



SAICSIT2024

SOUTH AFRICAN INSTITUTE OF COMPUTER SCIENTISTS
AND INFORMATION TECHNOLOGISTS

saicsit2024.mandela.ac.za

Boardwalk International Convention Centre 15 – 17 July 2024 Programme

Monday, 15 July 2024

10:00 – 17:00	Registration – <i>Boardwalk Foyer</i>
10:00 – 10:30	Tea
10:30 – 12:00	Postgraduate Symposium – <i>Venue A</i>
12:00 – 12:50	Lunch
12:50 – 14:50	Postgraduate Symposium – <i>Venue A</i>
14:50 – 15:10	Tea
15:10 – 17:00	Postgraduate Symposium – <i>Venue A</i>
18:30	Welcome Function – <i>Cocktail Reception at Boardwalk Indoor Pool Area</i>

Tuesday, 16 July 2024

8:30 – 9:00	Registration, Tea – <i>Boardwalk Foyer</i>	
9:00 – 9:10	Welcome – <i>Venue A</i>	
9:10 – 9:40	Sponsor Talk: Wirk – <i>Venue A</i>	Chair: Prof Mac van der Merwe
9:40 – 10:40	IS Session I – <i>Venue A</i>	CS Session I – <i>Venue B</i>
10:40 – 11:10	Tea – <i>Boardwalk Foyer</i>	
11:10 – 12:30	CS Session II – <i>Venue A</i>	IS Session II – <i>Venue B</i>
12:30 – 13:20	Lunch	
13:20 – 14:20	Keynote address: Prof Tommie Meyer – <i>Venue A</i>	Chair: Prof Aurora Gerber
14:20 – 15:00	IS Session III – <i>Venue A</i>	CS Session III – <i>Venue B</i>
15:00 – 15:20	Tea – <i>Boardwalk Foyer</i>	
15:20 – 16:00	CS Session IV – <i>Venue A</i>	IS Session IV – <i>Venue B</i>
16:00 – 17:00	SAICSIT AGM – <i>Venue B</i>	
18:30 for 19:00	Conference Banquet – <i>Venue C</i>	

Continued on next page.....

Wednesday, 17 July 2024

8:30 – 9:00	Tea – <i>Boardwalk Foyer</i>	
9:00 – 10:40	IS Session V – <i>Venue A</i>	CS Session V – <i>Venue B</i>
10:40 – 11:10	Tea – <i>Boardwalk Foyer</i>	
11:10 – 11:50	Sponsor Talk: Amazon Web Services – <i>Venue A</i>	<i>Chair: Prof Patrick Marais</i>
11:50 – 12:30	CS Session VI – <i>Venue A</i>	IS Session VI – <i>Venue B</i>
12:30 – 13:20	Lunch	
13:20 – 14:40	IS Session VII – <i>Venue A</i>	CS Session VII – <i>Venue B</i>
14:40 – 15:00	Tea – <i>Boardwalk Foyer</i>	
15:00 – 16:00	CS Session VIII – <i>Venue A</i>	

Continued on next page.....

Postgraduate Symposium

PG Symposium Session I - Monday 15 July - Venue A	
<i>Chair: Prof Jean Greyling</i>	
10:30 - 10:54	Publish to flourish – <i>Prof Jan Kroeze (UNISA)</i>
10:54 - 11:03	The effect of decent work in employee work-oriented usage of social media in higher education: a systematic literature review - <i>Siphe Mhlana</i>
11:03 - 11:12	The Use of Digital Mental Health Platforms Among Men with Mental Health Conditions in South Africa - <i>Ronaldo Nombakuse and Pitso Tsibolane</i>
11:12 - 11:21	What is delaying the full Adoption of Cloud Computing in South Africa? A model and policy review - <i>Phumelela Mjosli, Jan Ellof and Moses Dlamini</i>
11:21- 11:30	A Human-Computer Interface (HCI) Framework for Designing Collaborative Interfaces for Digital Learning in resource-constrained environments - <i>John Aduradola</i>
11:30- 11:39	Guidelines for reducing perception errors in Autonomous Vehicle System Architecture - <i>Itumeleng Ramala</i>
11:39- 11:48	A Model for Real-Time Stress Management and Intervention for Tertiary Students Using Smart Wearables - <i>Vimbai Matanda</i>
11:48- 11:57	The Great Invisible Assistant: Students' and Lecturers' Hedonic Motivations to Use Generative Artificial Intelligence - <i>Lwazisile Mhlambi</i>

