

# SAICSIT 2019

## Conference Programme

Sunday 15 September	13:00 - 17:00 SAICSIT Council meeting (include lunch)	Ingwe
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### Monday 16 September 2019

Time	Activity	Venue
08:00 - 16:00	Registration and Help desk	
07:30 - 08:30	Breakfast in the Cattle Baron Restaurant	
08:30 - 16:00	AISSAC Seminar: Disruptive Innovations	Ndau & Nari
08:30 - 17:00	<p style="text-align: center;"><b>Masters and Doctoral Symposium (Information Systems)</b></p> <ol style="list-style-type: none"> <li>1. <i>A Web-of-Things Architecture for IoT Middleware in Smart Healthcare</i>, Elias Tabane , UNISA</li> <li>2. <i>An Integrated model for Understanding the Influence of Users' Expectations on Continuance Use of Mobile Health in Malawi</i>, Donald Flywell Malanga, University of Cape Town</li> <li>3. <i>Semantic Enrichment of Event Streams Using a Distributed Complex Event Processing Architecture</i>, Priscilla Hammond, Stellenbosch University</li> <li>4. <i>The Performance of Information Systems Implementation Outcomes: The case of an Enterprise System Implementation at a South African University</i>, Adedolapo Akin-Adetoro, University of Cape Town</li> <li>5. <i>Investigating the Social Implications of Artificial Intelligence</i>, Malebo Sephodi, University of Cape Town</li> <li>6. <i>Activity-based Programming Language Instruction within a Blended Learning Environment</i>, Emmanuel Freeman, UNISA</li> </ol>	Ingwe
08:30 - 17:00	<p style="text-align: center;"><b>Masters and Doctoral Symposium (Computer Science)</b></p> <ol style="list-style-type: none"> <li>1. <i>Analysis of Facial Expression for e-Learning Purposes</i>, Charles Mushinye, University of the Witwatersrand</li> <li>2. <i>A Twitter-based Multilingual Sentiment Analysis for South African Languages</i>, Ronny Mabokela, University of the Witwatersrand</li> <li>3. <i>Spatio-Temporal Reasoning for Enhanced Emotion Analysis: An investigatory approach to strengthen current E-Learning platforms</i>, Christine Asaju, University of Witwatersrand</li> <li>4. <i>Employing the Materiality of an IoT-enabled quilt to monitor the physical and emotional health of Mothers and Children</i>, Sarina Till, University of Cape Town</li> <li>5. <i>A Robust Deep Neural Network Model With CRF For Semantic Segmentation Of Retina Lesions</i>, Olubunmi Sule, University Of Kwazulu-Natal</li> <li>6. <i>Building a Knowledge Graph from an Institutional Repository</i>, Grant Miller, UNISA</li> <li>7. <i>Predicting Heart Disease Risk Level using Classification Techniques and the Heart Ontology Model</i>, Kelibone Eva Mamabolo, Sol Plaatje University</li> </ol>	Mhelembe

<b>16:00 - 17:30</b>	AISSAC General meeting	Ndau & Nari
<b>17:30 - 19:00</b>	<b>SAICSIT 2019 Welcome drinks in the Foyer</b>	

