertation)  
Da Silva, Natercia (with distinction in the dissertation)  
De Jager, Simon Grant  
Dhar, Rohin (with distinction in the dissertation)  
Diango, Ken Ngoy  
Du Toit-De Wet, Linett (with distinction in the dissertation)  
Dudley, Meagan Taryn (with distinction in the dissertation)  
Fakroodeen, Adam Abdul Kader  
Frankenfeld, Petronella  
Gandhi, Karan  
Goncalves, Nicholas (with distinction in the dissertation)  
Govindasamy, Suveshni  
Hayes, Morgan Philip  
Huang, David  
Jordaan, Meandra  
Josephs, Tracey Lee  
Kriel, Magdalena  
Kruger, Andries Michiel  
Lelala, Ngoato Bruce  
Levin, Candyce  
Madlala, Siphelele  
Magampa, Ramanare Sibusiso (with distinction in the dissertation)  
Maughan, Deborah Frances  
Mayeza, Slindile  
Moller, Izelle (with distinction in the dissertation)  
Moodley, Sashmi (with distinction in the dissertation)  
Moore, Ryan (with distinction in the dissertation)  
Murugan, Ashley  
Muzenda, Vengesai  
Möller, Ernst Lodewicus  
Najjaar, Azzaam (with distinction in the dissertation)  
Nkgudi, Boitumelo  
Nyika, Dennias Tonderai (with distinction in the dissertation)  
Pillay, Kamlen  
Salukazana, Azola Samkele (with distinction in the dissertation)  
Schuster, Delia  
Scriba, Matthias Frank (with distinction in the dissertation)  
Singh, Nevadna (with distinction in the dissertation)

Sobamowo, Samuel Oluwafemi  
Sobamowo, Theophilus Oluwadayo  
Sogayise, Phelisa  
Sood, Vishesh  
Tadzimirwa, Gamuchirai Yeukai (with distinction in the dissertation)  
Thango, Nqobile Sindiswa  
Tootla, Hafsah Deepa  
Van Der Westhuizen, Dean Andre (with distinction in the dissertation)  
Van Der Westhuizen, Justine Lesley  
Vos, Andre Johann (with distinction in the dissertation)  
Vosloo, Ruan (with distinction in the dissertation)  
Welgemoed, Waldo (with distinction in the dissertation)  
Wever, Gideon Stephanus

#### MASTER OF PHILOSOPHY

Ahmed, Mohammed Awad Eltoun  
Bayouh, Fikirte Girma  
Buchner, Ane (with distinction)  
Coombs, Julieanne Marlene  
Dame, Joycelyn Akosua Assimeng (with distinction in the dissertation)  
Dannatt, Lisa Gwen  
De Waal, Pieter Johannes (with distinction in the dissertation)  
Gitau, Ryan Nyotu (with distinction)  
Govender, Nicole  
Haikney, Tarryn Elisabeth (with distinction in the coursework component)  
Hendricks, Adibah (with distinction)  
Jacobs, Yuche  
Kawiya, Harry Henry  
Kiggundu, Brian (with distinction in the dissertation)  
Kwarteng Owusu, Sandra Abena  
Labuschagne, Lizl  
Louw, Ané (with distinction)  
Luitel, Nagendra Prasad  
Malema, Smangele Benedictor  
Malomane, Rixongile  
Mampane, Lehlogonolo Jerome  
Mdazepa Nkhoma, Mwandida Matilda  
Natha, Khilona (with distinction)  
Nelson, Candice Megan (with distinction in the dissertation)

Ogunbosi, Babatunde Oluwatosin  
(with distinction in the  
dissertation)  
Omoyeni, Eunice Nkechi  
Oringe, Florence Nafula (with  
distinction in the dissertation)  
Palalane, Elisa Assis  
Procter, Claire Mary (with  
distinction in the dissertation)  
Raga, Sharika Vinod  
Saruchera, Emily Wendy  
Slamang, Waheba (with distinction  
in the dissertation)  
Vanmali, Akshay (with distinction)  
Viljoen, Rabia (with distinction in  
the dissertation)  
Wege, Martha Helena Martie  
Willoughby, Mark

#### MASTER OF PHILOSOPHY IN EMERGENCY MEDICINE

Botha, Johanna Catharina (with  
distinction in the dissertation)  
Burke, Jan Hendrik Jacobus  
Conradie, Nathan John  
Docrat, Nasreen  
Gage, Caleb Hanson (with  
distinction in the dissertation)  
Hedding, Kirsty Anne  
Mohamed, Zunaid  
Patel, Mohammed Aasfi Mohd  
Aslam  
Spicer, Richard Michael Frank  
Van Rensburg, Louis Chris

#### MASTER OF PHILOSOPHY IN HEALTH INNOVATION

Dikgomo, Kagiso (with distinction)

#### MASTER OF PUBLIC HEALTH

Albertus, Cleo Alyssa  
Armien, Rizqa (with distinction in  
the dissertation)  
Arua, Eke Nnanna (with distinction  
in the coursework component)  
Asmall, Taherah (with distinction in  
the dissertation)  
Chigwenah, Tariro Michelle  
Fataar, Kulthum (with distinction)  
Frieslaar, Farzanah  
Gausi, Blessings (with distinction)

Hickman, John-Henry (with  
distinction in the coursework  
component)  
Kindandi, Kikanda (with distinction  
in the dissertation)  
Laenen, Inneke Josepha (with  
distinction)  
Lukwa, Akim Tafadzwa  
Mazriel, Robyn (with distinction in  
the coursework component)  
Molomo, Ntsubise Regina  
Moyo, Chido  
Mubangizi, Lilian Tuhumwire  
Mvududu, Rufaro Hazvinaanziva  
(with distinction in the  
dissertation)  
Ndemere, Taurai  
Ndlovu, Linda Florence  
Ngowi, Epiphania Aloyce  
Njoku, Kelechi Francisca  
Owusu Kyei, Michael  
Pheiffer, Carmen Portia  
Reddy, Mishka  
Singh, Yesheen  
Sutherns, Tamaryn Leigh (with  
distinction)  
Taylor, Andrea Bettina  
Theunissen, Helene Cornelia (with  
distinction)  
Van Der Walt, Elise (with  
distinction)  
Verwoerd, Wilme (with distinction  
in the dissertation)  
Viglietti, Paola Gabriela (with  
distinction in the coursework  
component)

#### MASTER OF SCIENCE IN AUDIOLOGY

Cohen, Romy (with distinction)  
Segoneco, Selekisho Israel

#### MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING

Alemneh, Tewodros Belay  
Atuhaire, Felix  
Coertze, Johannes Abraham (with  
distinction)  
Fourie, Marilize  
Khobo, Isaac Lebogang (with  
distinction)  
Maclean, Sarah Grace (with  
distinction)

Majola, Khwezi Zizipho (with  
distinction)  
Namayega, Catherine (with  
distinction)  
Rimbault, Daniel Luc

#### MASTER OF SCIENCE IN EXERCISE AND SPORTS PHYSIOTHERAPY

Brooker, Heather Caitlyn  
Chivunze, Edgar (with distinction in  
the dissertation)  
Craddock, Nicole Leigh (with  
distinction)  
Jameson, Yale Jake (with distinction  
in the dissertation)  
Noll, Helena Stefanie  
Pereira, Nicholas Samora

#### MASTER OF SCIENCE IN MEDICINE

Abrahams, Andrea Gillian (with  
distinction)  
Abulkasim, Muna Ab Owen (with  
distinction)  
Agamah, Francis Edem  
Ahmed, Safwaan (with distinction)  
Alosaimi, Shatha (with distinction)  
Baker, Zoe Andria Morrow  
Botha, Stefan Marc  
Cingo, Siphelele Sanele  
Coetzee, Nicolene  
Dias, Angelo Ridge  
Fourie, Jorique (with distinction)  
Geromont, Christina Helena  
Graham, Amy Sarah  
Hlatshwayo, Lerato Lehlohonolo  
Khomunala, Phumudzo  
Kimathi, Peter Opiyo (with  
distinction)  
Kriel, Raymond Frank (with  
distinction)  
Magugu, Siybaulela Freddy-Junior  
Malise, Thudzelani Takalani Austin  
Mohamed, Luqmaan  
Mthembu, Nontobeko  
Naidu, Priyanka (with distinction)  
Paruk, Tasneem Yusuf  
Poswayo, Sibongiseni Kwakho  
Luntukazi (with distinction)  
Pütter, Christie Leigh  
Radzey, Nina (with distinction)  
Raphela, Mabule Lucas (with  
distinction)



Rust, Ruan  
Samuels, Veneshley  
Sevenoaks, Tatum  
Swan, Freda Zoë (with distinction)

MASTER OF SCIENCE IN  
NURSING

Ojo, Eunice Abimbola (with  
distinction)  
Penduka, Annaloice  
Wepener, Clare Margaret (with  
distinction)

MASTER OF SCIENCE IN  
PHYSIOTHERAPY

Bedwell, Gillian Jennifer (with  
distinction)  
Irving, Athene

MASTER OF SCIENCE IN  
SPEECH-LANGUAGE  
PATHOLOGY

Osman-Kagee, Aneesa

BACHELOR OF MEDICAL  
SCIENCE HONOURS

Africa, Ayanda Nyameka

POSTGRADUATE DIPLOMA IN  
DISABILITY STUDIES

Chiwutsi, Rudo  
Ndaba, Puleng

POSTGRADUATE DIPLOMA IN  
HEALTH LEADERSHIP

Britz, Kgomotso Petronella  
Dean, Carol Doreen (with  
distinction)  
Hankey, Garth Marlon  
Hlatshwayo, Antonnette Lindiwe  
Khwela, Phumlani  
Kruger, James Andrew  
Le Roux, Susan Catherine (with  
distinction)  
Linden - Mars, Ethel Tabitha

Mayuni, Chawanangwa Sarah  
Motaung, Mokete Abram  
Patel - Abrahams, Shariefa  
Pienaar, David Charles  
Stapar, Dusica  
Van Der Berg, Lynette Ann  
Cavanagh  
Van Der Heever, Mark Lee (with  
distinction)  
Van Der Merwe, Karel Lourens  
(with distinction)  
Vonk, Michael Frederik (with  
distinction)  
Zondo, Ronell Lizette Charmaine

POSTGRADUATE DIPLOMA IN  
HEALTHCARE TECHNOLOGY  
MANAGEMENT

Bewana, Simelela  
Jwambi, Monde Patience  
Maduna, Sitembile  
Tsamela, Lebogang Windy  
Tshabalala, Mpho  
Tshabangu, Cynthia

POSTGRADUATE DIPLOMA IN  
HEALTH ECONOMICS

Butao, Themba Archiford

POSTGRADUATE DIPLOMA IN  
HEALTH PROFESSIONAL  
EDUCATION

Matthews, Dianne Ellen Melissa  
Stevens, Licinda Prudence

POSTGRADUATE DIPLOMA IN  
MATERNAL & CHILD HEALTH

Brock, Peyombili Dorothea  
Mkembela, Deogratias

POSTGRADUATE DIPLOMA IN  
NEPHROLOGY NURSING

Badimo, Madimetja Annah

POSTGRADUATE DIPLOMA IN  
PAEDIATRIC RADIOLOGY

Moodley, Halvani

POSTGRADUATE DIPLOMA IN  
PALLIATIVE MEDICINE

Den Hollander, Weltje Annigje  
Kleinhans, Crystal Faith (with  
distinction)  
Mankhwala, Raphael Hudson (with  
distinction)  
Nakani, Noncedo  
Oude Nijhuis, Claudi Susanna Maria  
(with distinction)

POSTGRADUATE DIPLOMA IN  
PESTICIDE RISK MANAGEMENT

Abaker, Hussien Osman

BACHELOR OF MEDICINE AND  
BACHELOR OF SURGERY

Dhavaraj, Levashen  
Malahleha, Kamohelo  
Mtati, Anele  
Ngcongolo, Siphosethu Mercy  
Ralph, Meghan Anne  
Shongwe, Bhekumuzi Mfana  
Thomson, Anthea Jane  
Zikali, Nontobeko Nonjabulo

BACHELOR OF SCIENCE IN  
MEDICINE

Thabetha, Ntombikayise Alice

BACHELOR OF SCIENCE IN  
OCCUPATIONAL THERAPY

Jacobs, Marcelle Gabrielle  
Zondi, Sphumelele Nkululeko

## FACULTY OF HUMANITIES

Dean: A/Professor S Kessi

### DOCTOR OF PHILOSOPHY

Anderson, Michelle Elizabeth

Thesis Title: *Televising truth commissions: the interaction between television, perpetrators, and political transition in South Africa*

Michelle Anderson holds BA degrees (in Human Rights and in Anthropology) from Southern Methodist University in the United States, and an MPhil in Conflict Resolution and Reconciliation from Trinity College Dublin, Ireland where she graduated top of the class. She began her PhD studies at UCT in 2017.

Michelle Anderson's thesis deconstructs narratives around apartheid-era perpetrators whose involvement with the Truth and Reconciliation Commission was reported on the widely watched television series, *Special Report*. Her analysis found that the series was not summarily representative of the TRC's work, numerically nor in its moral judgements. Rather than taking this as a point of critique she regards it as providing insight into public perceptions of the commission. She argues that, by simultaneously filling gaps in the commission's work, seeking representational justice and shedding light on reconciliatory events when they occurred, the series' representations were commensurate with committed journalism's principles. Her findings also informed interviews with the series' perpetrator-subjects, most of whom objected to the series' online accessibility even when feeling that their televisual portrayal had been fair. Michelle Anderson's work should inform best practices for journalists on meaningful engagement with past perpetrators during post-conflict reporting in an increasingly digital age.

Supervisor: Dr M Evans (Film and Media Studies)

Co-supervisor: A/Professor S Field (Historical Studies)

Baligira, John

Thesis Title: *Land rights and land conflicts in Kibaale since the colonial settlement*

John Baligira holds BA and MA (History) degrees from Makerere University, Uganda. He has been a lecturer in history at the same university since October 1998.

John Baligira's thesis examines the persistence of land conflicts in his case study area, the Kibaale district of mid-western Uganda, since Uganda's independence in 1962. He provides three reasons for that persistence: continuous politicisation of land rights; fresh in-migration of people leading to increased layers of land regimes thus intensifying the complexity of land disputes; and the breakdown of the local land-administration structure. His main argument is that fear of antagonizing different political loyalties, such as those towards the Baganda landlords, has hindered successive governance regimes and other actors in any attempt to resolve the conflicts. His thesis is based on evidence from the archives, from in-depth interviews and from documents and it shows that some of the persistent conflicts in Uganda's Kibaale district have been related to tensions regarding local versus national citizenship.

Supervisor: Emeritus Professor L Ntsebeza (School of African and Gender Studies, Anthropology and Linguistics)

† Botes, Abir

Thesis Title: *Influence of school senior leaders on teacher professional development: a comparative case study of four schools in Cape Town*

Abir Botes holds a BA (English Language and Literature) from the Lebanese University and an MA (Teaching English as a Second Language) from the University of Balamand. She assumed a leadership position in the Abu Dhabi Government Education Reform Initiative before joining UCT in 2013 as a PhD candidate.

Abir Botes' thesis investigates the influence of principals' leadership on teacher professional development practices within four schools in similar socio-economic contexts. Drawing on concepts from Bourdieu's Theory of Practice, her thesis describes the relationship between principals' practices and teachers' professional development practices, and relates those practices to relevant policy and to a training programme undertaken by principals. Her data derive from school observations, interviews with principals and teachers and analysis of relevant texts. Abir Botes' study concludes that principals do have a significant influence on teachers' professional development practices and, indirectly, on their schools' learning outcomes. She also shows, however, that while the training programme did influence the approaches of those principals who participated, none of them was strongly influenced by policy concerns. Instead, she shows, the principals' practices were most clearly related to their own beliefs and dispositions and the alignment of those with their respective school's history and values.

Supervisor: Dr H Jacklin (School of Education)

Delport, Wilhelmus Hendrikus

Thesis Title: *Piano sonatas by South African composers, 1900-2015: a catalogue and compositional analyses of selected works*

Wilhelm Delport studied at the Universities of the Free State, South Africa, Massachusetts and Cape Town. He holds BOptom, BMus(Hons) and MMus degrees. His research has been included in numerous international conferences and publications. He currently serves as Co-Editor-in-Chief of the *Journal of the Musical Arts in Africa*.

Wilhelm Delport's thesis, which focuses on the under-investigated field of South African piano sonatas, includes a catalogue of more than 230 works completed since 1900, and detailed analyses of two recent and diametrically opposed 21<sup>st</sup> century contributions, by Hendrik Hofmeyr and Graham Newcater. His

findings show that, corresponding with international trends, the piano sonata has held a prominent role in South African music-making. There is a more-or-less gradual increase in the number of works composed up to 1975, with many contemporary composers continuing to reference sonata structures as a guiding principle in large-scale forms. The characteristics of the majority of the sonatas he studied correspond to some extent with 19<sup>th</sup> and 20<sup>th</sup> century traditions, notwithstanding various exceptions and novel explorations of traditional practices. From a stylistic perspective, those works engage with diverse international aesthetic discourses that have constantly been reinvented, deconstructed and developed to reflect South Africa's idiosyncratic and dynamic cultural identity.

*Supervisor:* Professor HP Hofmeyr  
(South African College of Music)

Efron, Laura

*Thesis Title: Southern experiences in dialogue: a case study on South Atlantic knowledge production*

Laura Efron completed her BA degree in History and her MA in Contemporary History in Argentina. She joined the Centre for African Studies at UCT in 2015 for her PhD. Before this, she worked as an assistant professor in African history and as a high school history teacher in Argentina.

Laura Efron's thesis focuses on the history of the circulation of ideas and of knowledge production in the South Atlantic. She investigates how Latin American ideas were circulating in South Africa during the 1980s and reflects on how the process of translation was in fact an instance of knowledge production. To do so, she focuses on a study case, the publications produced by the International Labour Research and Information Group (ILRIG), during the 1980s. Her research is based on decolonial and postcolonial theories and methodologies and promotes epistemological discussions from a South Atlantic perspective.

