

IST-Africa 2024 Final Programme

20 - 24 May 2024

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Monday,
20 May, 2024

07:30 (UTC+1) / 08:30 (SA) / 09:30 (East Africa) [Welcome](#)

Welcome Address

Paul Cunningham, IST-Africa Institute, Ireland

07:35 (UTC+1) / 08:35 (SA) / 09:35 (East Africa)

Session 2: [Cyber Security 1](#)

Threat Modeling Made Simple: Method Aimed at Non-Experts

Mads Andresen, Danish Technical University, Denmark

BYODelving: Unmasking Security Risks in Higher Education Learning Management Systems - A South African Perspective

Dina Moloja, Central University of Technology, South Africa

South Africa's Cloud and Data Storage Readiness – A Policy Review

Phumelela Mjoli, University of Pretoria, South Africa

Determining the Efficacy of Cybersecurity Awareness Programs on Enhancing WiFi Security Behavior

Joseph Mitao Nguu, United States International University - Africa, Kenya

09:05 (UTC+1) / 10:05 (SA) / 11:05 (East Africa) [Break](#)

09:15 (UTC+1) / 10:15 (SA) / 11:15 (East Africa)

Session 3: [Cyber Security 2](#)

Digital Forensics as a Service Implementation: A Scalable Solution for Cyber Incident Response

Paula Musuva, USIU-Africa, Kenya

Towards the Development of a Digital Forensic Readiness Model for 5G NFV Environments

Sheunesu Makura, University of Pretoria, South Africa

Towards a Unified eDiscovery Forensics Architecture (UEFA)

Julius Silaa, Namibia University of Science and Technology, Namibia

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Session 4: [Cyber Security 3](#)

Deep Learning vs. Traditional Learning for Radio Frequency Fingerprinting

Andreas Otto, University of Pretoria, South Africa

An Optimized Machine Learning Model for the Detection of Man-in-the-Middle Attack in Mobile Edge Computing

Ramahlapane Lerato Moila, University Of Limpopo, South Africa

A Model to Limit Batching Denial of Service Attacks on GraphQL

Arno Möller, University of Pretoria, South Africa

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Session 5: [Cyber Security 4](#)

An Investigation into Telecommuting Impact on Endpoints Security of Corporate Networks in Namibia

Ericky Iipumbu, NUST, Namibia

Block Switching: Defying Fast Gradient Sign Resistance

James Mwangi, Dedan Kimathi University of Technology, Kenya

The Effects of Sampling Technique and Sample Size on Classification Performance of Ensemble Tree Classifiers in Detecting Credit Card Fraud

Mcdonald Chogugudza, University of Fort Hare, South Africa

The Turning Point

Alfredo M. Ronchi, Politecnico di Milano, Italy

14:10 (UTC+1) / 15:10 (SA) / 16:10 (East Africa) [Break](#)

14:20 (UTC+1) / 15:20 (SA) / 16:20 (East Africa)

Session 6: [Societal Implications of Technology](#)

Improving Digital Equality: The Potential of Data-Free Super Applications

Fazlyn Petersen, University of the Western Cape, South Africa

Assessing Software Safety Knowledge and Skill Gaps in Tanzania

Leonard Peter Binamungu, University of Dar es Salaam, Tanzania

Exploring the Barriers to Digital Financial Inclusion amongst Businesses in the Informal Sector

Carolien van den Berg, University of the Western Cape, South Africa

Societal and Ethical Implications of Technology-Enhanced Agriculture and Healthcare: An African Context

Kassim Kalinaki, Islamic University in Uganda (IUIU), Uganda

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Tuesday,
21 May, 2024

DAY

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Session 7: eHealth 1

A Framework for Establishing Evidence for Digital Health Interventions in Africa

Bessie Malilla, University of Cape Town, South Africa

ICT for Improved Maternal Healthcare in Uganda: A Systematic Literature Review

Musa Chemisto, Soroti University, Uganda

Influence of Health Social Network Sites on Chronic Disease Management: A Systematic Review

Funmi Adebesein, University of Pretoria, South Africa

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Break

08:50 (UTC+1) / 09:50 (SA) / 10:30 (East Africa)

Session 8: eHealth 2

An Immersive Solution to Enhance Nursing Student Skills of Intradermal Injection on New-born.