## Tuesday 17 September 2019

<b>08:00 - 16:00</b>	<b>Registration and Help desk</b>			
<b>07:30 - 08:30</b>	<b>Breakfast in the Cattle Baron Restaurant</b>			
<b>08:30 - 08:45</b>	<b>Welcome: SAICSIT President - Ndau &amp; Nari</b>			
		<b>Ndau &amp; Nari</b>	<b>Ingwe</b>	<b>Mhelembe</b>
	<b>Session chairs</b>	<b>Prof Hanlie Smuts</b>	<b>Prof Paula Kotze</b>	<b>Prof Lisa Seymour</b>
<b>08:45 - 10:15</b>		<p><b><i>Information Systems</i></b></p> <p><i>1.1 Data Science Competency in Organisations: A Systematic Review and Unified Model</i></p> <p><u>Marie Hattingh</u>, University of Pretoria Linda Marshall, University of Pretoria Marlene Holmner, University of Pretoria Rennie Naidoo, University of Pretoria</p>	<p><b><i>Intelligent Systems</i></b></p> <p><i>2.1 Age and Gender Estimation using Optimised Deep Networks</i></p> <p>Wade Downton, Allen Gray <u>Hima Vadapalli</u>, University of the Witwatersrand</p>	<p><b><i>ICT and Education 21st century skills</i></b></p> <p><i>3.1 Constructivist Assistive Technology in a Mathematics Classroom for the Deaf: Going Digital at a Rural Namibian Primary School</i></p> <p>Loide Abiatal, UNISA <u>Grant Royd Howard</u>, UNISA</p>
		<p><i>1.2 A Framework to Maximise the Communicative Power of Knowledge Visualisations</i></p> <p>Karen Renaud, Abertay University <u>Judy van Biljon</u>, UNISA</p>	<p><i>2.2 Segmenting objects with indistinct edges, with application to aerial imagery of vegetation</i></p> <p><u>Katherine James</u>, Rhodes University Karen Bradshaw, Rhodes University</p>	<p><i>3.2 Does automation influence career decisions among South African students?</i></p> <p>Sakhumzi Mbilini, Stellenbosch University <u>Daniel le Roux</u>, Stellenbosch University Douglas Parry, Stellenbosch University</p>
		<p><i>1.3 Phenomenology: excavating contextual practices from Open Distance Learning tutoring experiences</i></p> <p><u>Petra Le Roux</u>, UNISA Corne van Staden, UNISA Kirstin Krauss, UNISA</p>	<p><i>2.3 Edge-preserving smoothing filters for improving object classification</i></p> <p><u>Vusi Skosana</u>, CSIR Dumisani Kunene, CSIR</p>	<p><i>3.3 Analysis of students with and without disabilities in an e-learning setting</i></p> <p><u>Motlhabane Maboe</u>, UNISA Mariki Eloff, UNISA Marthie Schoeman, UNISA</p>
<b>10:15 - 10:45</b>	<b>Tea break</b>			

Keynote Plenary : Prof Robert Winter				
<b>10:45 - 11:45</b>	<b>Ndau &amp; Nari</b>	<p><b>Accumulation and Evolution of Design Knowledge</b></p> <p>Research is a collaborative, evolutionary endeavour - and it is no different with design science research (DSR) which builds upon existing design knowledge and creates new design knowledge to pass on to future projects. However, despite the vast, growing body of DSR contributions, scant evidence of systematic, cross-project accumulation and evolution of design knowledge is found in the DSR body of knowledge. This limits not only opportunities for cumulative research and research collaboration, but also makes it difficult to deal with capacity limitations both of researchers and publication outlets.</p> <p>In this keynote, we aim at providing guidance on how to position design knowledge contributions in wider problem and solution spaces. We propose (1) a model conceptualizing design knowledge as a resilient relationship between problem and solution spaces, (2) a model that demonstrates how individual DSR projects consume and produce design knowledge, (3) a map to position a design knowledge contribution in problem and solution spaces, and (4) principles on how to use this map in a DSR project.</p>		
<b>Session chair</b>		Prof Alta van der Merwe		
SAICSIT AGM - Ndau & Nari				
<b>11:45 - 12:45</b>				
Lunch				
<b>12:45 - 13:30</b>				
Session chairs				
	<b>Session chairs</b>	<b>Ndau &amp; Nari</b>	<b>Ingwe</b>	<b>Mhelembe</b>
		<b>Prof Brenda Scholtz</b>	<b>Prof Janet Wesson</b>	<b>Prof Jan Kroeze</b>
<b>13:30 - 15:30</b>		<p><b><i>Agricultural and Health Informatics</i></b></p> <p><i>1.4 A Classification Framework of Mobile Health Crowd Sensing (MHCS): A Scoping Review</i></p> <p><u>Temitope Tokosi</u>, Nelson Mandela University Brenda Scholtz, Nelson Mandela University</p>	<p><b><i>Computer Science</i></b></p> <p><i>2.4 Investigating the hosting of small-scale database management systems on microprocessor development boards</i></p> <p>Riaan Fokker, North West University VTC Imelda Smit, North West University VTC <u>Romeo Botes</u>, North West University VTC</p>	<p><b><i>Information Systems</i></b></p> <p><i>3.4 Taking the Subjectivity out of UX Evaluation with Emotiv EPOC+</i></p> <p>Manon Holman, University of Pretoria <u>Funmi Adebesein</u>, University of Pretoria</p>