*Supervisor:* Professor C Soudien  
(Human Sciences Research Council)

*Co-supervisor:* Professor H Garuba  
(School of African and Gender Studies, Anthropology and Linguistics)

February, Alexa

*Thesis Title: Do shifts in self-descriptions occur when the concept of self-image is mediated to teenage learners through creative movement?*

Alexa February completed a BA (English and Dance) and PGCE at UCT. She then began a professional teaching career while continuing her academic pursuits. She fulfilled the requirements for the MEd in 2012 and began part-time work on her doctorate in June 2015.

Alexa February's doctoral research has been concerned with improving the way teenagers see and speak about themselves. Using an interventionist approach, she has applied Vygotsky's theory of mediation to dance, specifically to improvised creative movement. She did this through testing the self-image of her teenage participants before and after an 8-week extracurricular creative movement programme. Doing so revealed that the use of improvised movement to explore the concepts of identity and self-image has the capacity to impact positively on how teens speak about themselves. Alexa February's work synthesises an arts education and psychological discourse and makes a case for intensifying intentional mediation in schools for achievement of students' positive self-image.

*Supervisor:* A/Professor J Hardman  
(School of Education)

Gartushka, Itai

*Thesis Title: Texts in black and white: co-constructing racialised identities in post-apartheid South Africa.*

Itai Gartushka holds a BSocSc degree in Psychology and Sociology, a BSocSc(Hons), and an MSocSc in Sociology, all from UCT.

Itai Gartushka's thesis focuses on the relational construction of black and white racialised identities within contemporary everyday public discourses. Arguing

that racialised identities can either be revised along newly-imagined post-apartheid lines or maintained along old-established apartheid lines, he shows that one major discourse promotes the reconstruction of black identity due to the end of apartheid while another major discourse promotes the preservation of white identity despite the end of apartheid. Through focusing on these two oppositional discourses, he further illustrates that racialised identities are constructed across the discourses via constant reference to the racialised white or black other. He thereby demonstrates that constructions of contemporary black and white identities are inextricably linked with one another. Itai Gartushka's thesis highlights the value of considering post-apartheid racialised identities from a relational perspective; and it opens up new lines of dialogue between the otherwise separate academic fields of South African blackness and whiteness studies.

*Supervisor:* Emeritus Professor D Foster (Psychology)

Hamilton, Kate

*Thesis Title: The biological bases of social deficits: the roles of social motivation, theory of mind, and selected genotypes (OPRM1, 5-HTTLPR) in Autism Spectrum Disorder*

Kate Hamilton holds a BA Psychology and Philosophy from the University of the Witwatersrand, with a BSocScHon in Psychology and MA in Neuropsychology from UCT. She was awarded Harry Crossley and National Research Foundation bursaries in her master's and doctoral studies.

Kate Hamilton's thesis investigated the foundations of social functioning by assessing the role of the mu-opioid receptor gene (OPRM1) and a serotonin gene (5-HTTLPR) in social motivation and Theory of Mind in a sample of children with Autism Spectrum Disorder (ASD) diagnoses. Her research identified qualitative differences in social development between non-verbal and verbal children ASD. She found a previously unreported, and unprecedentedly,

high incidence rate of a relatively rare OPRM1 genotype in the ASD sample. The serotonin gene showed an association between poorer transmission and overall ASD severity for the non-verbal ASD group. Social motivation was reduced in both ASD groups compared to a neurotypical group, and Theory of Mind deficits were significant in the verbal ASD group and were linked to overall social abilities. This research supports a greater focus on genetic underpinning for ASD that could refine diagnostic and intervention strategies for children with ASD.

*Supervisor:* A/Professor S Malcolm-Smith (Psychology)

*Co-supervisor:* Professor K Donald (Paediatrics and Child Health)

Hendrikz, Francois

*Thesis Title: The information-seeking process of blind and visually impaired Grade 12 learners in selected South African schools for the blind*

Francois Hendrikz, Director of the South African Library for the Blind, holds a B.Bibl. Ed from the Rand Afrikaans University (now the University of Johannesburg), an honours degree from the University of South Africa and a master's degree from the University of Pretoria.

Francois Hendrikz's thesis investigates the information-seeking behaviour of Grade 12 blind and visually impaired learners in two South African schools. He does that in order to establish the degree of match between his findings and the most widely accepted models. Drawing on a gap analysis of the data collected by way of interviews and on several theoretical propositions, he generates an Inclusive Information Seeking Model which accommodates the blind and visually impaired person, a lack in the most commonly accepted models. His model, constructed through his incorporating empirical evidence, is a valuable addition to the field of information-seeking behaviour, an analytical field that has been criticised for producing models which are seldom based on

empirical investigation and that privilege theory over practical application.

*Supervisor:* Emeritus A/Professor M Nassimbeni (Knowledge and Information Stewardship)

Kamwendo Naphambo, Emmily  
Sandra

*Thesis Title: (Re) constructing the African notion of girls' readiness for marriage: an exploratory study in Malawi*

Emmily Kamwendo Naphambo holds a BSocSc from the University of Malawi and an MSc degree in Development Studies from Lund University, Sweden. Before joining UCT's Sociology department in 2015 as a NIHSS-CODESRIA doctoral scholar, she worked in international development, where she focused on children and youth programmes in East and Southern Africa.

Emmily Kamwendo Naphambo's thesis examines the local notion of girls' readiness for marriage in Malawi as the immediate lens through which child marriage can be understood. She investigates how laws and local communities construct maturity for marriage so as to establish congruency between child marriage and girl's readiness for marriage. She also examines forces that influence conceptualisation of girls' readiness for marriage. She uses ethnographic data collected in Dedza, Malawi in 2016. Her study reveals that the maintenance of traditions and traditional authority are key in shaping and defining girlhood and girls' readiness for marriage, and that age at marriage is not an important marker. She also finds that the construction of girls' readiness for marriage includes physical and mental maturity, sexual maturity, perceived loss of innocence, ability to perform gendered household chores and menstruation. This work contributes to alternative ways in which African childhoods must be understood.

*Supervisor:* A/Professor A Pande (Sociology)

*Co-supervisor:* Dr R Chaturvedi (Sociology)

Kanyengo, Wamunyima Christine  
*Thesis Title: Knowledge production practices in higher institutions of learning in Zambia: a case of the University of Zambia*

Christine Wamunyima Kanyengo holds a BALIS degree in Library Studies from the University of Zambia and an MBibl in Library and Information Science from UCT. Rising through the ranks to the position of University Librarian, she has worked for the University of Zambia since 1991.

Christine Wamunyima Kanyengo's thesis focuses on knowledge production practices and their attributes within a university environment at the School of Medicine, University of Zambia. She used a mixed methods case-study approach that included both quantitative and qualitative research methods. Her overall conclusion is that, despite lack of funding having been a recurrent problem, the knowledge productivity of the School of Medicine has steadily increased over the years and that this increase is supported by various institutional policies. She notes that while there is increased collaboration with researchers outside the African continent, this is less so with researchers in other African countries. Among her findings is that inadequate funding has been a main determinant of knowledge diffusion and utilisation in the institution that was her case study and that the knowledge produced there is mostly for use in the academic world and to the benefit of Zambia alone.

*Supervisor:* Dr J Gretchen Smith (Knowledge & Information Stewardship)

Kasibe, Wandile Goozen

*Thesis Title: Museums and the construction of race ideologies: the case of natural history and ethnographic museums in South Africa*

Wandile Goozen Kasibe holds a BTech from Walter Sisulu University, a PG Diploma in Fine Art and an MA in Fine Art from UCT, an MA in

World Heritage from the University of Turin and an MA in Museum Studies (with distinction) from Leicester University.

Wandile Kasibe's thesis investigates the intersection between museums and the construction of race ideologies in South Africa. In doing so he presents new ways of seeing museums and their sociological impact on people's lives today. He argues that museological institutions were, and remain, complicit in perpetuating colonial "crimes against humanity", colluding with colonial perspectives in ways that render their own institutionality a colonial "crime scene" requiring rigorous "de-colonial" investigation. He starts by critically engaging public South African museum displays that engender racist stereotypes and 'othering'. He then traces human remains that still form part of South African museum collections; and he highlights how these collections were used to legitimise 'scientific' racism, white 'supremacy' and oppression of those who were deemed 'lesser' beings. He uses his findings to recommend strongly that there needs to be a Museum Truth, Repatriation and Restitution Commission (#MuseumTRRC) that can and will transparently address these colonial continuities in today's museums.

*Supervisor:* Emeritus Professor A Sitas (Sociology)

*Co-supervisor:* Professor H Garuba (School of African and Gender Studies, Anthropology and Linguistics)

Kunnuji, Joseph Olanrewaju

Thesis Title: *A chronicle of cultural transformation: ethnography of Badagry Ogu musical practices*

Joseph Kunnuji completed his BMus (Jazz Studies) and MMus (Ethnomusicology) at UCT and began full-time study towards his PhD in 2016.

Joseph Kunnuji's thesis traces the historical importance of Badagry Ogu musical practices and suggests strategies for their further integration into the changing social and economic landscape characteristic of 21st-century Africa. He describes the colonial history that

led to Ogu people having become a minority ethnic group and their consequent marginalisation in Badagry, a town situated near Benin's border in Nigeria's Lagos State. He draws on ethnographic methodology and data that include a biographical sketch of a master drummer to study indigenous Ogu bands and individuals. He also draws on his experience, as a self-identifying Ogu musician, in working collaboratively with local musicians in Ogu music creation, that way to chronicle the musical heritage of Ogu people. He develops a strategy of musical recontextualisation that may provide performers of indigenous musics with a means to economic empowerment and broader recognition within and beyond Nigeria. However, he also shows that persisting lack of internal cohesion among Badagry Ogu people continues to make Badagry susceptible to marginalisation within the context of Lagos State and Nigeria.

*Supervisor:* A/Professor S Bruinders (South African College of Music)

*Co-supervisor:* Dr R Deja (South African College of Music)

Lawrence, Christopher Paul

Thesis Title: *Permission to believe: descriptive and prescriptive beliefs in the Clifford/James debate*

Christopher Lawrence gained a BA(Hons) in Natural Sciences and Philosophy from Cambridge in 1971, and an MA in Philosophy from Birkbeck College, London in 1979. He began part-time postgraduate research at UCT in 2012.

Christopher Lawrence's thesis modifies the wording of William Clifford's 1877 evidence principle (that 'it is wrong always, everywhere, and for anyone, to believe anything upon insufficient evidence') to propose an explicitly moral principle, restricted to descriptive beliefs (about what is or is not the case) and excluding prescriptive beliefs (about what ought or ought not to be the case). In it he considers potential counter examples, particularly William James's 1896 defence of religious belief; and he concludes that the modified principle survives unscathed. He then searches

for suitable criteria for 'sufficient' and 'insufficient' evidence, first within a Bayesian framework enriched by pragmatic considerations, and finally by returning to Clifford's conception of our shared responsibilities to our shared epistemic asset. Combined with elements of Edward Craig's (1990, 1999) 'state-of-nature' theory of knowledge, Lawrence explains that this gets us to a minimum threshold to avoid insufficient evidence and an aspirational criterion of sufficient evidence.

*Supervisor:* Dr J Ritchie (Philosophy)

Lilley, Warren

Thesis Title: *English language instruction as 'co-creation': a new CHAT model for integrating mobile technologies in advanced TEFL*

Warren Lilley has a master's degree in Education and is currently employed at the English Language Centre (ELC) at UCT. His academic background includes an undergraduate degree in the Arts. He joined the School of Education in 2016 to take up his PhD studies. Prior to this he was employed as a lecturer at the University of Sharjah in the UAE.

In his thesis, Warren Lilley seeks to understand how mobile technology can be used as a pedagogical tool for effecting changes in teaching/learning in an English Foreign Language course. He utilises the lens of Cultural Historical Activity Theory to probe the power dynamics underlying the appropriation of mobile telephony as a pedagogical tool. In a novel step, he has designed a blended Change Laboratory environment that acts as an intervention space where the participants, rather than the researcher, drive change within the system, leading, ultimately to more lasting changes. This is accomplished by the researcher surfacing 'contradictions' or double-binds within the intervention space that dynamically force change in the system. Lilley's findings indicate a novel pedagogical method for incorporating mobile technologies into EFL classrooms to effect learning

– one that he is now rolling out at UCT’s ELC.

*Supervisor:* A/Professor J Hardman (School of Education)

Linde, Charl

*Thesis Title: The literary detective and his investigation into the representation of crime and the media trial: the case of Oscar Pistorius*

Charl Linde holds an MA in Media Theory and Practice from UCT, with coursework towards that degree completed at Stockholm University. During his doctoral studies he held year-long research fellowships at Yale University and Ghent University.

Charl Linde’s thesis explores literary and media representations of crime, specifically criminal trials, with a focus on the case of Oscar Pistorius. Giving an overview of literary detectives and their work throughout history, his study constructs a literary detective who investigates the ‘media trial’ of Pistorius, analysing how media trials are litigated both in court and in the public domain through the media. The thesis then looks at how media trials test viewers’ understanding of reality as social media commentary, of analysis by so-called experts and of prosecutors who present to the world, not just to a judge. In addition, it considers how social media commentary influences viewers’ understanding of crime, justice and the world around them. In the course of the above investigation the literary detective also scrutinises how the Pistorius case was constructed as metaphor for South Africa and how the case was used to code poverty, wealth and inequality.

*Supervisor:* Professor J Hambidge (School of Languages and Literatures)

Machando, Debra

*Thesis Title: Neurocognitive screening following acquired brain injury: an adaptation of the Birmingham Cognitive Screen for Zimbabwe (Zim-BCoS)*

Debra Machando is a clinical psychologist and an academic in the Psychiatry Department at the University of Zimbabwe.

Debra Machando’s thesis looks into the cross-cultural factors that influence how patients with acquired brain damage perform on tests that screen for problems in mental functioning that may arise from the damage. She does this by adapting a broad neurocognitive test battery that was developed for use in the United Kingdom (The Birmingham Cognitive Screen). In the adaptive process she uses scientific techniques from neuropsychology to make significant alterations to the test battery in order to suit it for screening for thinking problems in patients with strokes in Zimbabwe. Her thesis demonstrates how the adapted screen (BCoS-Zim) is able to evaluate patients’ thinking capacities as well as to predict their daily functioning and recovery. The outcomes of Debra Machando’s thesis research have practical value for patient testing and screening in central and southern Africa.

*Supervisor:* Dr P Njomboro (Psychology)

Mafandala, Mbembi Joel

*Thesis Title: Towards an affective model for teaching English language and literacy to migrant learners*

Joel Mafandala completed his undergraduate and honours degrees in Agricultural Science at the National Pedagogy University in the Democratic Republic of the Congo (DRC). He further holds a BEd(Hons) and a Master’s degree in Education from UCT.

Joel Mafandala’s thesis explores how Congolese migrant children attending an English medium school in South Africa cope emotionally with classroom activities in a foreign language. First, he used Krashen’s affective filter theory as a lens to understand learners’ feelings in the classroom environment. Second, he investigated classroom-teaching styles; in particular, how two Grade 3 teachers incorporated affective strategies in their pedagogy. He conducted this analysis through a sociocultural approach to literacy,

using the principles of affective pedagogy. Migrant children, who do not speak fluent English, which is the medium of instruction in their schools, suffer from stress and anxiety which impacts both on their ability to learn and on the teacher’s ability to teach them effectively. As teachers are overloaded and under-resourced, they often provide support for local students over or against the needs of immigrant students. For these reasons, Joel Mafandala has developed an affective model for teaching English literacy to migrant learners from poor socio-economic backgrounds.

*Supervisor:* A/Professor Dick Ng’ambi (Education)

*Co-supervisor:* Dr A Hunma (Centre for Higher Education Development)

Magadzike, Blessed

*Thesis Title: Rewriting postcolonial historical representations: the case of refugees in Zimbabwe’s war of liberation*

Blessed Magadzike holds a Postgraduate Diploma in Museum and Heritage Studies from UCT and an MA in History from the University of the Western Cape. He enrolled for a PhD in 2015, and won a NIHSS-CODESRIA doctoral scholarship. Previously he worked as a researcher in Archaeology and History in Zimbabwe.

Blessed Magadzike’s thesis focuses on the experiences of refugees during Zimbabwe’s war of liberation, fought between 1966 and 1980. He conducted oral history interviews with people who were forced into refugee life and uses those interviews to document and consider the varying reasons that led people to end up in refugee situations during the war. Considering the early history of the refugee problem in Zimbabwe, he provides evidence that the problem’s start predates the outbreak of the war itself. He also provides critical analysis of why refugee experiences have not been adequately represented in post-independence Zimbabwean historiography; and he demonstrates that that is due to tensions between refugees and other social categories and groups that were produced by the war experience. Blessed Magadzike’s

thesis demonstrates that marginalised voices are crucial to understanding liberation war events and the emergence of the modern nation state in the aftermath of war.

*Supervisor:* A/Professor S Field (Historical Studies)

*Co-supervisor:* Dr M Mulaudzi (Historical Studies)

Marewo, Malvern Kudakwashe

Thesis Title: *Fast track land reform and belonging: examining linkages between resettlement areas and communal areas in Zvimba District, Zimbabwe*

Malvern Kudakwashe Marewo holds a BA in History and Development Studies from Midlands State University, and an MSc Development Studies from the National University of Science and Technology, Zimbabwe. He joined UCT's Centre for African Studies in 2016, having previously been a research officer at an NGO.

Malvern Marewo's thesis interrogates the concept of belonging by applying it to land-reform studies and through considering the case of Zimbabwe's Fast Track Land Reform Programme (FTLRP). He explores the nature of linkages between beneficiaries of FTLRP and their communal areas of origin by considering FTLRP beneficiaries' social relations and labour exchanges. Using the case of Machiroli Farm, FTLRP A1 villagised settlement, and Zvimba communal areas (Ward 6), Mashonaland West, he demonstrates that most FTLRP beneficiaries on Machiroli Farm retain linkages and maintain relations with their communal area of origin. They do that through social, cultural, material, monetary and labour exchanges. Marewo argues that belonging is an aspect that ties people together despite physical translocation, even in cases of land reform. Using the framework of belonging, Malvern Marewo's study extends land-reform debates illustrating the importance of social, cultural and economic effects in accessing labour and enhancing agricultural production in agrarian settings.