Lahai Rois Iradukunda, University of the Western Cape, South Africa

A Computer Vision Approach for Infant Cognitive Monitoring

Leah Mutanu, United States International University, Kenya

Fostering Nursing Students' Defibrillator Training Using Immersive Technology

Insaaf Ajeraan, University of the Western Cape, South Africa

Leveraging Virtual Reality to Strengthen Healthcare in Africa: A Systematised Literature Review of Virtual Reality Emerging Technologies and Applications in Medical Education

William Wasswa, Mbarara University of Science and Technology, Uganda

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Break

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Session 9: eHealth 3

Understanding the Impact of Different Light Sources on the Reproducibility of Skin Spectral Signature for Different Skin Tones

Ajibola Oladokun, University of Cape Town, South Africa

Application of Feature Extraction and Selection Techniques in Computed-Based Diagnosis of Breast Cancer from X-ray Mammograms

Ebenezer Debrah, Mbarara University of Science and Technology, Uganda

Optimization of Stroke Prediction Model using a Hybrid of Heterogeneous Ensemble Machine Learning Techniques

Moses Agana, University of Calabar, Nigeria

Deployment and Innovation Processes of Integrated Electronic Medical Record (EMR) System: A Case of University Health Centre Living Lab in Tanzania

Diana Severine Rwegasira, University of Dar es Salaam, Tanzania

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Lunch

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Session 10: eHealth 4

Bilingual Medication (Med-Alert) Reminder Application for Patients

Rebohele Sehlabo, Walter Sisulu University, South Africa

An Evaluation of Health Data Accessibility and Sharing Features of Smartwatches used by South Africans

Carmen Bekker, Nelson Mandela University, South Africa

Auto-Detection of Medicinal Plants using Machine Learning Approach

Onke Simandla, University of Fort Hare, South Africa

The Influence of Politics, Power, and Interests in the Health System Landscape

Chipso Kanjo, University of Malawi, Malawi

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Break

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Session 11: Global Development & Entrepreneurship

Implementation of the Kenya Innovation Bridge using Recommender Systems for the Kenya Innovation Agency

Ann Chemutai, Strathmore University, Kenya

Gender Disparity in STEM programs in Kenya: Case of Dedan Kimathi University of Technology

Juliet Moso, Dedan Kimathi University of Technology, Kenya

Enhancing Entrepreneurial Skills in Higher Learning Institutions: A Case Study of the University of Dar es Salaam's ICT Innovation Hubs

Angelina Misso, University of Dar es Salaam, Tanzania

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End of Sessions



Wednesday,
22 May, 2024

07:30 (UTC+1) / 08:30 (SA) / 09:30 (East Africa)
Session 12: [Next Generation Computing 1](#)

Enhancing Systematic Literature Reviews using LDA and ChatGPT: Case of Framework for Smart City Planning

Muthoni Masinde, Central University of Technology, South Africa

A Metrics-based Model for Estimating the Maintainability of Cloud-Based Enterprise Information Systems for Kenyan SMEs
Elijah Macharia, Jomo Kenyatta University of Agriculture & Technology, Kenya

DbAPI: A Backend-as-a-Service Platform for Rapid Deployment of Cloud Services

Paul Okanda, United States International University (USIU), Kenya

An Intelligent Chatbot Implementation for Employee Exit Auto-Clearance using Deep Learning

Lawrence Kasera, Strathmore University, Kenya

Design and Implementation of a Load Transferring Machine for Multi-Storey Buildings for Multi-Storey Buildings

Thomas Kenn Yong, University of Mauritius, Mauritius

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Session 13: [Next Generation Computing 2](#)