PG Symposium Session II - Monday 15 July - Venue A	
<i>Chair: Prof Jean Greyling</i>	
12:50- 13:14	Why do postgrad students drop out? – <i>Prof Wallace Chigona (UCT)</i>
13:14- 13:23	Benefits and challenges of RPA in healthcare - <i>Phillip Sibanda</i>
13:23- 13:32	Stock price prediction using transformer-based model - <i>Akho Ndlodaka</i>
13:32 - 13:41	Students' acceptance of social media to seek health information - <i>Sivile Manene</i>
13:41- 13:50	A Comparative Review of Autonomous Smartwatch Data Management - <i>Carmen Bekker</i>
13:50- 13:59	Exploring the Efficient Implementation of Knowledge Base Generators for KLM-Style Defeasible Reasoning - <i>Chipo Hamayobe</i>
13:59- 14:09	Break
14:09- 14:18	Machine Learning Techniques for Improving Real-time APT Detection in Cloud Computing Environments - <i>Mihlali Mbhedeni</i>
14:18- 14:27	Revolution of AI in South African agricultural sector - <i>Khuliso Sigama</i>
14:27- 14:36	Odometry by means of Stereoscopic Vision and Deep Neural Networks - <i>Anne van der Merwe</i>
14:36- 14:45	Mental Illness Monitoring and Predictive Model using Smart Devices: Machine Learning Approach - <i>Senota Frans Kgoete and Michael Moeti</i>
14:45- 14:54	Development of Security Threats Identification Model for Internet of Things (IoT) Smart Office Devices - <i>Mdzobo Malwande</i>

PG Symposium Session III - Monday 15 July - Venue A*Chair: Prof Jean Greyling*

15:10-15:34	What does it take to become a researcher in this day and age? Tips and Tricks of the trade – <i>Prof Hein Venter (UP)</i>
15:34-15:43	An Enterprise Architecture Implementation Framework to Enhance business-IT Alignment in Public Health Organisations in South Africa - <i>Naleli Nts'onyana</i>
15:43-15:52	Financial Transactions Monitoring Using an AI Predictive Model in the Malawi Banking Sector - <i>Mwayi Malimba</i>
15:52 - 16:01	Big Data Analytics for Enhancing Student Retention in South African Universities: An Examination of Critical Success Factors - <i>Ganizani Mainoti</i>
16:01-16:09	Break
16:09-16:18	Evaluation of YOLO Algorithms for Real-Time Fish Detection in Underwater Environments - <i>Daanyaal Salie</i>
16:18-16:27	Evolving Robotic Systems with Improved General Capabilities Using Neural Modules that Support Perception, Higher Cognition, and Memory-Based Adaptation - <i>Sithuliswa Mthembu</i>
16:27-16:36	Developing an Intelligent-bus tracking and seat reservation model for South African public transit - <i>Nthabiseng Hlakudi Phiri, Michael Moeti and Magauwane Reneilwe Maepa</i>
16:36-17:00	How to manage your supervisor – <i>Prof Tommie Meyer (UCT)</i>

Information Systems Track

IS Session I - Tuesday 16 July - Venue A	
<i>Chair: Prof Mac van der Merwe</i>	
09:40 - 10:00	How the Perceptions of Farmers Influences the Adoption of the Agricultural Internet of Things in the Western Cape, South Africa - <i>Andrew Kent and Zainab Ruhwanya</i>
10:00 - 10:20	Cybersecurity vulnerabilities experienced by educators in marginalised schools: Case of South Africa - <i>Caroline Magunje and Wallace Chigona</i>
10:20 - 10:40	Utilisation of a Virtualised Honeynet to Proactively Secure the South African National Research and Education Network against Cyberattacks - <i>Heloise Pieterse, Graham Barbour, André McDonald, Danielle Badenhorst and Wian Gertenbach</i>

IS Session II - Tuesday 16 July - Venue B	
<i>Chair: Dr Caroline Magunje</i>	
11:10 - 11:30	“System e Down”: Citizens’ Perceptions of the Failures of e-Government Systems in Botswana - <i>Godwin Kaisara, Clayton Peel, Khulekani Yakobi and Admire Mare</i>
11:30 - 11:50	Factors Affecting User Participation in the Design of Government Digital Services in South Africa - <i>Nomfezeko Ntika and Wallace Chigona</i>
11:50 - 12:10	Examining data governance to determine how democratic data management can be achieved in organizations - <i>Jason Stamp and Samwel Mwapwele</i>
12:10 - 12:30	POPIA Compliance in Digital Marketplaces: An IGOE Framework for Pattern Language Development - <i>Mmaphefo Octavia Kumalo and Reinhardt Adriaan Botha</i>