*Supervisor:* Professor H Chitonge (School of African and Gender Studies, Anthropology and Linguistics)

*Co-supervisor:* A/ Professor F Matose (Sociology)

Mbokazi, Nonzuzo Nomfundo Mbalenhle

Thesis Title: *Understanding childcare choices amongst low-income employed mothers in urban and rural KwaZulu-Natal*

Nonzuzo Mbokazi holds a Bachelor of Social Science and an MA degree in Sociology from Rhodes University. She joined the Department of Sociology at UCT in 2016 for her PhD studies.

Nonzuzo Mbokazi's thesis explains how low-income employed mothers navigate care strategies for their young children (0-4 years) in urban and rural KwaZulu-Natal. Her study considers the constraints within which low-income employed mothers make 'choices' about caring for their children, using the market, state and kin. Her thesis draws on the lived experiences of low-income employed mothers to depict their very limited choices in determining how to provide care for their pre-school children. Explaining that mothers have their own expectations and understandings regarding the kinds of mothers they would ideally like to be, she shows that institutional childcare options – through the market and state – are constrained by mothers' inability to pay for childcare services; and that familial options are constrained by the ambivalence of kin regarding childcare provision. She concludes by indicating that low-income employed mothers are often on their own, putting together a combination of childcare arrangements that is far from their ideal.

*Supervisor:* A/Professor E Moore (Sociology)

*Co-supervisor:* Professor J Seekings (Sociology)

Mpofu-Mketwa, Tsitsi Jane

Thesis Title: *'Asihlali Phantsi!': a study of agency among isiXhosa-speaking women traders in a Cape Town township*

Tsitsi Mpofu-Mketwa completed her BSocSc(Hons) and Master's in Social Development at UCT. She worked as a social worker on the Cape Flats before starting her PhD in the Department of Sociology.

Tsitsi Mpofu-Mketwa's thesis focuses on agency in human development. In it she examines how isiXhosa-speaking women street traders in Cape Town's Langa township exercised agency in responding to similar structural constraints and opportunities that affected their businesses. She adopted a case study methodology (n=25) using qualitative research methods. Her findings report structure and agency as mutually constitutive in so far as familial circumstances, previous work experience, social capital, educational achievements and temporality either reinforced or diminished the participants' agency. Three profiles of agency among the sampled women traders emerged from her data. The profiles demonstrate varying degrees of enablement (most enabled; moderately enabled; least enabled) and that individual agency was a distinguishing factor. Tsitsi Mpofu-Mketwa's findings show that agency is reasonably elastic and can expand capabilities and opportunities for enablement. Her thesis concludes with a proposed diagnostic tool for assessing and enhancing agency, one that has potential applications in entrepreneurial training for development.

*Supervisor:* Dr J de Wet (Sociology)

Msomi, Zuziwe Nokwanda

Thesis Title: *Negotiating whiteness: a discourse analysis of students' descriptions of their raced experiences at Rhodes University, Grahamstown,<sup>1</sup> South Africa*

Zuziwe Msomi holds a BA(Hons) and MA in Political Studies from Rhodes University. She moved her PhD from Rhodes University to UCT's African Studies Section in 2017.

Zuziwe Msomi's thesis explores how and why historically white institutions continue to be experienced by some students as having a culture of whiteness despite having a predominantly black student body. Her thesis examines the role played by discourse as a means to understand how whiteness may continue to be produced and reproduced in everyday interactions. She argues that whiteness is far from being a zero-sum game of winners and losers. Rather, her analysis uncovers gradations of whiteness where speakers draw upon whatever capital (social, phenotypical or a combination) to attain the best possible outcome for themselves. She shows that this reveals an open-ended and permanently work-in-progress approach to whiteness which can be the beginning of conversations about race that are not necessarily bounded by phenotype or essence – especially in South Africa, where race and a fixation of rigid social categories continue to be central to how South Africans navigate and understand their world.

*Supervisor:* Professor FB Nyamnjoh (School of African and Gender Studies, Anthropology and Linguistics)

*Co-supervisor:* Professor H Garuba (School of African and Gender Studies, Anthropology and Linguistics)

Muller, Sara Louise

Thesis Title: *The tyranny of timespace: examining the timetable of schooling activities as the interface between policy and everyday rhythms*

Sara Muller holds a BSc in Mathematics and a master's in Education which focused on the language practices of mathematics teachers in schools in the rural Eastern Cape. Prior to commencing her PhD in 2016, she worked in township and rural schools and also supported and trained early career teachers.

Sara Muller's thesis presents a new theory of how schooling inequalities are reproduced in the South African basic education system. Using

Lefebvrian theory on time, space and rhythm to augment Bourdieu's sociological theory of practice, she investigates the role of timetables in schools as representations of ideal rhythms of teaching and learning. By analysing the timetables of two high schools with similar histories but divergent assessment results after the advent of democracy, she comparatively traces the origins of arrangements in schools back to current policy texts. She shows how these arrangements are regulated by policies that avail forms of capital to schools and reproduce inequalities. Her analytic model systematically describes timetables and their properties, and how these in turn differentially regulate rhythms of teaching and learning. Material conditions are shown as constraining possibilities for sustained change in schools that struggle to effect meaningful learning opportunities for their students.

*Supervisor:* Dr H Jacklin (School of Education)

Ndlovu, Khulekani

Thesis Title: *Mediated visibility, morality and children in tabloid discourse*

Khulekani Ndlovu holds a BSc and MSc in Journalism and Media studies from the National University of Science and Technology, Bulawayo, Zimbabwe. He registered for doctoral study at UCT's Centre for Film and Media Studies in 2015.

Khulekani Ndlovu's thesis studies the mediation of child abuse by the *B-Metro* tabloid in Bulawayo, Zimbabwe. His thesis explores how child abuse is framed within news narratives and how the resulting news narratives are interpreted by *B-Metro*'s readership. His findings point to an over-reliance on legal, social and cultural elites for news about child abuse. His analysis of textual data reveals that the tabloid's editorial discourse identifies the ethic of care and the ethic of voice as being instrumental in the fight against child abuse. Furthermore, it shows that the discourse exhibits a patriarchal, gendered and heteronormative conception of child abuse. His

reception analysis finds that readers are torn between compassion fatigue and an ethic of care vis a vis the abuse of children. Khulekani Ndlovu's thesis contributes to a growing body of work that explores the moral work performed by representations of suffering by media in the global south.

*Supervisor:* Professor H Wasserman (Centre for Film and Media Studies)

Okello, Julius

Thesis Title: *The role of social protection programmes in reducing household poverty and vulnerability in Katakwi District - Uganda*

Julius Okello holds a BA Economics and a master's degree in Peace and Conflict Studies from Makerere University, Uganda. He was a child soldier from age nine and served for nineteen years. He has subsequently been a senior economic policy analyst in the Ugandan government, including time with that country's Amnesty Commission. His doctoral work was supported by the NIHSS.

Julius Okello's thesis analyses the potential of government-run social protection programmes to reduce household poverty and vulnerability in Uganda's Katakwi district. Based on a rigorous analysis of both quantitative and qualitative data, he finds that poverty and vulnerability to poverty have multiple structural causes. He shows that a large proportion of the study-area population, particularly those in its rural areas, are not covered by any formal or state-provided social protection. Whilst recognising that the introduction of social protection measures by the Ugandan government is critical for alleviating household poverty and vulnerability to community-level poverty, he shows that weak state governance structures, and a lack of transparency and political commitment during implementation, undermine the government's social protection measures' efficacy and result in persisting rural household poverty and vulnerability, especially amongst households headed by women, older persons and children.



*Supervisor:* Emeritus A/Professor V Taylor (Social Development)  
*Co-supervisor:* Dr AM Kubeka (Social Development)

Parker, Alan Charles  
Thesis Title: *Anarchival dance: choreographic archives and the disruption of knowledge*

Alan Parker holds an MA degree in Drama, specialising in choreography, from Rhodes University. He joined UCT's Centre for Theatre, Dance and Performance Studies in 2016 as a PhD candidate in the Live Art, Interdisciplinary and Public Art programme.

Alan Parker's thesis details a practice-led investigation of the archive which he explored through choreography and his creation of three 'anarchival' performances. His research theorises the anarchival as a creative research methodology for archival questioning and epistemological disruption that is enacted through the body. Through a critically reflexive thinking through of his practical research, alongside an interpretivist analysis of performance works by a range of contemporary South African artists, Alan Parker's thesis surfaces specific ways in which creative disruption of the archive facilitates a rethinking of colonially inherited knowledge systems that are implicit in the archive. His research and thesis thus frame anarchival disruption within the broader decolonial project in South Africa and as a necessary and valuable strategy for developing a decolonial archival praxis.

*Supervisor:* Professor M Fleishman  
*Co-supervisor:* Professor J Pather (Centre for Theatre, Dance and Performance Studies)

Pedersen, Miriam Aurora Hammeren  
Thesis Title: *Being and belonging among White English-speaking South Africans*

Miriam Pedersen holds a bachelor's degree in Development Studies and a master's degree in Social Anthropology from the University of Oslo, Norway. Prior to joining UCT

in 2018 for PhD studies, Pedersen worked with research communication in the field of education.

Miriam Pedersen's thesis is an autoethnographic journey into the suburbs of Cape Town in search of an understanding of the lives and identities of middle-class White English-speaking South Africans (WESSAs), a category of people that has hitherto been largely overlooked in ethnographic research. Her thesis takes a novel approach to the topic by viewing it through Nyamnjoh's framework of incompleteness which posits that humans are incomplete by nature and culture (and cultivation). By foregrounding the inherent incompleteness of Whiteness and WESSA-ness, which in her field-site tended to be equated with default humanness, Miriam Pedersen argues that no human identity should be seen as universal and complete; and she calls for a convivial mode of existence based on the acknowledgement and embracement of interdependencies and interconnections.

*Supervisor:* Professor FB Nyamnjoh (School of African and Gender Studies, Anthropology and Linguistics)

Price, Christine  
Thesis Title: *Redesigning landscape architecture in higher education: a multimodal social semiotic approach*

Christine Price holds a Bachelor of Architectural Studies and a Master of Landscape Architecture from UCT. She worked as a landscape architect in private practice, and a lecturer at CPUT before joining UCT as a lecturer in landscape architecture.

Christine Price's thesis examines the nature of three-dimensional spatial communication and meaning-making in landscape-architecture education. Current forms of landscape architectural education are influenced by Global North perspectives and often, if not consciously, privilege particular ways of meaning-making thereby excluding or marginalising alternative or different experiences or ways of knowing. Christine Price's thesis is a case study of a three-dimensional spatial model project in a first-year landscape architectural design studio.

Through in-depth analysis of students' design trajectories, her research uncovers the varied types of resources that diverse students bring with them to their landscape architectural learning environment and the pedagogical processes that enable those resources to find realisation and recognition. Her findings show how students use and transform resources in their design processes, expanding on what landscape architectural spaces can mean and how they can make meaning. Christine Price's findings outline ways to address past educational imbalances and to redesign a landscape architectural education that is inclusive of diversity.

*Supervisor:* A/ Professor C Kell (School of Education)  
*Co-supervisor:* A/Professor A Archer (School of Education)

Rooi, Pieter  
Thesis Title: *Structural processes in Gabriel Fauré's nocturnes for piano*

Pieter Rooi completed his undergraduate studies at Stellenbosch University, and holds BMus(Hons) and MMus qualifications from UCT, as well as a Postgraduate Diploma in Performance from the Royal Academy of Music (London). He began study towards his PhD in 2012.

Pieter Rooi's thesis investigates structural processes in French composer, Gabriel Fauré's thirteen piano nocturnes. These nocturnes are generally regarded, along with Chopin's nocturnes, as the most significant contribution to the genre. The structural processes in Fauré's nocturnes resulted in far greater structural complexity than that traditionally associated with the genre and are allied to a compositional exploration of specific musical procedures as referential elements and catalysts within the composition's formal narrative. These procedures are often of a complex nature, and the majority of them have not been addressed in previous studies. Pieter Rooi's description of the procedures and his investigation of their role in the musical structure of Fauré's nocturnes contribute a deeper understanding than previously of

Fauré's highly individual compositional voice.

*Supervisor:* Professor HP Hofmeyr (South African College of Music)

Tantoh, Aunt Manyongo Mosima

Thesis Title: *The applicability of the Theory of Planned Behaviour (TPB) to the condom use intentions and behaviour of migrant youth in South Africa*

Aunt Manyongo Mosima Tantoh holds a BA(Hons) from UWC and an MSocSci in Social Development from UCT. She has extensive work experience in HIV/AIDS psychosocial support programmes at Groote Schuur Hospital and the New Somerset Hospital.

Aunt Manyongo Mosima's thesis is grounded in the Theory of Planned Behaviour. She investigates associations among acculturation, perceived behavioural control, subjective norms, and attitudes towards condom use among migrant youth in South Africa. Her findings indicate that, although migrant youth generally express positive attitudes towards the use of condoms during sexual intercourse, their condom use-behaviour was not under their volition. Using multivariate statistical analyses, she shows that attitude and levels of acculturation are significant predictors of condom use behaviour among migrant youth. Aunt Tantoh's work highlights the need for the integration of theory-based HIV/AIDS intervention strategies targeted at key populations in the South African National Strategic Plan for HIV/AIDS.

*Supervisor:* A/Professor J John-Langba (University of KwaZulu-Natal)

Wallace, Jennifer Anne

Thesis Title: *The gift of a scholarship: the reflective accounts of scholarship recipients attending elite secondary schools in post-apartheid South Africa*

Jennifer Wallace completed her BA(Hons) and HDE qualifications at UCT in 1995, and her MPhil

(specialising in Educational Administration, Planning and Social Policy) degree in 2014. She began part-time study towards her PhD in 2016.

Jennifer Wallace's thesis focuses on the experiences of scholarship-receiving students from historically disadvantaged communities who have attended elite South African secondary schools. Her study analyses the narrated accounts of former scholarship recipients who reflect back on their experiences of entering into, and engaging with, the field of elite schooling. Using a Bourdieusian framework, and by viewing the scholarship as a form of 'gift', she shows that, within the unequal context of schooling in post-apartheid South Africa, success in one part of the field does not necessarily equate to success in another. Moreover, her thesis shows that one has to refute any assumption that access to elite schooling through the 'gift' of a scholarship relates to 'equal access'. Her research participants' accounts reveal that accepting a scholarship to attend an elite school is far more complex than is possibly realised, and that it impacts on the scholarship recipient in fundamental and unanticipated ways.

*Supervisor:* Emeritus Professor P Christie (School of Education)

Walton, Sarah-Jane

Thesis Title: *Cape Town at war: the city, lived experiences and loyalties, 1914-1919*

Sarah-Jane Walton holds a BA(Hons) from UCT. In 2014 she was awarded an MA in Historical Studies from UCT and another in Global Cinemas and the Transcultural from the School of Oriental and African Studies, London. She started on her PhD in August 2015.

Sarah-Jane Walton's thesis explores the material effects of the First World War on Cape Town and how these impacted on ideas about the city and its people. She demonstrates how material changes to the city interacted with discourses about modernity, race, poverty and morality. She shows that these ideas were significant in shaping post-war legislation that placed ever greater

controls on black urbanisation, foregrounded residential segregation and targeted white upliftment. She suggests that the war period is a significant lens through which to further our understanding of Cape Town's history as a 'British' city, and how Capetonians related to each other, South Africa, and Empire. Wartime loyalisms, she demonstrates, were influenced by the intersections of gender, class, race and ethnicity. Sarah-Jane Walton's thesis makes an important contribution to South African urban history, whilst furthering our understanding of the First World War as a global phenomenon.

*Supervisor:* Emeritus Professor V Bickford-Smith (Historical Studies)

Wittwer, Tania Karuna Carole

Thesis Title: *The own-group bias in face processing: the effect of training on recognition performance*

Tania Wittwer completed a Master of Arts in Toulouse Jean Jaurès (France) and has been involved in a full-time study joint PhD between the University of Cape Town and the University of Toulouse Jean Jaurès since 2016.

Tania Wittwer's thesis focuses on the development of training methods to improve people's face recognition, especially when the observer and the face-to-be recognised are from different racial groups, a situation known to have serious consequences and often resulting in an increase in mistaken identifications. She completed seven studies, following laboratory and field study designs, to investigate the potential of observers to learn strategies for better recognising outgroup faces. She found that even though learning to discriminate and recognize a new group of faces is difficult and requires time and intensive training, the potential for training exists. Her findings open many new opportunities to explore the effect of training to recognise other-group faces, and to reduce the difficulty of discriminating and recognising faces from groups different to our own.