	<p><i>1.5 Premier Service Medical Investments: Challenges and perceptions of healthcare practitioners in the adoption and implementation of healthcare information technology (HIT)</i>  Wilton Mukono, Industry  <u>Temitope Tokosi</u>, Nelson Mandela University</p>	<p><i>2.5 A scalable database model of RFI data for the MeerKAT radio telescope</i>  <u>Gerald Balekaki</u>, University of Cape Town  Michelle Kuttel, University of Cape Town  Anja Schroeder, SA Astronomical Observatory  Sarah Blyth, University of Cape Town  Sonia Berman, University of Cape Town</p>	<p><i>3.5 Radio Frequency Identification Implementation Challenges</i>  Morne Esau, University of Cape Town  <u>Lisa Seymour</u>, University of Cape Town</p>
	<p><i>1.6 ICT technology use within public health clinics: A case study in a Gauteng township</i>  <u>Irene Abraham</u>, Tshwane University of Technology  Patricia Alexander, Tshwane University of Technology</p>	<p><i>2.6 Trakhtenbrot theorem for classical languages with three individual variables</i>  Mikhail Rybakov, Tver State University  <u>Dmitry Shkatov</u>, University of the Witwatersrand</p>	<p><i>3.6 Factors that Influence Information Technology Workers' Intention to Telework: A South African Perspective</i>  Joseph Morrison, University of Cape Town  Wallace Chigona, University of Cape Town  <u>Donald Flywell Malanga</u>, University of Cape Town</p>
	<p><i>1.7 Towards an Understanding of Post-Adoption Usage Behaviours in the Context of M-Health Pregnancy Support Applications</i>  Tendai Mutsai, University of Witwatersrand  <u>Emma Coleman</u>, University of Witwatersrand</p>	<p><i>2.7 Quantifying the Accuracy of Small Subnet-equivalent Sampling of IPv4 Internet Background Radiation Datasets</i>  <u>Stones Dalitso Chindipha</u>, Rhodes University  Barry Irwin, Rhodes University  Alan Herbert, Rhodes University</p>	<p><i>3.7 Maximizing the organizations' technology leverage through effective conflict-risk management within Agile Teams</i>  <u>Mothepane Tshalalala</u>, University of Johannesburg  Lucas Khoza, University of Johannesburg</p>
<b>15:30 - 16:00</b>	<b>Tea break</b>		

		<b>Ndau &amp; Nari</b>	<b>Ingwe</b>	<b>Mhelembe</b>
	<b>Session chairs</b>	<b>Douglas A. Parry</b>	<b>Dr. Daniel le Roux</b>	<b>Prof Rennie Naidoo</b>
<b>16:00 - 17:00</b>		<b>Internet</b> <i>1.8 The Good, the Bad and the Ugly of the Dark Web: Perceptions of South African Students and Parents</i> <u>Ruhan Odendaal</u> , University of Pretoria Marie Hattingh, University of Pretoria Sunet Eybers, University of Pretoria	<b>IS security</b> <i>2.8 PoPI Compliance through Access Control of Electronic Health Records</i> <u>Tamir Tsegaye</u> , Rhodes University Stephen Flowerday, Rhodes University	<b>Panel Discussion</b> The founder and Executive Chairman of the World Economic Forum (WEF), Professor Klaus Schwab, argues: <i>“Academic institutions are often regarded as one of the foremost places to pursue forward-thinking ideas. New evidence, however, indicates that the career incentives and funding conditions in universities today favour incremental, conservative research over bold and innovative programmes”</i> <i>“One antidote to research conservatism in academia is to encourage more commercial forms of research... To foster both ground-breaking fundamental research and innovative technical adaptations across academia and business alike, governments should allocate more aggressive funding for ambitious research programmes. Equally, public-private research collaborations should increasingly be structured towards building knowledge and human capital to the benefit of all.”</i> Some critics have argued that in a country that is struggling to spread the benefits of the First and the Second Industrial Revolution, we should not be diverting our attention and resources into the hype associated with the “Fourth Industrial Revolution?”
		<i>1.9 Attributes Extraction for Fine-grained Differentiation of the Internet of Things Patterns</i> Vusi Sithole, University of Pretoria <u>Linda Marshall</u> , University of Pretoria	<i>2.9 A Characterization of Digital Native's interactions with Mobile Privacy and Security</i> <u>Sarina Till</u> , University of Cape Town Melissa Densmore, University of Cape Town	
<b>17:00 - late</b>		<b>Game drive and Gala dinner</b>		

## Wednesday 18 September 2019

<b>07:00 - 14:00</b>	<b>Registration and Help desk</b>
<b>07:00 - 08:00</b>	<b>Breakfast in the Cattle Baron Restaurant</b>