IS Session III - Tuesday 16 July - Venue A	
<i>Chair: Prof Aurona Gerber</i>	
14:20 - 14:40	Cybersecurity as a Competitive Advantage for Entrepreneurs - <i>Nangamso Mmango, Tapiwa Gundu and Samuel Chiromo</i>
14:40 - 15:00	Behavioural Predictors that Influence Digital Legacy Management Intentions among Individuals in South Africa - <i>Jordan Young, Ayanda Pekane and Popyeni Kautondokwa</i>

IS Session IV - Tuesday 16 July - Venue B	
<i>Chair: Dr Heloise Meyer</i>	
15:20 - 15:40	Constraints and Outcomes of Giving Free Wi-Fi Access to Learners: A South African Case Study - <i>Kevin Birtles, Zane Davids and Lisa Seymour</i>
15:40 - 16:00	Serious games, stakeholder theory, and enterprise architecture: An integrative literature review - <i>Lance Bunt, Estelle Taylor and Japie Greeff</i>

Continued on next page.....

IS Session V - Wednesday 17 July - Venue A	
<i>Chair: Dr Tapiwa Gundu</i>	
09:00 - 09:20	Artificial Intelligence Impact on the realism and prevalence of deep fakes - <i>Oyena Mahlasela, Errol Baloyi, Nokuthaba Siphambili and Zubeida Dawood</i>
09:20 - 09:40	Gender Perceptions of Software Developers' Job Satisfaction - <i>Nico Claasen, Andre Calitz and Margaret Cullen</i>
09:40 - 10:00	Leveraging Environmental Data for Intelligent Traffic Forecasting in Smart Cities - <i>Oluwaseyi Alabi, Sunday Ajagbe, Olajide Kuti, Oluwaseyi Afe, Grace Ajiboye and Mathew Adigun</i>
10:00 - 10:20	Cautious Optimism: The Influence of Generative AI Tools in Software Development Projects - <i>Takura Mbizvo, Grant Oosterwyk, Pitso Tsibolane and Popyeni Kautondokwa</i>
10:20 - 10:40	An Exploratory Qualitative Study of Disruptive Technology Adoption among Zimbabwean Small and Medium Enterprises in and around Harare, Gweru, and Bulawayo - <i>Thomas van der Merwe</i>

IS Session VI - Wednesday 17 July - Venue B	
<i>Chair: Prof M.C. du Plessis</i>	
11:50 - 12:10	The Knowledge Economy, Past and Future - <i>Alan Dlamini</i>
12:10 - 12:30	Understanding Limited Enterprise Systems Benefits in Government: An African Case - <i>Musani Butale and Lisa F Seymour</i>

IS Session VII - Wednesday 17 July - Venue A	
<i>Chair: Dr Graham Barbour</i>	
13:20 - 13:40	Strategies for Healthcare Resilience: A Comparative Evaluation of ARIMA and LSTM Models in Predicting COVID-19 Hospital Admissions - <i>Taurai T Chikotie, Bruce W Watson, Takudzwa V Banda and Liam R Watson</i>
13:40 - 14:00	A Model for Predicting Continuance Intentions of mHealth with Community Health Workers in Malawi: From User Expectations Perspective - <i>Donald Flywell Malanga and Wallace Chigona</i>
14:00 - 14:20	The Four Processes of an Effective Cyber Security Policy - <i>Iyaloo Waiganjo, Jude Osakwe and Azeta Ambrose</i>
14:20 - 14:40	Building Blocks for Ubuntu-based Information Systems Ethics - <i>Jan Kroeze</i>

Continued on next page.....

Computer Science Track

CS Session I - Tuesday 16 July - Venue B	
<i>Chair: Dr Stephen Levitt</i>	
09:40 - 10:00	Iterative Approximation of Nash Equilibrium Strategies for Multi-Agent Systems - <i>Nils Timm and Kyle Smith</i>
10:00 - 10:20	Sarcasm Detection in Political Speeches using Recurrent Neural Networks - <i>Thikho Mulaudzi and Sello N Mokwena</i>
10:20 - 10:40	User-centred design and development of a web-based Western Cape substance use assessment tool - <i>Cameron Worthington, Leon Holtzhausen and Michelle Kuttel</i>

CS Session II - Tuesday 16 July - Venue A	
<i>Chair: Dr Alfred Mazorodze</i>	
11:10 - 11:30	Blockchain in Healthcare: Implementing Hyperledger Fabric for Electronic Health Records at Frere Provincial Hospital - <i>Olukayode Oki, Abayomi Agbeyangi and Aphelele Mgidi</i>
11:30 - 11:50	Machine Learning-based NLP for Emotion Classification on a Cholera X Dataset - <i>Paul Jideani and Aurona Gerber</i>
11:50 - 12:10	Misinformation Detection in Text for COVID-19 Healthcare Data in South Africa. - <i>Seani Rananga, Nhlakanipho Ngwenya, Mahlatse Mbooi and Bassey Isong</i>
12:10 - 12:30	User Centred Design and Implementation of Useful Picture Archiving and Communication Systems for Effective Radiological Workflows in Public Health Facilities in Zambia - <i>Brighton Mwaba, John Mwanza, Wilkins Sikazwe, Andrew Shawa, Ernest Obbie Zulu, Elijah Chileshe and Lighton Phiri</i>