*Supervisor:* Professor C Tredoux  
(Psychology)  
*Co-supervisor:* Professor J Py  
(Université Toulouse)

MASTER OF ARTS IN TEACHING  
FRENCH AS A FOREIGN  
LANGUAGE

Phiri, Takako Chalwa

MASTER OF ARTS

Abrahams, Ayesha (with distinction)  
Altalib, Najhma  
Ballen, Amanda (with distinction)  
Blum, Nomi Letitia Emanuele (with distinction)  
Brown, Jesse Craig (with distinction)  
Carstens, Joshua Ziegbert  
Chao, Eileen Shao-Ching (with distinction)  
Chibambo, Vimbayinashe Sithembile  
Clarke, James Lile  
Correia, Shannon  
Cozien, Christine Frith  
Drew, Sarin Danielle  
Fagan, Henry Allan (with distinction)  
Henshall, Jane Elizabeth (with distinction)  
Ifyede, Henrietta Chimto  
Janowski, Roselinde Katharina (with distinction)  
Jones, Danielle-Marie  
Kennedy-Kwofie, Nana Afua  
Kigundu Toure, Ivy Amalan  
Morisson  
Krause, Lionel Brian  
Maroga, Kopano Tiyana (with distinction)  
Mcanda, Princess Thuleleni  
Miami, Silas Donald (with distinction)  
Mohamed, Ferial  
Mokoena, Itumeleng (with distinction)  
Mokose, Manapo Tebello (with distinction)  
Moragia, Anita Mwango  
Muffet, Brittany Leigh  
Musiker, Greg Carl  
Muyanga, Neo Potlako (with distinction)  
Nyaruwata, Chido Mazvita

Odendaal, Rehana Thembeke (with distinction)  
Redelinghuys, Henriette Malanie (with distinction)  
Reynolds, Kimberly (with distinction)  
Scholz, Lena  
Shinners, Keely Marguerite (with distinction)  
Suddason, Kelvin (with distinction)  
Timakwe, Ayabonga Mbalentle  
van de Ruit, Jenna Lee  
Venter, Landre  
Vigne, Benjamin James Hanganeni  
Thillemann (with distinction)  
Whitfield, Kirsten Leigh

MASTER OF ARTS IN FINE ART

Carew, Nina Ashley Emmerich

MASTER OF ARTS IN  
NEUROPSYCHOLOGY

Gama, Lungile Vakele

MASTER OF EDUCATION

Bardien, Mariam  
Booyesen, Fredalene Suzanne  
Cairns, Deborah Jane  
Denton, Laura-Jane  
Janus, Esther Luzia Gertrud (with distinction in the dissertation)  
Kampfer, Judine Pearl  
Lee Shong, Carmelita Millicent  
Matutu, Samkelo Nelson  
Msusa, Naomi Sonia (with distinction in the dissertation)  
Mwanda, Abigail Ziyanda  
Nenghwanya, Erestine  
Okkers, Muhammad Jihaad  
Rushton, Rosemary Diana (with distinction)  
Shipman, Megan Ann  
Staschen, Orrie (with distinction)  
Stewart, Cathryn Anne

MASTER OF FINE ART

Labuschagne, Emily Rae Smith  
Meyer, Garth Christopher (with distinction)  
Minnie, Heinrich

Phetogo, Thebeyame (with distinction)  
Somdyala, Inga (with distinction)  
Tanner, Nicolas (with distinction)

MASTER OF LIBRARY AND  
INFORMATION STUDIES

Dlamini, Khosie Konkhekuhle  
Kunene, Nokuphiwa Glenrose  
Nakanduungile, Charlotte Ndeutala  
Pillai, Viveka

MASTER OF MUSIC

Kolawole, Gbolahan Cornelius  
Sithela, Abonga Will  
van Zyl, Silvia (with distinction)

MASTER OF PHILOSOPHY

Acheampong, Michael Ekow  
Akca, Ahmet Sait  
Akerstedt, Ida Helene Briseid  
Daly, Brenda Glynnis  
Haworth, Katherine Alexandra  
Johannes, Shanél Lee-Anne  
Matakala, Chaze (with distinction in the dissertation)  
Megannon, Vayda Lee (with distinction)  
Moruthane, Sepadi  
Ndlovu, Mandipa Bongwiwe (with distinction in the dissertation)  
Patel, Jaynisha  
Samukimba, Jill Chidisha (with distinction in the dissertation)  
Thomas, Edoye Bless  
Tshabalala, Thandeka Nosimilo  
Tshililo, Takalani Yolanda  
Tuenpakdee, Naruemol (with distinction)  
Watkins, Alexandra Downing  
Zulu, Nompumelelo

MASTER OF SOCIAL SCIENCE

Arfsten, Antonia (with distinction)  
Baker, Robyn Jane  
Beiser, Sarina (with distinction in the dissertation)  
Bosse, Nina Katrin  
Calleja, Remi  
Chirambo, Tereza

Corrêa, Julia  
 Cupido, Teswin Shannon (with distinction)  
 Dippenaar, Andre (with distinction)  
 Gule, Thembelihle Goodchild  
 Hijnekamp, Elisabeth  
 Idu, Joy Chioma  
 Kanengoni, Mistancia  
 Khan, Latifa  
 Maposa, Diana Rumbidzai  
 McHale, Alexandra Lauren (with distinction)  
 Metcalf, Nicolette  
 Muhamba, Shepherd  
 Mukwevho, Shavhani  
 Najjaar, Sufiya (with distinction)  
 Ngwara, Kudzai  
 Pamburayi, Sibonisiwe Pertina  
 Quail, Karen Ruth (with distinction)  
 Shekwa, Portia Phumla  
 Soko, Mumba Martha  
 Trent, Jennilee Lauren  
 Wooldridge, Kathryn Emma  
 van Zyl, Jacqueline Frances

#### BACHELOR OF ARTS HONOURS

Dingiswayo, Simamkele  
 Erasmus, Amber Courtney  
 Hendricks, Alex Ian  
 Jordaan, Zhea Lindsay  
 Klopper, Vajradhara  
 Kuhn, Megan Louise  
 Letswalo, Katlego Hlali  
 Mapipi, Patricia  
 Mutshekwane, Khanyisile Fikile Nomonde  
 Ntombela, Nandi Nolwazi

#### BACHELOR OF EDUCATION HONOURS

Appollis, Eshton Robin  
 Joseph, Saskia Hilary  
 Laas, Donovan Andre  
 Mkhabele, Ali

#### BACHELOR OF SOCIAL SCIENCE HONOURS

de Klerk, Kyle David (in the first class)  
 Heslop, Laerce Candice  
 Kellermann, Chloe Nuelle  
 Khuzwayo, Siyabonga Robert

Mhlongo, Lungile Miranda  
 Mondl, Samuel Mzwamadoda  
 Msitshana, Linda Nokuzola  
 Msomi, Anele  
 Mtshaka, Crentia Samukelisiwe  
 Mtshutshwane, Anda Sweetgirl  
 Ndongeni, Ntombovuyo Lovedelia  
 Ngonzo, Kholiswa Catherine  
 Nkitseng, Sechaba Lehlohonolo  
 Oliphant, Danny Michelin  
 Sebola, Amanda Baneste  
 Solomon, Erin  
 Titi, Yoliswa Judith  
 White, Luke Ian (in the first class)

#### POSTGRADUATE CERTIFICATE IN FET TEACHING

Magoodo, Roger Mr

#### POSTGRADUATE CERTIFICATE IN SENIOR PHASE & FET TEACHING

Botes, Ricardo  
 Mackintosh, Connor Micheal  
 Mdoda, Aphelele  
 Moselakgomo, Maria Montswadi

#### POSTGRADUATE DIPLOMA IN ADULT & COMMUNITY EDUCATION & TRAINING

Hermans, Bradley Mark

#### POSTGRADUATE DIPLOMA IN AFRICAN STUDIES

Ngubane, Simphiwe

#### POSTGRADUATE DIPLOMA IN EDUCATION

Adams, Debra Anne  
 Lake, Lorinda Juliet  
 Muganga, Sheja Eugene  
 † Qondela, Tembinkosi Wiseman

#### BACHELOR OF ARTS IN FINE ART

Keogh, Kathleen (with distinction in Fine Art 4 and the degree with distinction)

#### BACHELOR OF SOCIAL WORK

Mamutse, Gladness Tatenda  
 Mohammed, Zaakia  
 Scheepers, Amy Joy

#### BACHELOR OF SOCIAL SCIENCE IN PHILOSOPHY, POLITICS & ECONOMICS

Kesler, Dylan Adam  
 Mahase, Mahoana John

#### BACHELOR OF ARTS

Allie, Quanita  
 Desai, Mary-Anne  
 Gaoraelwe, Oratile Reitumetse  
 Girnun, Ricky Joshua  
 Hassa, Mohamed Husain  
 Huisamen, Johan Jordaan  
 Janthan, Joe-D Achadinha  
 Jemaar, Zita  
 Kasher, Sarah Jane  
 Lucas, Skye Kayla  
 Markram, Emily Jane  
 Martin, Jade Morgan  
 Meadows, George Charles Michael  
 Mongratie, Razaan  
 Opperman, Benjamin Guy  
 Peter, Lelethu Ntombodidi  
 Salie, Uzair  
 Smeyatsky, Kiah  
 van der Walt, Ester  
 Volkwyn, Marian Cecile

#### BACHELOR OF SOCIAL SCIENCE

Akol, Felix Mark  
 Austin, Sarah Kimberley Catherine  
 Bende, Anganathi  
 Bernardo, Melissa Joy  
 Boikanyo, Chedza Kgosietsile  
 Boulle, Jason Lawrence  
 Chigumba, Shanice Nyaradzo  
 du Plessis, Joy Lyrine

du Toit, Catherine  
 Dzimwasha, Nakisa  
 Gees, Stephanie Diana  
 Gwilika, Nomasixole  
 Hodgson, Sarah Jane  
 Jacobs, Ilhaam  
 Juqu, Loyiso  
 Kapala, Mulenga Mwema  
 Khan, Tyra  
 Kippie, Mogammad Yaseen  
 Kisbey-Green, Nina Michelle  
 Mabunda, Prudence  
 Madolo, Simpiwe  
 Matshwe, Thulaganyo Onneile  
 Mbandezelo, Mlibokazi  
 Mbokotho, Siphosihle  
 McClean, Amber  
 Mfenyana, Ayavuya Sidima  
 Mheshe, Hlumelo  
 Mhlambi, Luyanda Puseletso  
 Nondlela  
 Mokgoro, Boitumelo-Tumelo Ruth  
 Mphuthi, Mbali Mmadika  
 Muthwa, Sibahle Dimpo  
 Mwakamyanda, Erick Mbingilo  
 Edward  
 Ndabeni, Esinako Diana  
 Nkosi, Sithembiso Moses  
 Nthane, Reabetswe Princess  
 Nwedamutswu, Rendani Francis  
 Oaker, Robyn Juanita  
 Onoka, Edwin Thomas  
 Pietersen, Zhenya Ronel  
 Read, Jordan  
 Satardien, Maajiedah  
 Sengwe, Chido Nelia Talent  
 Serima, Munashe Vuyelwa  
 Snell, Tristan Lucien  
 Thepa, Dimpho Lwandile  
 Thomas, Faith Diane  
 Thompson, Cindy-Jade  
 Welte, Olivia Rosa (with distinction  
 in Sociology and the degree with  
 distinction)

#### DIPLOMA IN MUSIC PERFORMANCE

Lukas, Ndapandula Albetien

#### FACULTY OF LAW

*Dean: Professor D Chirwa*

#### DOCTOR OF PHILOSOPHY

Anidi, Ugochinyelu Chikodili  
 Nerissa

Thesis Title: *Towards the institutionalization of divorce mediation in Nigeria: a case study of Enugu State*

Ugochinyelu Anidi holds an LLB from the University of Nigeria and an LLM in Comparative International Dispute Resolution from Queen Mary University of London. She joined the School of Law at UCT in 2014 for her PhD studies. She is a lecturer at the Faculty of Law, University of Nigeria.

Ugochinyelu Anidi's thesis focuses on divorce mediation and the extent to which it can resolve the problems of divorce in Nigeria. She submits that Nigerian divorce laws and the divorce litigation process pose severe psychological, social-cultural, economic, and legal problems for families going through divorce in Nigeria. She proposes the integration of divorce mediation into the Nigerian family dispute resolution system to ameliorate the harsh effects of the current system. She further proposes state-funded citizens' mediation centres, present in several states in the country, as a vehicle for the institutionalization of divorce mediation in Nigeria. She empirically investigates the Citizens' Rights and Mediation Centre, Enugu State, to determine the viability of this institution for this project. She concludes that indeed, divorce mediation can solve the problems of divorce in Nigeria through an institutionalised divorce mediation program established in citizens' mediation centres all over the country.

*Supervisor: A/Professor A Barratt (Private Law)*

Cramer, Richard Henry

Thesis Title: *The abandonment of landownership: a proposed model for regulated exit*

Richard Henry Cramer holds a BA(Hons), LLB and LLM from UCT. He has previously worked as a teaching assistant in the Department of Private Law at UCT, and more recently as a research assistant at the SARChI Mineral Law in Africa Chair.

Richard Henry Cramer's thesis explores the possibility of abandoning landownership in South African law. His research further queries whether the abandonment of landownership should be possible, and if so, under what circumstances. In seeking to answer these questions, he engaged in an in-depth comparative study with Switzerland and Scotland. The thesis reaches the conclusion that, in the prevailing legal framework in South Africa, the abandonment of landownership is not possible. This impossibility is due to the absence of a mechanism through which a landowner's name can be struck unilaterally from a title deed. However, it may be necessary to facilitate some form of abandonment, a "regulated exit" from ownership, in circumstances in which landowners are burdened with property that has accrued a negative value. In this respect, his thesis justifies the necessity for law reform, in addition to making suggestions as to how such reform should look.

*Supervisor: Professor H Mostert (Private Law)*

Heyns, Anri

Thesis Title: *Empowerment through mine community development: how the politics of development perpetuate poverty in mining areas – a legal theoretical analysis*

Anri Heyns holds a BCom (Law), LLB and LLM degree from the University of Pretoria. She has practised as an attorney and notary in Pretoria.

Anri Heyns's thesis considers how the Mining Charter and related legislation fail to address the harsh socio-economic conditions in South African mining areas. She

argues that empowerment and development policies in post-apartheid South Africa originated in a theoretical paradigm that depicts impoverished entities in terms of their inability to operate in a neoliberal market. This approach to poverty is evident in the development and poverty-alleviation rhetoric employed in legislative solutions to poverty. Such a formulation, her research shows, suffers from the “politics of development”, a phenomenon that, she shows, manifests in the Mining Charter’s notion of “mine-community development”. She highlights the challenges arising from an approach demarcating the community that should benefit from development in a way that leads to interpreting “community” as either persons sharing tradition or persons sharing poverty. She concludes that the means of empowerment and development that follow this binary view of “community”, cause further impoverishment, inequality and conflict in mining areas. Her thesis also provides suggestions for improvement.

*Supervisor:* Professor H Mostert (Private Law)

John-Langba, Vivian Nasaka

Thesis Title: *The role of national human rights institutions in promoting and protecting the rights of refugees: the case of South Africa and Kenya*

Vivian John-Langba holds a BA in International Relations (*Magna Cum Laude*) from the United States International University and an LL.M in International Law and the Law of International Organisations (*with Merit*) from the University of Groningen. She commenced her PhD studies at UCT’s Faculty of Law in 2017.

Vivian John-Langba’s thesis focuses on national human rights institutions (NHRIs) and refugee rights. Her thesis argues that the focus on NHRIs as significant actors within the international human rights regime necessitates their recognition as critical actors in advancing the protection of refugee rights, given current implementation and

protection gaps. Such recognition would enhance NHRIs’ role as a bridge between the refugee and human rights regimes and facilitate the promotion and protection of refugee rights. To support this argument, she utilises a comparative approach, considering the NHRIs in South Africa and Kenya to determine their effectiveness as accountability mechanisms and the challenges that impede their effectiveness. Her thesis establishes that, despite a varying degree of engagement with refugee protection, NHRIs contribute to the domestic implementation of international norms and standards; they demand accountability where refugee rights are violated; and they enhance the overall promotion and protection of refugee rights.

*Supervisor:* Professor R Manjoo (Public Law)

Kachika, Tinyade

Thesis Title: *A critical re-appraisal of vernacularisation in the emergence and conceptualisation of community bylaws on child marriage and other harmful practices in rural Malawi*

Tinyade Kachika holds a University of Malawi law degree and a Georgetown University Law Centre Master’s degree. She commenced her PhD studies at UCT’s Public Law Department in 2016.

Tinyade Kachika’s thesis focuses on the emerging phenomenon of chief-led community ‘bylaws’ on child marriage and other harmful practices in rural Malawi. It critically assesses the conventional conceptualisation of vernacularisation as a conduit for diffusing international human rights norms from ‘the international’ to ‘the local’. Analysing empirical data from four Senior Chiefs’ territories, she establishes that the conventional theory of vernacularisation inadequately explains what actually happens as regards community bylaws. That is because it sees vernacularisation as a vertical process through which human rights ideas and programmes are purposefully introduced in local communities by epistemic outsiders. Instead, she argues, the relationship between community bylaws and international

norms on child marriage and other harmful cultural practices is more accurately described as ‘horizontal vernacularisation’. Showing that the local often triggers vernacularisation through its own intuitive, convoluted and iterative processes of human-rights appropriation and translation, Kachika’s thesis deepens our understanding of the cultural dimensions of norm internalisation and highlights the potential of rural communities to instigate protections for women and girls from harmful practices.

*Supervisor:* Professor DM Chirwa (Public Law)

*Co-supervisor:* Professor D Smythe (Public Law)

Kasipo, Mafaro

Thesis Title: *Hybrid governance in the global south: a case study of collusion within the South African construction industry*

Mafaro Kasipo holds an LLB from the University of Bristol, United Kingdom and an LL.M in Commercial Law from UCT.

Mafaro Kasipo’s thesis examines how authority is enacted in a hybrid governance setting. The thesis explores the relationship between the state and the construction industry in a case study of collusion in the South African construction industry during building of the 2010 FIFA World Cup stadiums. To gain insights into the process of hybridisation, the thesis draws on the concepts of corruption and authority to analyse the rationalities, strategies and practices used by actors in the construction industry and in the state during the enactment of authority. The thesis finds that the enactment of authority is characterised by contradictions, blurring and boundary-making. The thesis contributes to the literature by revealing that the process of hybridisation is context specific and should therefore be empirically determined.

*Supervisor:* Emeritus Professor C Shearing (Public Law)

*Co-supervisor:* Professor D Smythe (Public Law)

Kengni, Bernard

Thesis Title: *Strengthening decision-making processes to promote water sustainability in the South African mining context: the role of good environmental governance and the law*

Bernard Kengni holds an LLB (University of Yaoundé 2, Cameroon) and an LLM (University of the Western Cape, South Africa). While enrolled for his PhD Studies he was a researcher at the NRF/DST South African Research Chair for Mineral Law in Africa at the UCT Law Faculty. Before joining UCT, he worked as a Researcher and Sworn Translator in South Africa.