<b>Keynote Plenary: Prof Willem Visser</b>		
<b>08:00 - 08:30</b>	<b>Ndau &amp; Nari</b>	<p style="text-align: center;"><i>The Magic of Analysing Programs</i></p> <p>The presentation will take a brief tour describing various technologies that have proven useful to discover software defects (semi-)automatically. These include model checking, symbolic execution and fuzzing tools. We will highlight the various strengths and weaknesses of each and will show how they can be fruitfully combined. Throughout the presentation we will show various real-world bugs that were discovered using our versions of the aforementioned types of tools (Java PathFinder, Symbolic PathFinder, Green and Coastal). We will conclude with what we believe would be the perfect combination of tools, to not only find errors, but also to show correctness, and what it would take to make these work on commercial scale problems.</p>
<b>Session chair</b>		Prof Carina de Villiers

		Ndau & Nari	Ingwe	Mhelembe	
	<b>Session chairs</b>	<b>Prof AURONA GERBER</b>	<b>Prof KIRSTIN KRAUSE</b>	<b>Prof ROSSOUW VON SOLMS</b>	
<b>08:30 - 10:30</b>		<p><b><i>Information Systems Development</i></b></p> <p><i>1.10 The role of SME dynamic capabilities on the evaluation of existing ICT</i>  <u>Edzai Kademeteme</u>, UNISA                      Hossana Twinomurizi, UNISA</p>	<p><b><i>Computational Sciences</i></b></p> <p><i>2.10 A Smart Home Simulation Tool to Support the Recognition of Activities of Daily Living</i>                      Brandon Ho, Nelson Mandela University                      Dieter Vogts, Nelson Mandela University  <u>Janet Wesson</u>, Nelson Mandela University</p>	<p><b><i>Information Systems</i></b></p> <p><i>3.8 Guidelines for Data Privacy Compliance: A focus on Cyber-physical Systems and Internet of Things</i>                      Ntsako Baloyi, University of Pretoria  <u>Paula Kotze</u>, University of Pretoria</p>	
		<p><i>1.11 B-BBEE compliance in the South African ICT Sector</i>  <u>Tendani Thabela-Chimboza</u>, University of Cape Town                      Wallace Chigona, University of Cape Town</p>	<p><i>2.11 Semantic representations for under-resourced languages</i>                      Jocelyn Mazarura, University of Pretoria  <u>Alta De Waal</u>, University of Pretoria                      Pieter de Villiers, University of Pretoria</p>	<p><i>3.9 Virtual Work in Developing Countries: The Case of South African Call Centers</i>  <u>Lynn Adonis</u>, University of Cape Town                      Salah Kabanda, University of Cape Town</p>	

	<p><i>1.12 Analysing research on Information Systems success and failure: A Machine Learning Technique</i>  <u>Adedolapo Akin-Adetoro</u>, University of Cape Town  Lisa Seymour, University of Cape Town</p>	<p><i>2.12 A Computational Analysis of News Media Bias: A South African Case Study</i>  Laurenz Aldu Cornelissen, Stellenbosch University  Lucia Isabella Daly, Stellenbosch University  <u>Qhama Sinandile</u>, Stellenbosch University  Heinrich de Lange, Stellenbosch University  Richard James Barnett, Stellenbosch University</p>	<p><i>3.10 A Grounded Theory Analysis of the Techniques Used by Social Media Influencers and Their potential for Influencing the Public Regarding Environmental Awareness</i>  <u>Obrukevwe Okuah</u>, Nelson Mandela University  Brenda Scholtz, Nelson Mandela University  Bernadette Snow, Nelson Mandela University</p>
	<p><i>1.13 From Digital Business Strategy to Digital Transformation - How?</i>  <u>Nancy Brown</u>, University of Cape Town  Irwin Brown, University of Cape Town</p>	<p><i>2.13 Cross-Sample Community Detection and Sentiment Analysis: South African Twitter</i>  <u>Laurenz Aldu Cornelissen</u>, Stellenbosch University  Clarice de Bruyn, Stellenbosch University  Maphiri Ledingwane, Stellenbosch University  Petrus Schoonwinkel, Stellenbosch University  Richard Barnett, Stellenbosch University</p>	<p><i>3.11 An exploratory investigation of online and offline social behaviour among digital natives</i>  Amy Broughton, Stellenbosch University  Mila Daly, Stellenbosch University  Nickel-Jon Marx, Stellenbosch University  Michael Nieuwoudt, Stellenbosch University  Daniel le Roux, Stellenbosch University  <u>Douglas Parry</u>, Stellenbosch University</p>

<b>10:30 - 11:00</b>	<b>Tea break</b>
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<b>12:00 - 13:00</b>	<b>Lunch</b>
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