CS Session III - Tuesday 16 July - Venue B	
<i>Chair: Dr Olukayode Oki</i>	
14:20 - 14:40	Investigating Markov Model Accuracy in Representing Student Programming Behaviours - <i>Herman Kandjimi and Hussein Suleman</i>
14:40 - 15:00	A Technology Based Model for Problem-Solving Skills Development in the Intermediate Phase - <i>Roslyn Tait, Dieter Vogts and Jean Greyling</i>

CS Session IV - Tuesday 16 July - Venue A	
<i>Chair: Dr Khuliso Sigana</i>	
15:20 - 15:40	Unsupervised State Encoding in Video Sequences using Beta Variational Autoencoders - <i>Stephan Mulder and Mathys C. Du Plessis</i>
15:40 - 16:00	Defining an Ontology for Ant-like Robots Based on Simulated Ant-agent Characteristics - <i>Colin Chibaya</i>

Continued on next page.....

CS Session V - Wednesday 17 July - Venue B	
<i>Chair: Dr Mkhuseleli Ngxande</i>	
09:00 - 09:20	An Accident-Avoidance Model for Driver Fatigue Detection using AIoT - <i>Ellen Sedirwa Mfati, Khuliso Sigama, Relebogile Makhulu Langa and Nthabiseng Michael Moeti</i>
09:20 - 09:40	A Technique for the Detection of PDF Tampering or Forgery - <i>Gabriel Grobler, Hein Venter and Sheunesu Makura</i>
09:40 - 10:00	Identifying Deep Learning Models for Detecting Child Online Threats to Inform Online Parents Education: A Systematic Literature - <i>Jennyphar Kavikairiua, Fungai Bhunu Shava and Mercy Chitauru</i>
10:00 - 10:20	WikiMotivate: A Facebook Plugin for Motivating Content Creation and Contribution on Wikipedia - <i>Christabel Chalwe, Chisanga Chanda, Lweendo Muzyamba, Joe Mwape and Lighton Phiri</i>
10:20 - 10:40	Single Matrix Block Shift (SMBS) Dense Matrix Multiplication Algorithm - <i>Daniel Ohene-Kwofie and Scott Hazelhurst</i>

CS Session VI - Wednesday 17 July - Venue A	
<i>Chair: Prof Patrick Marais</i>	
11:50 - 12:10	Empirical Evaluation of Variational Autoencoders and Denoising Diffusion Models for Data Augmentation in Bioacoustics Classification - <i>Charles Herbst, Lorène Jeantet and Emmanuel Dufourq</i>
12:10 - 12:30	Multi-Lambda Encoding of Parallel Algorithms - <i>Charl Olivier</i>

CS Session VII - Wednesday 17 July - Venue B	
<i>Chair: Dr Lighton Phiri</i>	
13:20 - 13:40	Analysis of transformer-based attention for low-resource languages - <i>River Martin, Ruan Visser and Marcel Dunaiski</i>
13:40 - 14:00	A Comparison of Text Representation Techniques and Encoder-Decoder Implementations in a Deep Neural Network for Converting Natural Language into Formal Logic Formulas - <i>Kade Tissink and Mathys C. du Plessis</i>
14:00 - 14:20	Age-Related Face Recognition Using Siamese Networks and Vision Transformers - <i>Pieter Mertens and Mkhuseleli Ngxande</i>
14:20 - 14:40	Deep Learning Classification for Encrypted Botnet Traffic: Optimizing Model Performance and Resource Utilization - <i>Lucas Car and Josiah Chavula</i>

CS Session VIII - Wednesday 17 July - Venue A	
<i>Chair: Dr Vusumzi Funda</i>	
15:00 - 15:20	A Longitudinal Study on the Effect of Patches on Code Coverage and Software System Maintainability - <i>Ernest Mamba and Stephen Levitt</i>
15:20 - 15:40	The integration of Software Engineering into IT Degree Programs: An analysis of the curriculum and industry relevance - <i>Alfred Hove Mazorodze</i>
15:40 - 16:00	Automatic Supervision of Online Assessments Using System Process Information and Random Photography - <i>Malia Sekokotoana, Siyabonga Mhlongo and Abejide Ade-Ibijola</i>