Bernard Kengni's thesis focuses on how legislation can promote the achievement of water sustainability in South Africa's mining sector through applying principles of good environmental governance. His analysis of the concepts of sustainability and governance lays the foundation for an argument that water sustainability is achievable where and when governance is "good". His detailed critique of the current legal framework identifies shortcomings in it; but his analysis of its application demonstrates that we can remain hopeful that the framework may yet promote water sustainability, as long as implementation practices are improved. The main target, he argues, should be improving currently poor governance standards which have led to poor and irrational decision making.

*Supervisor:* Professor H Mostert (Private Law)

*Co-supervisor:* Dr C Young (Private Law)

Kriegler, Anine

Thesis Title: *South African criminology's aetiological crisis: reflections on a century of murder*

Anine Kriegler completed her BSocSc, BSocSc(Hons), and MSocSc qualifications at UCT. She also holds an MPhil from the University of Cambridge.

Anine Kriegler's thesis addresses South African

criminology's failure to develop satisfactory structural explanations of crime. It suggests that that failure results from the challenge of measuring crime prevalence. Inherent to the field of criminology is a dilemma that making defensible and testable claims about aggregate crime prevalence is both indispensable and impossible. For reasons of political and institutional history, the dilemma is particularly debilitating in the South African context. Anine Kriegler's thesis collects official South African police murder figures over the longest-possible time frame and at the lowest-possible level of spatial aggregation and combines them with multiple rounds of census data using Geographic Information System technology. The result is the most extensive and defensible possible description of South African long-term crime prevalence. It shows a large, unprecedented, widespread murder rate decline from 1994 to 2011. This observation contradicts existing theory and demonstrates South African criminology's failure even to identify that which is relatively unequivocal and requires explanation. Progress in understanding why crime happens requires that we confront the ambiguous meaning and measure of crime both theoretically and empirically.

*Supervisor:* Professor E van der Spuy (Public Law)

*Co-supervisor:* Professor D Smythe (Public Law)

Masengu, Tabeth Lynn

Thesis Title: *What lies beneath: the complex nature of appointing women judges in Zambia and South Africa*

Tabeth Masengu holds an LLB degree (*cum laude*) from Rhodes University and an LLM degree (*cum laude*) from The London School of Economics and Political Science.

Tabeth Masengu's thesis analyses the judicial appointment processes in Zambia and South Africa, with a focus on the appointment of women to the bench. She argues for gender diversity, not just in the appointment of judges, but also on the appointing bodies. She considers various formal and informal

aspects of the selection and appointment processes to interrogate how they inform the potential for an equitable representation of women and men on the bench. Emphasising the importance of considering the intersectionalities of women's social identities and contexts when conducting research on judicial appointments, her study finds that a number of subtleties, within or around these various aspects of the appointment processes, affect women judges and women judicial aspirants. By outlining how that manifests in both Zambia and South Africa, Tabeth Masengu shows that challenges experienced by women start in their legal professional careers; and that while some such challenges are unique to each national system others are common to and in both.

*Supervisor:* Emeritus Professor H Corder (Public Law)

*Co-supervisor:* Professor E Brems (University of Ghent)

Mushi, Shirley Baldwin

Thesis Title: *Transparency and accountability in the legal framework governing the upstream hydrocarbon industry in Tanzania mainland*

Shirley Mushi completed her LLB at Tumaini University in Dar es Salaam in 2006 and LLM at UCT in 2008.

Shirley Mushi's thesis investigates the governance aspects of the hydrocarbon industry in Tanzania. She focuses on the extent to which transparency and accountability are incorporated in the Tanzanian legal framework and implemented in practice. She asks whether the legal framework expressly creates accountability relationships; whether it provides for adequate and efficient accountability mechanisms; to what extent it creates a well-coordinated web of accountability structures to provide for checks and balances; and whether and how it facilitates access to clear, reliable and complete information by interested parties and the public. Her thesis concludes that, at the formal level, Tanzania's legal framework on hydrocarbons recognises the value of transparency and accountability but that it largely fails to incorporate those values in a

way that ensures they are fully implemented in practice. Shirley Mushi's thesis also identifies the legislative gaps that need to be filled in order to foster a culture of transparency and accountability not only in Tanzania's hydrocarbons industry but also in the governance of natural resources in general.

*Supervisor:* Professor D Chirwa  
(Public Law)

Mwemba, Willard

*Thesis Title: Do supra-national competition authorities resolve the challenges of cross-border merger regulation in developing and emerging economies? The case of the common market for eastern and southern Africa*

Willard Mwemba holds, among other qualifications, an LLB from the University of Zambia and an MA in European Union Competition Law from King's College, London.

Willard Mwemba's thesis investigates whether supra-national competition authorities resolve the challenges of cross-border merger regulation in developing and emerging economies (DEEs). He focuses particularly on the Common Market for Eastern and Southern Africa (COMESA). He notes that developed countries in Europe have established the European Commission to regulate cross-border mergers. He argues that, while there has been much research on the solutions the European Commission provides for resolving challenges of cross-border merger regulation, insufficient attention has been given to whether supra-national competition authorities can resolve these challenges in DEEs. His findings demonstrate that the creation of a supra-national competition authority has not resolved the challenges of cross-border merger regulation in COMESA, largely because of an inadequate legal framework. He also shows that his conclusions can be extrapolated to other supra-national competition authorities in DEEs. Willard Mwemba's research findings and conclusions provide a resource to enable COMESA to strengthen its legal framework in order to address the challenges it faces and also

lessons to other regional economic blocks intending to operationalise supra-national competition authorities in DEEs.

*Supervisor:* Justice D Davis  
(Commercial Law)  
*Co-supervisor:* Justice D Unterhalter  
(Commercial Law)

Oyakhire, Suzzie Onyeka

*Thesis Title: Developing a legal and institutional framework for witness protection in Nigeria: reflections from international perspectives*

Suzzie Oyakhire holds a Bachelor of Laws (LLB Hons) from the University of Benin, Nigeria and an LLM (International Law) from UCT. She was called to the Nigerian Bar as a Solicitor and Advocate of the Supreme Court of Nigeria in 2007. She began studies towards her PhD in 2015.

Suzzie Oyakhire's thesis focuses on the concept of witness protection and the emerging witness protection practice in Nigeria. Her aim has been to identify conceptual and legal issues requiring clarification. She utilises two distinct perspectives, a criminal justice and a human rights perspective, as heuristic tools for analysing the concept of witness protection and for distinguishing from one another the disparate influences that have shaped how it has come to be construed. She takes these conceptual clarifications as a basis for providing suggestions aimed at developing a normative framework for shaping a legal framework for witness protection in Nigeria.

*Supervisor:* Professor E van der Spuy  
(Public Law)  
*Co-supervisor:* A/Professor H Woolaver  
(Public Law)

Singh, Nerisha

*Thesis title: Electronic evidence in criminal proceedings*

Nerisha Singh completed B.Proc and LLM degrees at UKZN and M.Phil (Criminology) and M.Litt degrees at Cambridge and Oxford respectively.

Nerisha Singh's thesis reports on the implications of new technological phenomena in South African law, specifically the challenges they introduce to the existing legal frameworks in relation to law enforcement and security and intelligence agencies' investigatory powers to obtain electronic evidence and to the subsequent admissibility of such evidence in criminal proceedings. To do that she investigates how our existing legal frameworks which regulate the use of and access to electronic evidence, including its admissibility in criminal proceedings, integrate and adapt to challenges raised by new and rapidly changing technological developments. In her final analysis, she considers appropriate and meaningful reform towards a modern and transparent legal framework in South African law. The outcomes of her work provide a useful contribution to debates about far reaching and long term developments in the law of criminal procedure and evidence.

*Supervisor:* Professor PJ Schwikkard  
(Public Law)

## MASTER OF LAWS

Arend, Ayesha  
Bailey, Michael James Fell  
Bär, Alida Lucia  
Bota, Jenala Non  
Chavda, Reshma  
Daniels, Aliya Monique  
Daniels, Imran  
du Plessis, Quentin (with distinction)  
Ernstzen, Cedrine Veanca (with distinction)  
Freiin Vom Holtz, Dorothee  
Friedman, Joshua Michael (with distinction in the dissertation)  
Griffin, Nicholas Edward Neville  
Hona, Zakuthwani Alfred  
Hügens, Jonathan Tobias (with distinction in the dissertation)  
Kabuzi, Doreen Nabisere (with distinction)  
Kotze, Salmon Ruan  
Lalor, Diane Susan  
Likomwa, Ethel Tilly Sindile (with distinction in the dissertation)  
Longwe, Abel Katongo



Louw, Danielle  
 Mabote, Keneilwe Lynette  
 Masilo, Phuthehi William  
 Mcaciso, Zola  
 Mpinga, Shamila  
 Muller, Heinrich Sebastian  
 Mwaja, Christine Mukami  
 Nanyemba, Tangeni Ndafapawa  
 Ogega, Peris Bosibori  
 Petersen, Shawwaal  
 Rachwal, Natasha  
 Rimber, Kimberly Wangeci  
 Roelf, Nicholas Louis (with  
 distinction in the dissertation)  
 Rowan, Tamsyn Lee  
 Ruwitalah, Mduduzi Aviton  
 Sloth-Nielsen, Rachel  
 Smit, Jason Johnathan  
 Solomon, Kaone Kenny  
 Thurneyssen, Bastian  
 Tlhacoane, Tshiamo Tshepo  
 Walti, Stephanie

MASTER OF LAWS IN  
 COMMERCIAL LAW

Mathebula, Rirhandzu Faith  
 Ngwane, Qamanande Lian  
 Pinto, Dean Matthew

MASTER OF LAWS IN DISPUTE  
 RESOLUTION

Matsepe, Hape Mariam

MASTER OF LAWS IN  
 ENVIRONMENTAL LAW

van Breda, Michael Rupert

MASTER OF LAWS IN  
 INTELLECTUAL PROPERTY  
 LAW

Ndlovu, Phethina Gracia  
 Okonkwo, Ifeanyi Emmanuel

MASTER OF LAWS IN  
 INTERNATIONAL TRADE LAW

Mashitsho, Oreatlile Kholofelo

MASTER OF LAWS IN LABOUR  
 LAW

Dwayi, Nkosi Innocent  
 Karani, Aasim  
 Volwana, Phathisa

MASTER OF LAWS IN MARINE  
 & ENVIRONMENTAL LAW

Ipangelua, Munolwiso Elizabeth

MASTER OF LAWS IN PRIVATE  
 LAW AND HUMAN RIGHTS

Taoana, Bokang

MASTER OF LAWS IN TAX LAW

Madyara, Patience Tariro

MASTER OF PHILOSOPHY

Bain, Jonathan Heaford  
 Houston, Lorna Mildred  
 Hutchful, Ebenezer  
 Khatib, Mouad Kamal  
 Liountris, Demitri  
 Madima, Reshoketswe  
 Mbanje, Tendai Shephard  
 Mitchell, Alma Martha  
 Phakathi, Nkosana Christian  
 Viltoft, Clara Dybbroe

POSTGRADUATE DIPLOMA IN  
 LAW

Arnold, Mogamat Shadli  
 Ipinge, Ndapandula Monica Joy  
 Lebethe, David Thabisi

BACHELOR OF LAWS

Abdulla, Shaazia  
 Adams, Jenna Daniella  
 Ludidi, Sandiso Simamkele  
 Manilal, Gitika  
 Mthalane, Sanelisiwe Siphellele

FACULTY OF SCIENCE

Dean: Professor M Ramutsindela

DOCTOR OF PHILOSOPHY

Abba Omar, Sabina  
 Thesis Title: *Understanding the characteristics of cut-off lows over the Western Cape, South Africa*

Sabina Abba Omar completed her BSc, BSc(Hons) and MSc degrees at UCT and began full-time study towards her PhD in 2015.

Sabina Abba Omar's thesis focuses on the characteristics of cut-off lows (COLs) and the associated rainfall over the Western Cape. The thesis, which utilises tracking algorithms to identify cut-off lows and employs self-organising maps to identify the major COL rainfall patterns in observations and multi-model climate simulations, also uses a series of sensitivity experiments to explore the influence of South African mountains on COL characteristics. The study reveals that COL rainfall alleviated the 2015-2017 drought in the Western Cape during the first two years of the drought. It also shows that the southward transport of tropical warm moist air is the main source of moisture for COL rainfall over the Western Cape. Results of the sensitivity experiments show that the South African mountains influence COL development and rainfall patterns. This study ultimately provides useful information for climate modelers and weather forecasters in South Africa, and especially the Western Cape.

Supervisor: A/Professor BJ Abiodun (Environmental and Geographical Science)

Abrahams, Miengah  
 Thesis Title: *Evaluation of tridactyl theropod tracks in southern Africa: quantitative morphometric analysis across the Triassic-Jurassic boundary*

Miengah Abrahams obtained her BSc and BSc(Hons) degrees at UCT,

before starting her MSc in Geology, which she upgraded to a PhD in 2018.

Miengah Abrahams' thesis quantifies the morphological variation in southern African three-toed, carnivorous dinosaur footprints. Measuring the degree of uranium-lead isotopic decay within zircon minerals in these southern African rocks, she determines that the footprints were formed from ~220 to ~190 million years ago. Because these fossil footprints are abundant in these rocks, she could apply statistical methods to assess the morphological differences between small and large footprints, and evaluate the morphological changes that took place through ~30 million years. She shows that, independent of size, the shape of small and large footprints was constant through this time. Furthermore, she illustrates that the small footprints have a reduced projection of their central toe, different from their global counterparts. Therefore, she concludes that over these 30 million years, the carnivorous dinosaur footprints became more abundant, larger, and have a reduced emphasis on their central toe. The latter may be an evolutionary trend that needs further investigation.

*Supervisor:* A/Professor EM Bordy (Geological Sciences)

*Co-supervisor:* Dr F Knoll (Fundación Conjunto Paleontológico de Teruel, Spain)

Annasawmy, Pavanee

*Thesis Title: Patterns among micronekton communities in relation to environmental conditions at two shallow seamounts in the south-western Indian Ocean*

Pavane Annasawmy completed her BSc(Hons) at the University of Birmingham (UK), and her co-badged MSc degree at UCT and the University of Montpellier (France).

Pavane Annasawmy's thesis focuses on the physical drivers influencing micronekton distributions, assemblages and trophic relationships at two shallow seamounts in the south-western Indian Ocean. La Pérouse seamount is north-west of Reunion Island and the other unnamed pinnacle

(hereafter called "MAD-Ridge") to the south of Madagascar. The diel vertical migration patterns of migrant taxa were not perturbed by the seamount topographies. The summits and slopes of both seamounts hosted mesopelagic/benthopelagic fishes that preferentially associated with the pinnacles compared to common oceanic mesopelagic taxa. These seamount-associated fishes exhibited similar trophic positions irrespective of their wide size-ranges, suggesting ingestion of similar prey items, or different prey with similar trophic positions, at both seamounts. Although La Pérouse and MAD-Ridge seamounts did not show enhanced diversity and biomass of organisms compared to the surrounding ocean, both pinnacles are important sites for specific communities that would suffer from various anthropogenic pressures if appropriate conservation measures were not implemented.

*Supervisor:* A/Professor C Attwood (Biological Sciences)

*Co-supervisor:* Dr F Marsac (Institute of Research for Development, Marseille (IRD))

Baartzes, Nadia

*Thesis Title: Development of aminoquinoline-benzimidazole hybrids and their organometallic complexes as antimicrobial agents against Plasmodium falciparum and Mycobacterium tuberculosis*

Nadia Baartzes completed a BSc (Chemistry and Biochemistry) and BSc(Hons) in Chemistry at UCT. She obtained her MSc in Chemistry in 2015 and commenced full-time PhD studies in 2016.

Nadia Baartzes' thesis investigates the development of organic and organometallic hybrid compounds as potential antimicrobial agents. Aminoquinoline and benzimidazole pharmacophores were combined to form the desired organic hybrids, and iridium, rhodium and iron (in the form of ferrocene) were incorporated to afford organometallic complexes. The synthesised hybrids were evaluated against strains of *Plasmodium falciparum* (malaria) and

*Mycobacterium tuberculosis* (tuberculosis), and their possible modes of action investigated. Against *P. falciparum in vitro*, the organic and ferrocenyl hybrids outperformed the iridium and rhodium complexes overall. Additionally, the most active ferrocenyl hybrid displayed significant *in vivo* inhibition of parasitemia in mice. With regards to *M. tuberculosis*, the organometallic hybrids displayed enhanced *in vitro* activity compared to their corresponding organic analogues, with the iridium and rhodium complexes proving most potent. This research demonstrates the favourable antimicrobial properties of organic and organometallic hybrids, and reveals this to be a promising drug design strategy.

*Supervisor:* A/Professor GS Smith (Chemistry)

*Co-supervisor:* Professor K Chibale (Chemistry)

Bell, Wesley Drummond

*Thesis Title: Mapping desertification: towards an approach for mapping regional land degradation in drylands*

Wesley Bell commenced his tertiary education at UCT with a BSc in Ecology and Environmental & Geographical Science, and a BSc(Hons) in Botany. This was followed by an MSc in Conservation Biology in 2014. After a few years of working life, he returned to UCT to begin his PhD in 2017.

Wesley Bell's thesis is driven by the practical need of his funders for a land degradation map of the Succulent Karoo, a biodiversity hotspot. In order to achieve this, he has developed a novel approach for mapping land degradation in drylands (desertification) that can be applied globally. A fuzzy classification approach is used to estimate the cover of vegetation in the Hardeveld bioregion of the Succulent Karoo. This type of classification allows for a more accurate depiction of the landscape while retaining the uncertainty inherent in any mapping procedure. The mapping results are ground truthed with field data collected from the project area. Each mapping unit is then defined by its

degree of similarity to what is called the habitat condition archetype. This archetype is then combined with five potential desertification drivers in order to contextualise the current condition of the landscape with these potential drivers of change.

*Supervisor:* Professor MT Hoffmann (Biological Sciences)

*Co-supervisor:* Dr V Visser (Statistical Sciences)

Bourne, Amanda Ruth

Thesis Title: *Can sociality buffer the impacts of climate change on a cooperatively-breeding bird, the southern pied babbler *Turdoides bicolor*?*

Amanda Bourne completed a BSocSc, BSocSc(Hons), and MSocSc at UCT. She subsequently worked in nature conservation for several years before starting full-time study towards her PhD in July 2016.

Amanda Bourne's thesis reports that high air temperatures significantly constrain breeding and survival in southern pied babblers (*Turdoides bicolor*), a cooperatively-breeding bird endemic to the southern African Kalahari. She validated a non-invasive method for collecting physiological measurements, including daily energy expenditure and water turnover, from free-living birds. She then used a novel combination of physiology, behaviour, morphology and life history data to show that, while larger cooperative group sizes and higher rainfall generally improved pied babbler survival and breeding success, group size did not buffer negative effects of hot weather on either parameter. Pied babblers are therefore likely to face increasing challenges for population persistence in the near future, as the climate warms.

*Supervisor:* Dr Susan J Cunningham (Biological Sciences)

*Co-supervisors:* A/Professor A Ridley (Biological Sciences, University of Western Australia); Professor Claire N Spottiswoode (Biological Sciences)

Burger, Daniel Johannes

Thesis Title: *The gravity of modern amplitudes: using on-shell scattering amplitudes to probe gravity*

Daniel Burger completed his BSc and BSc(Hons) qualifications at the University of Pretoria, and after an MSc degree from UCT, began full-time study towards his PhD in 2017.

Daniel Burger's thesis reports his in-depth study of the structure of gravity. Unlike Einstein's conception of gravitational phenomena as fundamentally geometric in nature, Burger views gravity as the classical limit of a quantum field theory. He then applies the powerful new technology of on-shell scattering amplitudes to several examples, ranging from the famous bending of light in a gravitational field, to the more contemporary question of gravitational wave lensing in a black hole background. He then proceeds to show how these same methods, supplemented by some equally powerful mathematics from complex analysis, can be used to construct novel new black holes in modified gravity, as well as to understand several subtiles in minimal supergravity.

*Supervisor:* Professor J Murugan (Mathematics and Applied Mathematics)

*Co-supervisor:* Professor A Weltman (Mathematics and Applied Mathematics)

Carroll, Sarah Leigh

Thesis Title: *Investigation of the effect of ocean acidification on the haemocyte proteome of the South African abalone, *Haliotis midae**

Sarah Carroll was born in Durban and attended Maris Stella High School. She has a BSc with majors in Microbiology and Zoology, and a BSc(Hons) in Zoology, both from Rhodes University.

Abalone farming is the most economically lucrative sector of the South African aquaculture industry. Since abalone farms are on-shore facilities, it is expected that climate change will have an increasingly adverse effect on the sustainability of the industry, since increased stress is

linked to increased susceptibility to disease. Sarah Carroll's PhD research investigated the effect of ocean acidification on the proteome of haemocytes which comprise the cellular component of the innate immune system of *H. midae*. This was accomplished using iTRAQ liquid chromatography mass spectrometry, which identified and quantified 227 proteins that respond to a sea water pH of 7.5 (represents ocean acidification expected by 2100). The upregulated proteins were functionally characterised and found to be involved in a variety of biological processes and signalling pathways, such as anaerobic metabolism, cytoskeletal stabilization and the induction of the ERK/MAPK signalling cascade. A list of 33 proteins, selected on the basis of their involvement in the abalone immune and stress response, was validated using label-free liquid chromatography mass spectrometry to confirm their response to ocean acidification and determine their response to elevated sea water temperature and a combination of the two stresses. This research has identified a number of candidate protein biomarkers of abiotic stress, which will be tested in a health-monitoring programme for farmed *H. midae* in an attempt to mitigate the effects of climate change on this commercially important South African shellfish.

*Supervisor:* A/Professor V Coyne (Molecular and Cell Biology)

Cervantes Peralta, Francisco

Thesis Title: *Using movement modelling to improve the design and analysis of vantage point surveys in bird and wind energy studies*

Francisco Cervantes holds a BSc in Biology from the University of Alicante, Spain. After working as a consultant assessing impacts of human infrastructure on ecological systems, he joined UCT in 2015 for his Master's studies, and upgraded to PhD in 2017.

In his thesis, Francisco Cervantes develops a suite of techniques to improve collision risk estimates of soaring birds with wind turbines. Using Bayesian analysis, he

combines data from different sources, such as visual surveys of bird activity and telemetry, to improve collision risk predictions. His main focus is on the most common, yet under-utilised source of data: vantage point surveys. He uses flight trajectories observed from vantage points to describe bird behaviour relative to landscape features. He then shows how this information can be used to predict the distribution of bird fatalities. He also describes the magnitude and behaviour of the error introduced into trajectories mapped by observers, and how it can be accounted for to make more powerful inference. This thesis contributes towards a more sustainable development of wind energy and towards methodology that will help in our understanding of bird movement ecology.

*Supervisor:* Dr B Erni (Statistical Sciences)

*Co-supervisors:* Dr R Simmons (FitzPatrick Institute of African Ornithology); Dr T Photopoulou (University of St Andrews, Scotland)

Das, Anjali Devi

*Thesis Title: Study of ternary complexes of cucurbit[8]uril and their applications in self diagnostic composite*

Anjali Devi Das completed her BSc(Hons) and MSc in Chemistry at St. Stephens' College, Delhi University. After undertaking a postgraduate degree in Material Science at JNCASR, India, she joined the University of Parma and the Department of Chemistry at UCT to pursue a joint PhD in 2016.

The ability to detect early damage is of great significance in load bearing composite materials. Microdamage, if left unchecked, can grow under subsequent stress, leading to material failure. The main scope of Anjali Devi Das' thesis is to design and employ supramolecular host guest systems as cross linkers in polymeric materials to identify early stage damage in carbon fibre reinforced composite materials. Several ternary complexes of host molecules and fluorescent guest molecules are investigated and a Perylene imide (PMI)-cucubituril[8]

based system found to be best suited. The supramolecular complex cross-linking the polymer chains provides a fluorescence response induced by strain at micromolar concentrations of the probe. The second part of the thesis comprises the study of the effect of CB[8] complexation upon the photophysical properties of several dye molecules in solution, as well as their packing in the solid state. In the context of damage reporting molecular probes, there is an interest to move to near IR dyes due to their improved depth-penetration of light. The final part of the thesis deals with the synthesis of nanotubular CB[8] assemblies. Three tubular frameworks of CB[8] were synthesised through chaperone induced methods and metal coordination.

*Supervisor:* Professor S Bourne (Chemistry)

*Co-supervisor:* Professor E Dalcanale (Università di Parma, Chemistry)

Egbebiyi, Temitope Samuel

*Thesis Title: Spatio-temporal effects of projected climate on future crop suitability over West Africa*

Temitope Egbebiyi holds a BTech(Hons) in Meteorology from the Federal University of Technology, Akure, Nigeria and an MSc in Environmental and Geographical Science from UCT.

In his thesis, Temitope Egbebiyi investigated the spatial and temporal consequences of climate change for food production systems over West Africa. Knowing the role of climate in rainfed agriculture and recognising the complex and independent response of various crops to this climate, he developed a new approach to define and characterise the way cropping systems may deviate from their current regime as a result of climate change, which he called crop-climate departure. The concept was defined, tested and applied in West Africa and led to a better understanding of crop systems that are likely to become more suitable for cultivation in the region under climate change (e.g. maize) and others whose suitability for cultivation would likely decrease (e.g.

cassava and pineapple). Furthermore, he implemented this approach at different levels of global warming, namely 1.5, 2.0 and 3.0°C, to investigate the potential for adaptation through a shift of planting dates under each level of warming. Temitope Egbebiyi's research is innovative and holds great application value through contributing regional-scale information for improved preparedness and timely decision-making in the quest for a food secure Africa.

*Supervisor:* Dr O Crespo (Environmental and Geographical Science)

*Co-supervisor:* Dr C Lennard (Environmental and Geographical Science)

Geel, Claire

*Thesis Title: Diagenetic, thermal and provenance histories of the Permian lower Ecca Group based on two newly drilled boreholes in the western and eastern main Karoo Basin, South Africa*

Claire Geel completed her tertiary studies at Nelson Mandela University in her native Port Elizabeth, majoring in Geology and Zoology, then obtaining her MSc degree in Geology in 2014. She joined UCT to undertake her PhD study after six months of industry-based internship in Europe.

Claire Geel's doctoral research is a multidisciplinary study on some 290 – 273 million-year-old black shales, which might serve as target for shale gas exploration in South Africa. These Karoo rocks are rich in organic carbon, have low porosity and permeability, and are thus ideal for gas storage. Additionally, they are stronger (more brittle) than many known gas-bearing shales worldwide and are thus suitable for hydraulic fracturing. Statistical analyses of the geochemical composition of these rocks reveal the potential source regions from which sediments were supplied into the main Karoo Basin that, at the time, was prone to episodic marine incursions and anoxia, thereby preserving organic matter. The results also show that these Permian rocks, which have highly variable geological and geomechanical properties, were

deposited over a heterogeneous, uneven basin floor. Although the black shales have potential to produce gas, they may be strongly restricted to certain regions of the basin.

*Supervisor:* A/Professor E Bordy  
(Geological Sciences)

González Maurel, Osvaldo Patricio  
Thesis Title: *Origin and evolution of parental magmas associated with Pliocene-Quaternary low-silica volcanism within the Altiplano-Puna volcanic complex of northern Chile*

Osvaldo González Maurel obtained his BSc degree, Title of Geologist, and Candidature qualification at Universidad Católica del Norte (UCN), Antofagasta, Chile, and began full-time study towards his PhD, co-registered at UCT and UCN, in 2018.

Osvaldo González Maurel's thesis uses the compositions of rare mafic volcanic rocks erupted at the margins of the giant Altiplano-Puna Magma Body (APMB) of the Altiplano-Puna Volcanic Complex, Central Andes, to unravel the origin and evolution of parental magmas. The Andean continental arc is built upon the thickest crust on Earth, whose eruption products reflect varying degrees of crustal assimilation. Physical interactions between mafic and felsic magmas for this arc are therefore difficult to recognize, due to the differentiation of mantle-derived magma during ascent through the thickened crust and a corresponding lack of erupted primitive lavas. In order to understand and model the mass flux at subduction zones and formation of continental crust, it is critical to define parental magma compositions, as done here.

*Supervisor:* Dr PJ le Roux  
(Geological Sciences)

*Co-supervisor:* Dr R Riquelme  
(Geological Sciences, UCN, Chile)

House, Michell Anne  
Thesis Title: *Straight from the cow's mouth: investigating procurement and management strategies in cattle supplied to Great Zimbabwe using a multi-isotopic approach*

Michell House completed her BSc and BSc (Hons) qualifications at UCT and continued at the University to complete her PhD. She played an active role in the Department of Archaeology by lecturing, tutoring and mentoring students in the laboratory. She also attended several conferences in various countries, sharing her ideas and results with colleagues.

Michell House's thesis reports multiple stable isotopes from archaeological cattle teeth to examine the origin and herd management strategies of livestock sent to Great Zimbabwe; one of the most famous Iron Age sites in Africa. Cattle formed a vital component in political, economic and social belief systems in this community. This work therefore contributes to knowledge of these realms. This study shows that cattle came from a broad geographical area and animals derived from different environments. The inference is that the landscape was tightly interconnected during the occupation of Great Zimbabwe and indicates that the southern portion of the country, which today is dry, was a critical region playing an active role in the local trade and exchange networks. This kind of study illustrates that there is much more knowledge to be created on well-known archaeological farming sites when lesser-used scientific techniques are implemented to ask important questions.

*Supervisor:* Professor S Chirikure  
(Archaeology)

*Co-supervisor:* Professor J Sealy  
(Archaeology)

Koffi, Rock Stephane  
Thesis Title: *Novel fitted multi-point flux approximation methods for options pricing*

Rock Koffi holds a Masters' degree in Mathematics from Université Nangui Abrogoua, Cote d'Ivoire, then joined AIMS (The African Institute for Mathematical Sciences) for another

structured Masters in Mathematical Sciences. He began his doctoral studies in the Department of Mathematics and Applied Mathematics at UCT in 2016.

Rock Koffi's thesis focuses on the resolution of the degenerated Black Scholes Partial Differential Equation for pricing multi- assets option. He developed novel numerical methods called the fitted Multi-Point Flux Approximation methods for pricing multi assets options. These methods are the combination of the fitted finite volume methods and the Multi-Point Flux Approximation methods, where the degeneracy of the Partial Differential Equation is handled using the fitted finite volume methods. He provided a rigorous convergence proof for one dimension case and proved from numerical experiments the accuracy of his novel schemes.

*Supervisor:* Dr Antoine Tambue  
(Mathematics and Applied Mathematics)

*Co-supervisor:* Dr F Ebobisse Bille  
(Mathematics and Applied Mathematics)

Lawrence, Cloverley Mercia  
Thesis Title: *Ecology and ecophysiology of Zostera capensis: responses and acclimation to temperature*

Cloverley Lawrence holds a Diploma and Honours in Conservation from Mangosuthu University of Technology, and a Conservation Biology MSc from the Percy Fitzpatrick Institute, UCT. Before embarking on a PhD in ecology, she worked as an ecologist, focusing on drivers of change that contributed to effective marine conservation.

Cloverley Lawrence's thesis studies the ecology of the seagrass, *Zostera capensis* that forms a productive habitat in many estuaries. Her research focused on *Zostera* habitats in Langebaan Lagoon on the west coast. She uncovered significant seasonal variability in seagrass distribution, with severe diebacks in summer, which influenced associated macrofaunal communities. Another finding was the adaptive ability of this plant to transform under sub-optimal conditions, forming two distinct

populations that supported unique faunal diversities. Under experimental scenarios, the different growth forms display different responses to thermal stress, including distinct photosynthetic rates, and accumulations of carbon and nitrogen into compounds that support their survival. These characteristics imply differences in resilience between sub-populations of *Zostera*, and attest to their capacity to recover from environmental stress. The findings highlight the importance of identifying characteristics and adaptation strategies that allow habitats to persist under climate change, and maintain productivity and ecosystem services.

*Supervisor:* Dr D Pillay (Biological Sciences)

*Co-supervisors:* A/Professor A Jarre (Biological Sciences); Emeritus Professor JJ Bolton (Biological Sciences)

Lowney, Anthony Michael

Thesis Title: *Sociable weaver nests as a resource to local animal communities*

Anthony Lowney completed his BSc(Hons) at the University of Cumbria and MSc (by research) at Manchester Metropolitan University, before commencing his PhD studies at UCT in 2015.

Anthony Lowney's thesis examines the importance of sociable weaver colonies to the surrounding animal communities and how this importance may change under different environmental conditions. He further investigates the interactions between Sociable weavers and key species that have been recognised as strong associates with weaver colonies. He demonstrates that sociable weavers are ecosystem engineers that build colonies which create localised biodiversity hot-spots important for a range of different animal groups. He further demonstrates how close associate species adopt novel behaviours that allow competitors and predators to coexist at the weaver nests. Lastly, he shows that the importance of the weaver nests to the local animal community increases as environmental harshness increases,

suggesting a critical role of these nests in both acting as a resource and in mitigating the impacts of climate change on Kalahari fauna.

*Supervisor:* Dr RL Thomson (Biological Sciences)

Lukas, Megan

Thesis Title: *Greener pastures of home: an ethnographic study on everyday sustainable practices in Nyanga, Cape Town*

Megan Lukas holds a BSc degree in Environmental and Geographical Science and Zoology, a Postgraduate Diploma in Environmental Law, both from UCT, and an MPhil in Environmental Management from Stellenbosch University. Before embarking on her PhD, she worked as an Environmental Professional at the City of Cape Town.

Megan Lukas thesis focuses on everyday practices that have sustainable outcomes in an under-resourced township in Cape Town. Research in the field of sustainability in developing cities mainly centres on economic and social development goals. However, there is an emerging sense that ordinary, everyday practices at the level of the community are important for better understanding of sustainability in developing cities. There is a need to pay attention to local social and cultural practices in the field of sustainability, which are under-researched. Megan Lukas research addresses this knowledge gap by exploring the everyday practices, which happen to have environmental benefits, in the Cape Town township of Nyanga. Analysis of ethnographic data collected over nine months shows that paying attention to how ordinary people 'make home', specifically by (i) drawing on memories, (ii) developing livelihoods, and (iii) building social relations, can enrich understanding of the complex ways in which socio-ecological processes of sustainability are intertwined in everyday practice.

*Supervisor:* Dr S Daya (Environmental and Geographical Science)

MacAlister, Dunja

Thesis Title: *Plant growth, stress tolerant traits and regulation of heat activated proteins in *Aspalathus linearis* (Burm. f.) R. Dahlgren exposed to elevated temperature and drought*

Dunja MacAlister completed her BSc in Marine Biology and Ecology, BSc(Hons) in Botany and MSc in Botany at UCT. She began full-time study towards her PhD in 2016.

Dunja MacAlister's thesis evaluated effects of heat and drought stress on cultivated rooibos along a temperature gradient in the field and under controlled environments. This study shows that rooibos plants actively cool themselves to alleviate heat stress and when grown at cooler temperatures have higher biomass and maintain a high level of antioxidants. This shows that farming can shift southwards of the Cederberg and good quality tea can be maintained. Plants in the cooler sites upregulated more proteins overall, but the hotter sites upregulated heat shock proteins more, showing their involvement in thermotolerance. Dunja MacAlister also demonstrated that the growth and physiological mechanisms of plants under low moisture conditions exposed to drought were more sensitive than well-watered plants. Drought tolerant mechanisms including high root/shoot ratio and the production of longer, thinner roots were observed for effective water and nutrient uptake.

*Supervisor:* Dr SBM Chimphango (Biological Sciences)

*Co-supervisor:* Professor AM Muasya (Biological Sciences); Dr O Crespo (Environmental and Geographical Sciences)

Makonya, Givemore Munashe

Thesis Title: *Thermo and drought tolerance markers and regulation of heat stress proteins for chickpea (*Cicer arietinum* L.; Fabaceae) production in NE South Africa*

Givemore Makonya has a BSc in Horticultural Science and an MSc in Crop Science, both from the Midlands State University in Zimbabwe. He joined the Department of Biological

Science at UCT in 2016 as a PhD candidate.

Givemore Makonya's thesis evaluates effects of heat and drought stress on four chickpea genotypes along a temperature gradient in the field and under controlled environments. His study shows that chlorophyll fluorescence parameters and carbohydrate concentrations are suitable phenotyping tools for chickpea germplasm screening under field conditions in Southern Africa. The identification of different phenotyping tools, as well as heat tolerant and susceptible genotypes in this study will be foundational in their use as selection markers and control genotypes in subsequent studies. The heat tolerant genotypes expressed unique heat responsive proteins that provided an opportunity to identify molecular mechanisms involved in chickpea heat tolerance. Givemore Makonya also demonstrates that the heat tolerant genotypes were susceptible to drought, implying that the physiological responses to drought and heat stresses are largely independent of one another and that generation of genotypes displaying cross tolerance to combined heat and drought are required.

*Supervisor:* Dr SBM Chimphango (Biological Sciences)

*Co-supervisors:* Professor AM Muasya (Biological Sciences), Dr O Crespo (Environmental and Geographical Science), Professor JBO Ogola (Plant Production, University of Venda)

Maldonado Torralba, Francisco José  
Thesis Title: *New effective theories of gravitation and their phenomenological consequences*

Francisco José Maldonado Torralba holds an Honours in Physics from the University of Granada, and an MSc degree in theoretical Physics from the Complutense University of Madrid, Spain. He joined the UCT Cosmology and Gravity Group at the UCT Department of Mathematics and Applied Mathematics in 2017 for his PhD studies.

Francisco José Maldonado Torralba's thesis focuses on modifications on Einstein's theory of General Relativity, that could explain

the current problems in gravitation and cosmology. More specifically, he works on modifications of the affine structure of the spacetime, which is the structure that tells us how to perform derivatives. These theories appear when imposing that the system must be invariant under the action of the local Poincaré group. Within these theories, he studies the conditions for the appearance of singularities, the movement of fermions, and if it is possible to find different Black Hole solutions than in Einstein's theory. Moreover, he proposes a non-local extension of the mentioned modification, that can make the theory free of instabilities and singularities at the linear limit.

*Supervisor:* Dr A de la Cruz-Dombriz (Mathematics and Applied Mathematics)

*Co-supervisor:* Professor A Mazumdar (University of Groningen, Faculty of Science and Engineering)

McClellan, Luke Alexander

Thesis Title: *Coevolution between brood-parasitic honeyguides and their hosts*

Luke McClellan holds a degree in Zoology from Queens University, Belfast. He began his PhD at the Fitzpatrick Institute of African Ornithology at UCT in 2016, having spent the previous three years working on bird projects across five continents.

Luke McClellan's thesis focuses on avian brood parasitism, where one species of bird attempts to lay its eggs in the nest of another (host) species, tricking the host into raising its offspring in place of their own. Focusing on two little-studied Afrotropical brood parasites – the greater and lesser honeyguides – and their hosts, he investigates the adaptations that hosts have evolved to prevent parasitism occurring, and the counter-adaptations that honeyguides have evolved to overcome these defences. Coupling observations of natural honeyguide and host behaviour, and experimental manipulations at host nests, his research demonstrates that these adaptations and counter-adaptations have occurred at all stages of the

breeding process: host nests that can prevent honeyguide access, rapid laying of eggs by parasites to avoid detection, recognition and rejection of parasitic eggs by hosts, and manipulation of host feeding behaviours by parasitic chicks to boost their growth rates.

*Supervisor:* Professor CN Spottiswoode (Biological Sciences)  
*Co-supervisor:* Dr NPC Horrocks (University of Cambridge, Zoology)

Méndez Isla, Miguel Alfonso

Thesis Title: *Dark matter searches with cosmic-ray detectors and the Square Kilometre Array*

Miguel Méndez Isla holds an honours in Physics and MSc degrees in both Theoretical Physics and Education from the Complutense University of Madrid, Spain. He joined the UCT Cosmology and Gravity Group in the Department of Mathematics and Applied Mathematics in 2016 for his PhD studies.

Miguel Méndez Isla's thesis focuses on the nature of dark matter as one of the required constituents of our Universe, and estimates the importance of indirect detection astrophysical techniques to reveal the nature and properties of such an elusive component, namely once cosmic rays as generated by dark matter emit either positrons or secondary photons in radio frequencies, the latter detectable by the SKA telescopes. He uses data from several detectors to make predictions on the preferred dark matter annihilation channels that are more suitable to explain the positron excess and applies these constraints to cosmological theories with extra dimensions. He then studies the synchrotron emission in the Milky Way with a view in the crucial steps achieved lately in observational radio astronomy by high-sensitivity radio telescopes located in South Africa, such as MeerKAT and the SKA. He extends his research to establish the theoretical dark matter masses that would be ruled out when several detectors results are combined.

*Supervisor:* Dr A de la Cruz Dombriz (Mathematics and Applied Mathematics)

*Co-supervisor:* Professor P Dunsby (Mathematics and Applied Mathematics)

Mhlanga, Sibalisio

*Thesis Title:* *Heavy-flavour production at forward rapidity as a function of charged-particle multiplicity with ALICE at the LHC*

Sibalisio Mhlanga completed her BSc Honours in Applied Physics at the National University of Science and Technology, Bulawayo, Zimbabwe. She holds an MSc in Physics from UCT, and began full time study towards her PhD in 2016. During both her MSc and PhD work she was based at iThemba LABS.

Sibalisio Mhlanga's thesis reports on the production of particles used to infer the properties of the state of the early universe, as simulated at the Large Hadron Collider (LHC) via heavy ion collisions (HIC) at extreme temperatures and energy densities. She analysed data collected by a Large Ion Collider Experiment at the LHC in Proton-Lead (p-Pb) and Lead-Proton (Pb-p) collisions. The two colliding systems provide different regions for probing the nucleus during the collisions. Her study investigated the relationship between the production of heavy mass particles to the total number of charged particles produced per collision - multiplicity. The results of the study showed that heavy mass particle production scales with the total number of charged particles. Furthermore, this scaling in p-Pb slows down, while a sharper scaling is observed in Pb-p collisions at high multiplicity. These results will provide constraints to theoretical model calculations.

*Supervisor:* Professor J Cleymans (Physics)

*Co-supervisor:* Professor Z Buthelezi (iThemba LABS)

Mogende, Emmanuel

*Thesis Title:* *"Africa's 'miracle state'? the intersection of political leaders and non-state actors in the greening of Botswana through wildlife*

Emmanuel Mogende holds BA (Environmental Science) and MPhil (Environment, Society and Sustainability) qualifications from the University of Botswana and UCT respectively. He began his PhD studies in 2017.

Emmanuel Mogende's thesis challenges the normative assumptions that inform the debates on the green state, which have excluded African states from the analyses of the green state. His thesis does so by drawing attention to the processes that produce the green state in Africa, using Botswana's wildlife conservation policy and practices as an example. He demonstrates that the interaction of domestic and external actors facilitated the greening of the state in Botswana. He further shows the importance of political leadership, specifically the presidency, in shaping environmental reforms that in turn promote green discourses and practices. His thesis highlights that the top-down authoritarian control of people, land and environment are very much part of the greening process in Africa. The focus on processes that enable green state formation opens possibilities for including more developing countries in the analysis of the green state.

*Supervisor:* Professor M Ramutsindela (Environmental and Geographical Science)

Montoya Sanhueza, Germán Andrés  
*Thesis Title:* *Functional anatomy, osteogenesis and bone microstructure of the appendicular system of African mole-rats (Rodentia: Ctenohystrica: Bathyergidae)*

Germán Montoya-Sanhueza completed his BSc(Hons) in 2010 at the Universidad de Concepción in Chile. Thereafter, he obtained a scholarship from the Chilean Government to undertake his Masters in Zoology at UCT, which he completed with distinction in 2014.

Germán Montoya-Sanhueza

Germán Montoya-Sanhueza's research focused on the functional-morphology and postnatal growth of the bones of the forelimb and hindlimbs of subterranean mammals. This novel research integrated multiple dimensions of bone growth and analyzed a whole family of rodents. More specifically, Germán Montoya-Sanhueza studied a comprehensive ontogenetic sample of African mole-rats, the bathyergids. Using different methodologies, such as a multiscale approach, multivariate analysis, regression analysis, bone microstructure and fluorochrome labeling, he assessed how the morphogenesis of their limb bones occurred. The multiple analyses of comparative anatomy, morpho-functional indices, bone growth rates, and bone modeling showed that although most bathyergids had a similar morphology in response to their subterranean lifestyle, the naked mole-rats were unusual in that they resembled their more basal non-burrowing relatives. By considering developmental modularity of long bones, his research also demonstrated the differential effects of intrinsic and extrinsic factors on bone growth.

*Supervisor:* Professor A Chinsamy-Turan (Biological Studies)

*Co-supervisor:* Dr M Sánchez-Villagra (Paleontological Institute and Museum, University of Zurich)

Morris, Tamaryn

*Thesis Title:* *Downstream evolution of ocean properties and associated fluxes in the greater Agulhas Current system: ad hoc Argo experiments and modeling*

Tamaryn Morris completed her MTEch and undergraduate qualifications at CPUT, and began full-time study towards her PhD in 2014. She took two years time off to raise her daughter, completing her work in five years.

Tamaryn Morris' PhD thesis looks to free-floating ocean robots, called Argo Floats, as a means of studying the evolution of Madagascar Cyclonic Eddies propagating across the Mozambique Channel and the downstream evolution of ocean properties within the Agulhas



Current. The Madagascar Cyclonic Eddies, propagating at mean speeds of  $0.13 \text{ m s}^{-1}$ , contribute cold fresh water to the Agulhas Current System, with a volume transport of  $13.4 \pm 5.2 \text{ Sv}$ . The near-real time observations of the evolution of volume, heat and salt transport using daily Argo Floats is the first of its kind for the Agulhas Current. The work highlights new ways of measuring these complex physical ocean properties, allowing for opportunistic, or quasi-synoptic, surveys of the Greater Agulhas Current System. These data would greatly enhance the understanding of this region oceanographically, given it is historically purely studied, and the impacts the Agulhas Current has on regional and global climates.

*Supervisor:* Professor I Ansoorge (Oceanography)

*Co-supervisors:* Professor J Hermes (Oceanography); Dr B Aguiar González (Las Palmas University, Spain); Dr T Lamont (Oceanography)

Mwewa, Chilufya

Thesis Title: *Observation of the electroweak production of two same-sign W bosons in proton-proton collisions with the ATLAS detector*

Chilufya Mwewa holds a BSc in Physics from the University of Zambia, a Postgraduate Diploma in Mathematical Sciences from the African Institute for Mathematical Sciences and UCT, and an MSc in Experimental Particle Physics from UCT.

Chilufya Mwewa's thesis details the most precise measurement ever, of the rate at which two identical point-like particles of matter, called W bosons, are produced in high-energy collisions of protons and measured by the ATLAS detector at CERN. Measuring the production rate of this extremely rare process, which occurs less than once in a trillion proton-proton collisions, provided information which validated our understanding of the mass generation mechanism at a fundamental subatomic level, and could potentially have hinted at new physics beyond our present understanding. Chilufya Mwewa contributes to various aspects of ATLAS, including making sure

that simulations of the collision were accurate, designing the criteria for finding these rare events above the mess created in the proton collisions, and deriving corrections to account for inaccurate simulations of background events, which has to be properly quantified for the measurement to be completed.

*Supervisor:* Dr S Yacoob (Physics)

*Co-supervisor:* Dr A Hamilton (Physics, Quest University)

Naude, Vincent Norman

Thesis Title: *Scale and impact of the illegal leopard skin trade for traditional use in southern Africa*

Vincent Naude holds a BSc and BSc(Hons) in Biological Sciences from UCT, beginning full-time study towards his PhD in 2015.

Vincent Naude's thesis reports on drivers of the illegal leopard skin trade among the foremost culturo-religious users of leopard skin in South Africa, quantifying the extent of this trade across the southern African region and assessing its ecological impact on local leopard populations. His research identifies economic status and lack of enforcement as the primary social drivers of leopard skin acquisition among traditional users, despite provision of a *faux* alternative. Through forensic genetic analysis, he identifies poaching hotspots in southern Africa, establishing that the source of the illegal trade is transnational. Furthermore, he demonstrates that sustained exploitation of leopards interrupts male dispersal patterns that can promote local inbreeding in populations. These findings have important implications for targeted anti-poaching and demand-reduction interventions, while informing legislation and conservation policy aimed at mitigating the impact of illegal trade in leopard skins and derivatives as driven by demand for traditional use in southern Africa.

*Supervisor:* Dr JM Bishop (Biological Sciences)

*Co-supervisors:* Professor MJ O'Riain (Biological Sciences), Dr GA Balme (Panthera)

Nguvava, Mariam Melikizedeki  
Thesis Title: *Understanding the characteristics of droughts over eastern Africa in past and future climates*

Mariam Nguvava holds a BSc degree in Environmental Sciences and Management from Sokoine University of Agriculture, Tanzania. She joined UCT for the MSc degree in Oceanography in 2011 and for PhD studies in 2015.

Mariam Nguvava's thesis examined the characteristics of meteorological and hydrological droughts over eastern Africa in present climate, projected the impacts of global warming on the drought characteristics, and investigated how various land use changes may alter the impacts over the Rufiji river basin. Different types of datasets, including gridded and station observation datasets, regional climate model simulations and hydrological simulations were analyzed for the study. The results show that four drought modes that account for more than 40% of drought occurrences in eastern Africa in the present climate are linked to three atmospheric teleconnections. Global warming is projected to increase the frequency and intensity of drought in eastern Africa. However, future land use changes may alter the magnitude of the projection. Forestation enhances the projected increase in drought frequency and severity over the Rufiji river basin. The findings of the thesis give valuable insight into the characteristics of droughts in eastern Africa and provide a useful guide on the effectiveness of using land cover to reduce the severity of hydrological droughts over river basins in the region.

*Supervisor:* A/Professor BJ Abiodun (Environmental and Geographical Science)

Ocran, Emmanuel Francis

Thesis Title: *The faint low-frequency radio universe in continuum: exploitation of the pre-SKA deepest survey*

Emmanuel Francis Ocran holds a BSc in Meteorology and Climate Science from the Kwame Nkrumah University

of Science and Technology, Ghana. He then completed a BSc(Hons) in Astrophysics and Space Science at UCT, followed by an MSc through the Inter-University Institute for Data Intensive Astronomy at the University of the Western Cape.

Emmanuel Ocran's thesis explores the nature of the faintest cosmic sources of emission at low radio frequencies. For this study he analysed radio data from a very deep image of the radio sky using observations with the Giant Metrewave Radio Telescope in India. By combining the radio observations with data at optical and infrared wavelengths from ground- and space-based telescopes, he was able to determine the distances to the radio sources and to classify the origins of the radio emission as either a supermassive black hole or radiation as a result of stars formed in the host galaxy. The faint radio sources are found out to distances such that the objects are seen as they were when the universe was less than half its current age. This allowed a study of the evolution of the properties of the radio emission with cosmic time, including changes in the distribution of luminosities of the objects and in the rates of star formation. These data provide a first look at the faint radio sky at sensitivities that will soon be achieved by key programs on the South African MeerKAT radio telescope, and thus take a first step in the exploration of the radio universe that will be made by the Square Kilometre Array.

*Supervisor:* Professor AR Taylor (Astronomy)

*Co-supervisor:* A/Professor M Vaccari (University of the Western Cape, Physics and Astronomy)

Ogungbuyi, Ibiyemi Prisca

Thesis Title: *Geochemical and isotopic constraints on the source regions of Phanerozoic carbonatites and associated alkaline rocks from the Zandkopsdrift complex of Namaqualand, South Africa, and the Marinkas Quellen, and Dicker Willem complexes in Namibia*

Ibiyemi Ogungbuyi completed her BSc in Geology at the University of Ilorin, Nigeria in 2005 and her MSc in

Geochemistry at the University of Ibadan, Nigeria, in 2010. She began full-time study towards her PhD in 2014.

Ibiyemi Ogungbuyi's thesis reports high precision major and trace element data and radiogenic and stable isotope compositions of carbonatites from three locations in South Africa and Namibia that provide important constraints on the origins of these unusual, but economically important, igneous rock types. Her research indicates that these carbonatites are unequivocally derived from upper mantle sources, but have experienced variable interaction with hydrous fluids at low temperatures. Their radiogenic isotopic compositions indicate that they, as well as many other southern African carbonatites, are derived from a distinctive mantle source composition related either to recycled ancient oceanic crust, or to progressive change of the lithosphere, over billions of years, by addition of small increments of melt from the underlying convecting mantle.

*Supervisor:* A/Professor PE Janney (Geological Sciences)

*Co-supervisor:* Professor C Harris (Geological Sciences)

Openshaw, Roxanne

Thesis Title: *In vitro modelling of cellular haemozoin and inhibition by  $\beta$ -haematin inhibitors and their derivatives*

Roxanne Openshaw holds BSc and BSc(Hons) degrees in Chemistry from Rhodes University. She began full-time research towards her PhD at UCT in 2015.

Roxanne Openshaw's thesis investigates the inhibition of cellular haemozoin by various novel  $\beta$ -haematin inhibitors and their derivatives, discovered using the high throughput screening approach, in *P. falciparum* parasites. She demonstrates that these  $\beta$ -haematin inhibitors cause variable increases in exchangeable haem and decreases in haemozoin, which are directly related to decreasing parasite growth. Using a wide variety of spectroscopic techniques, she also demonstrates that a bromine containing benzimidazole  $\beta$ -haematin inhibitor co-localizes with

haem in the same vicinity as haemozoin crystals in the digestive vacuole of *P. falciparum* parasites. She shows that this co-localization is as a result of a haem-inhibitor complex that forms and can be imaged at a unique wavenumber using Raman microscopy. This highlighted that the mechanism by which these  $\beta$ -haematin inhibitors inhibit the formation of haemozoin and cause parasite death includes accumulation and complex formation in the parasite. She also demonstrates the prerequisites that will be necessary for future development of a full parasite haem pathway model. This work not only contributes significantly to understanding the mechanism of action of  $\beta$ -haematin inhibitors, but also to the future development of antimalarial drugs that could contribute to the effort to eradicate malaria world-wide.

*Supervisor:* Professor TJ Egan (Chemistry)

Ragoasha, Moagabo Natalie

Thesis Title: *The variability of Lagrangian transport in the southern Benguela Current upwelling system*

Moagabo Ragoasha graduated with her MSc in Ocean and Climate Dynamics from UCT in 2015 and began her PhD in the department later that year.

Moagabo Ragoasha's thesis investigates the physical mechanisms associated with Lagrangian transport in the southern Benguela Current upwelling system using a high-resolution regional ocean model and particle tracking experiments. Transport of fish egg and larvae by upper ocean currents is very important for the marine ecosystems in this highly productive region, since the areas of spawning and recruitment into the fisheries are separated by large distances. The alongshore connectivity between the Cape Peninsula and St Helena Bay is analysed and linked to the regional ocean circulation on various time scales. A strong seasonality is found in the transport of particles reaching St Helena Bay and is influenced by the variability in alongshore jets in the upper ocean, as well as by Ekman drift associated with the regional

winds. Two pathways are found; an efficient, fast and relatively stable route associated with the Benguela jet, and a slower offshore route which exhibits considerable mesoscale variability. On interannual time scales, transport success is influenced by several drivers, including the Benguela jet, Ekman transport, and occasional interactions with eddies such as Agulhas rings and shelf-edge cyclonic eddies.

*Supervisor:* Professor CJC Reason (Oceanography)  
*Co-supervisors:* Dr Steven Herbet (UBO), Dr J Veitch (SAEON), Dr C Roy (IRD), Dr G Cambon (IRD)

Rapolaki, Ramontsheng Sakia  
Thesis Title: *An analysis of heavy rainfall events over the Limpopo River Basin in southern Africa, their moisture sources and pathways*

Ramontsheng Rapolaki graduated with his MSc in Ocean and Climate Dynamics from UCT in 2016 and began his PhD in the department later that year.

Ramontsheng Rapolaki's thesis investigates the characteristics of heavy rainfall events over the Limpopo River Basin of southern Africa in terms of their associated weather systems, their seasonality and interannual variability, and their moisture sources and trajectories. It is found that almost half of the top 200 heaviest rainfall events arise from tropical-extra tropical cloud bands and over a quarter from tropical lows, the remaining events are associated with mesoscale convective systems and cut-off lows. The events tend to occur in late summer and are associated with seven moisture source regions; namely, local continental, tropical southeast Atlantic Ocean, midlatitude South Atlantic Ocean, tropical Northwest Indian Ocean, tropical southwest Indian Ocean, subtropical southwest Indian Ocean, and the Agulhas Current. The resulting moisture trajectories vary on both seasonal and interannual scales and also depend to some extent on the weather system involved. The thesis also provides a detailed analysis of the moisture sources, trajectories and synoptic weather systems associated with a very severe flooding event in

the eastern Limpopo River Basin that led to over 100 deaths and the displacement of more than 150,000 people in January 2013.

*Supervisor:* Professor CJC Reason (Oceanography)  
*Co-supervisors:* A/Professor J Hermes (Oceanography); Dr R Blamey (Oceanography)

Scarborough, Matthew Edward  
Thesis Title: *Insular adaptations in the appendicular skeleton of Sicilian and Maltese dwarf elephants*

Matthew Edward Scarborough completed his BSc, with majors in Archaeology and Environmental and Geographical Science, followed by BSc(Hons) in Archaeology and Environmental Science, at UCT. Thereafter, he completed an MA in Near Eastern Archaeology at Durham University, subsequently returning to UCT to undertake his PhD research.

Matthew Scarborough's PhD involved an in-depth anatomical study of the limbs of dwarf elephants from the Mediterranean islands. His study investigated the anatomical changes associated with the limbs during the evolution of the 1.2 m tall dwarf elephant species from the ancestral 3.5 m tall species. He found distinct differences in the structure of the ankle joints of the elephants, which suggests different functioning, possibly related to the particular terrain of the island. Furthermore, the similar morphologies of the thigh bones (femora) of the dwarf elephants and juvenile continental elephants makes a strong case for changes in the rate of development as being involved in the evolution of the dwarf elephant body plan. Matthew Scarborough's meticulous research has shown that the limb bones of extinct elephants can provide much information about the relationships and evolution of elephants.

*Supervisor:* Professor A Chinsamy-Turan (Biological Sciences)  
*Co-supervisor:* Professor MR Palombo (University of Rome La Sapienza, Earth Sciences)

Segal, Matthew Jonathan  
Thesis Title: *Development of an ion transport system for singly charged ion injection into an Electron String Ion Source (ESIS) charge-breeder*

Matthew Segal holds BSc(Hons) and MSc degrees in Physics from UCT. He has spent the last seven years travelling between iThemba LABS in Cape Town and the Joint Institute for Nuclear Research (JINR) in Dubna, Russia whilst completing his PhD.

Matthew Segal's thesis focuses on the development of a Liquid Metal Ion Source (LMIS) system for injecting singly-charged metal ions into an Electron String Ion Source (ESIS), which increases the charge state of the ions, called charge-breeding. These highly-charged ions can then be further accelerated by conventional particle accelerators. Matthew Segal designed and constructed this unique ion transport system, which was successfully tested by producing Ga<sup>23+</sup> ions in 2019 at JINR, marking the first time an externally-injected metal ion was charge-bred in an ESIS system. This work forms an essential part of the initial development phase of an exotic, radioactive ion beam at the South African Isotope Facility (SAIF) at iThemba LABS.

*Supervisor:* Dr S Peterson (Physics)  
*Co-supervisors:* Dr R Bark (iThemba LABS), Dr E Donets (JINR, Russia)

Siangwata, Shepherd  
Thesis Title: *Monometallic and multimetallic complexes as precatalysts in the hydroformylation of olefins*

Shepherd Siangwata holds a BSc(Hons) Degree in Applied Chemistry from the National University of Science and Technology, Zimbabwe, and an MSc in Chemistry from UCT.

Shepherd Siangwata's thesis reports on the design, synthesis and application of recoverable and reusable catalyst precursors in the homogeneous catalytic transformation of olefins via the hydroformylation reaction. The products of this reaction serve as highly valuable feedstocks for industries in the detergents, surfactants, pharmaceuticals,

plasticisers, agrochemicals and fragrances sector. The approach used in the design of the catalysts aims at beneficiating the rare, expensive and fast-depleting Platinum Group Metals (PGMs), which constitute the catalysts. The ability to recover the catalysts offers huge economic and environmental benefits *via* the application of greener technologies, such as those used in Shepherd Siangwata's work, that is, catalyst recovery through organic solvent nanofiltration technique, as well as through an aqueous biphasic approach. Both recovery strategies are in line with the Green Chemistry principles for sustainable development and can contribute immensely to waste reduction, energy efficiency, safer workspaces and the use of non-toxic solvents (for example, water).

*Supervisor:* A/Professor GS Smith (Chemistry)

*Co-supervisor:* Dr NJ Goosen (Process Engineering, Stellenbosch University)

Stander, Johan

Thesis Title: *Deriving a policy document towards an early warning system for estuaries in South Africa: case study Great Brak estuary, Eden district, Southern Cape*

Johan Stander holds a Master degree in Civil Engineering from the University of Technology. He joined the Oceanography Department at UCT in 2017 for his PhD studies. Before joining UCT, he worked at the South African Weather Service and represented South Africa at the World Meteorological Organisation as Co-President for the Joint Commission of Oceanography and Marine Meteorology.

Johan Stander's thesis focuses on a policy towards an early warning system for estuaries in South Africa, with the focus on the Great Brak estuary in the Eden district. Prior to 2013, the Great Brak experienced frequent and severe flooding events, however since the implementation of an estuary early warning guide, no floods occurred at the Great Brak estuary. Furthermore, this thesis will be the first of its kind nationally and

internationally that focusses on an estuary early warning system which relies on oceanographic, meteorological, hydrological and disaster risk reduction information.

*Supervisor:* Professor I Ansong (Oceanography)

*Co-supervisor:* A/Professor J Hermes (Oceanography)

Stanley, Colin

Thesis Title: *Community-based co-design of a crowdsourcing task management application for safeguarding indigenous knowledge*

Colin Stanley completed his BTech(Hons) qualification at Namibia University of Science and Technology (NUST) and MSc at UNIBZ in Italy. In 2017 he received an award for the best FCI emerging researcher of the year. He is currently the Acting Dean at Faculty of Computing and Informatics, NUST.

Colin Stanley's thesis focuses on deconstructing Afrocentrism as an African epistemology for co-designing a crowdsourcing task management application (TMA) with the indigenous rural Otjiherero speaking communities from Namibia. He co-designed the crowdsourcing TMA software application with the indigenous communities as a tool for safeguarding their indigenous knowledge. Moreover, to empower the indigenous communities to appropriate mainstream software solutions from their context of meaning-making and the continuation of independent use. The research approach was grounded on Community-Based Co-Design and Afrocentric insights operationalised with Action Research principles. The findings from his study provide a unique synthesis of Oundu (Ubuntu) values, Afrocentric epistemology and Action Research to be grasped and practice while co-designing technologies with indigenous communities. Research findings also share co-design techniques that can be employed to co-design software applications that adequately resonance with cultural values and from the indigenous communities' contextual perception.

*Supervisor:* Professor E Blake (Computer Science)

*Co-supervisor:* Professor H Winschiers-Theophilus (Namibia University of Science and Technology (NUST), Computer Science)

Stephanou, Michael Jared

Thesis Title: *Sequential nonparametric estimation via Hermite series estimators*

Michael Stephanou holds BSc, BSc(Hons), MSc and PhD degrees in Physics from the University of the Witwatersrand. Whilst working as a Machine Trading Engineer at Rand Merchant Bank, he started part-time studies at UCT towards a PhD in Statistics.

Michael Stephanou's thesis makes important theoretical and methodological contributions towards the use of Hermite polynomials for performing real-time statistical analysis on large datasets and data streams. He proposes a methodology for the online, nonparametric estimation of the full cumulative distribution function as well as the quantiles. In addition, he develops a novel approach for the online estimation of Spearman's rho – a foundational, robust, nonparametric measure of the correlation between a pair of variables. Desirable theoretical properties for all these estimators are established and he demonstrates that the estimators compare favourably to competing approaches on both real data and simulations. A particularly appealing aspect of these proposed estimators is that they can be easily applied to nonstationary datasets. Given the increasing ubiquity of Big Data and data streams, the advances made in this thesis will be of interest to a growing segment of the data science profession.

*Supervisor:* Dr M Varughese (Statistics)

*Co-supervisor:* A/Professor F Little (Statistics)

Titus, Johanna Magdalena Jacomina  
Thesis Title: *Multi-wavelength study of neutron stars in the Magellanic Clouds*

Johanna Titus completed her BSc and BSc(Hons) qualifications at UCT, and began full-time study towards her PhD in 2016.

Johanna Titus's thesis investigates the neutron star populations of our neighbouring galaxies, the Small and Large Magellanic Clouds (SMC and LMC). Neutron stars are one of the endpoints of stellar evolution, and are most commonly observed as accreting X-ray binaries or non-accreting radio pulsars. Using optical spectra and lightcurves, Johanna Titus confirmed the identities of nine new massive X-ray binaries hosting neutron stars in the LMC. Her targeted radio observations of the SMC revealed two new radio pulsars – a significant increase in the radio pulsar population of this galaxy. She then applied a binary population synthesis to explore the effect of the local galaxy environment and observational biases on the observed population of radio pulsars. Her work predicts the recovery rate of various neutron star populations in future surveys of the SMC, and provides a basis for using these observed populations to constrain the evolution of massive stars in binaries.

*Supervisor:* A/Professor VA McBride (Astronomy)

*Co-supervisors:* Professor BW Stappers (University of Manchester School of Physics and Astronomy), Dr DAH Buckley (South African Astronomical Observatory)

Williams, Portia Adade

Thesis Title: *An integrated approach to climate vulnerability and adaptation assessment of smallholder production systems: evidence from horticultural production in Ghana*

Portia Williams holds a BSc(Hons) Agriculture from the Kwame Nkrumah University of Science and Technology, Ghana and an MSc in Business Administration (Economics and Management) from the Blekinge Institute of Technology, Sweden. She

joined UCT in 2017 for her PhD studies.

Portia Williams' thesis investigates how climate vulnerability assessment framework could be improved for greater uptake and greater implementation of adaptation measures in our changing climate. The thesis adopts an engagement process with smallholder producers by assessing the climate vulnerability of smallholder horticultural producers, their adaptation options and the effectiveness of these alternatives. From an exploration of vulnerability assessment in Africa, Portia Williams identifies public (community) and private (e.g. farmers) challenges and opportunities in local farming communities of Ghana. She continues particularly focusing on cost, benefit and risk of implementing five prime adaptation approaches and propose integration of the consequences of their adoption during the assessment. This leads to the conception of an improved vulnerability assessment process where strengths and limitations are explored before discussing their potential use and benefit for farmers and policy makers. A resulting framework is broadly applicable to various local areas across Africa and contributes to exploring opportunities to enhance smallholder's adaptive capacity through empowering farmers socially and economically.

*Supervisor:* Dr O Crespo (Environmental and Geographical Science)

*Co-supervisor:* Dr M Abu (University of Ghana)

Zhigila, Daniel Andrawus

Thesis Title: *Molecular phylogenetics, taxonomy and niche-based conservation risk assessment of *Thesium* L. (Santalaceae)*

Daniel Zhigila completed his BSc(Hons) and MSc qualifications in Nigeria. He is a member of the academic staff at Gombe State University, and among the handful of plant taxonomists in West Africa. He joined UCT for full-time study towards his PhD in 2017.

Daniel Zhigila's thesis focuses on the systematics of the plant genus *Thesium*. *Thesium* is

most diverse in the Fynbos biome and Southern African flora, but is grossly understudied with a partial taxonomic revision done a century ago. This thesis used molecular and morphological data to propose an infrageneric classification, recognising five subgenera, reflecting evolutionary relatedness and each supported by unambiguous characters. A detailed taxonomic revision was done on subgenus *Hagnothesium*, comprising eight species, which are all endemic to the Cape Region. Key novelties include discovery and description of eight species new to science, the majority of which are restricted in the highly fragmented agricultural landscape in the Agulhas Plain. The conservation status of the Cape *Thesium* was evaluated, via modelling the niche breadths, to aid in developing conservation strategies in the face of accelerated climate change.

*Supervisor:* Professor M Muasya (Biological Sciences)

*Co-supervisor:* A/Professor GA Verboom (Biological Sciences)

## MASTER OF PHILOSOPHY

Brain, Ruth Katherine  
Eastment, Conor Peter  
Eltzholtz, Alyssa Kay  
Heide, Trygve  
Hill, Erin Ashleigh  
Lethugile, Goabamang  
Maarstoel, Marte Nogva  
Malherbe, Megan Grace (with distinction)  
Moshani, Aphiwe Prudence  
Rabenold, Colton James  
Richardson, Leeshia  
Roy, Sayak  
Samuels, Mogammad Yaaseen (with distinction)  
Wilson, Luke Julian

## MASTER OF SCIENCE

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# VISION AND MISSION

## UNIVERSITY OF CAPE TOWN

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### **Vision**

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

### **Mission**

UCT is committed to engaging with the key issues of our natural and social worlds through outstanding teaching, research and scholarship. We seek to advance the status and distinctiveness of scholarship in Africa through building strategic partnerships across the continent, the global south and the rest of the world.

UCT provides a vibrant and supportive intellectual environment that attracts and connects people from all over the world.

We aim to produce graduates and future leaders who are influential locally and globally. Our qualifications are locally applicable and internationally acclaimed, underpinned by values of engaged citizenship and social justice. Our scholarship and research have a positive impact on our society and our environment.

We will actively advance the pace of transformation within our University and beyond, nurturing an inclusive institutional culture which embraces diversity.

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*The University of Cape Town gratefully acknowledges the sustained contributions of the following partners. Their generosity has assisted us toward our goals of improving student access to tertiary education and promoting curriculum, staff and student transformation; increasing our research capacity; and implementing programmes that promote social engagement and community upliftment.*

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- Chancellor's circle: formerly R250 000+, now R500 000+;
- Vice-Chancellor's Circle: formerly R100 000 – R250 000, now R250 000 – R500 000;
- Dean's circle: formerly R60 000 – R100 000, now R100 000 – R250 000;
- Friends of UCT: formerly <R60,000, now <R100,000.

Please note that these changes only affect donations received after 1 January 2015. All donors who were members of particular circles prior to January 2015, will continue to be recognised in their original circles, until the rolling five-year giving period has elapsed.

*We apologize for any omissions or errors. If you would like to query your donations totals, circle membership, or any other matter related to your gifts to UCT, please email [giving@uct.ac.za](mailto:giving@uct.ac.za)*

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**Engineering &**

**the Built Environment:**

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**Humanities:**

Shose Kessi, PDBA *Witwatersrand* BA(Hons) *London* MSc PhD *LSE*

**Law:**

Danwood Mzikenge Chirwa, LLB(Hons) *Malawi* LLM *Pret* PhD *UWC*  
Practitioner of the High Court of Malawi

**Science:**

Maano Freddy Ramutsindela, MA *UNIN* PhD *London* FSSAG

### **Dean of Higher Education Development**

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### **Director of the Graduate School of Business**

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