A Semantic Middleware using Docker and Kubernetes Orchestration Tools

Yolo Madani, Central University of Technology, South Africa

Evaluating the Techno-Economic Viability of Greenfield 5G in South Africa: A Comprehensive Comparison with 4G Networks
Lusani Mamushiane, CSIR, South Africa

Towards a 5G Equipped Video Surveillance UAV for Public Safety

Thapelo Makhalanyaane, CSIR, South Africa

Enhancing Classification and Prediction through the Application of Hybrid Machine Learning Models

Misheck Banda, University of South Africa, South Africa

Generating African Artistic Styles Using Textual Inversion

Azizuddin Ahmed Biyabani, Carnegie Mellon University Africa, Rwanda

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Session 14: [Content Technologies 1](#)

A Meta-Analytic Quantitative Review of Methods and Techniques for Sign Language Recognition Approaches
Absolom Muzambi, UNISA, South Africa

Building a Dataset for Misinformation Detection in the Low-Resource Language

Mulweli Patience Mukwevho, University of Pretoria, South Africa

Dispatching News Based on Exact Location Using Dispatch (D) App: An Alternative to X (Twitter)

Tinashe Crispen Garidzira, Walter Sisulu University, South Africa

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Session 15: [Content Technologies 2](#)

Generalising across Domains in Video Misinformation Detection
David Walker, University of Pretoria, South Africa

Analyzing the Perception of Immigrants in South Africa: A Machine Learning Approach to Aggregate Twitter Sentiment Data
Tendai Shoko, University of Johannesburg (UJ), South Africa

Investigating the Effectiveness of Detecting Misinformation on Social Media using Tshivenda Language
Maduvha Malange, University of Pretoria, South Africa

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Session 16: [Content Technologies 3](#)

The Intersection between African Oral Literature and Technology
Theresia Mushaandja, Namibia University of Science and Technology, Namibia

Enhanced Image Classification of African Women: A Synergy of PCA and Random Forest Methods
Phomolo Nicrocia Teffo, Tshwane University of technology, South Africa

Token Economy Incentive Structure Conceptual Goal Model
Samela Kivilo, Tallinn University of Technology, Estonia

An Assessment of POPIA Compliance in Case 1 Municipal Fresh Produce Market
Pheah Malepeng, Nelson Mandela University, South Africa

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Thursday,
23 May, 2024

Integration of Artificial Intelligence (AI) in Academic Libraries: A Systematic Literature Review

Anele Mabona, Nelson Mandela University, South Africa

Digital Twin Monitoring of Classes and Students

Boitumelo Leotlela, NorthWest University, South Africa

Computer-Based Assessments in Higher Education: Challenges and Remediations

Samuel Faloye, IIE's Varsity College, South Africa

Integrating Adaptive Intelligent Tutoring Systems into Private Higher Educational Institutes

Novashnee Gounder, IIE Varsity College, South Africa

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End of Sessions

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Session 17: [Technology Enhanced Learning 1](#)

The Use of ICT in Knowledge Sharing in Collaborative School Partnerships in South Africa

Keagile Ramokolo, University of Pretoria, South Africa

MiLab: a Virtual Science Laboratory for Malawian Secondary Schools

Stanley Ndebvuvu, Mzuzu University, Malawi

Accessible Augmented Reality Chemistry Lab for Students in Developing Countries

Frank Samson, NM-AIST, Arusha, Tanzania

Core Dimensions of Sustainably Deploying Digital Technologies in Resource-Constrained Schools in the Mpumalanga Province of South Africa

Marshal Musarurwa, University of South Africa, South Africa

WSU-Alert: Emergency Response System (ERS) for Students

Mkhuseli Gongwana, Walter Sisulu University, South Africa

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Break

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Session 18: [Technology Enhanced Learning 2](#)

An Adaptation of DigComp for the South African Context

Creswell Du Preez, Nelson Mandela University, South Africa

Leveraging Web-Based Learning to Mitigate Adult Literacy Levels: Perspectives from Kenya

Martha Ng'ang'a, Jomo Kenyatta University of Agriculture and Technology, Kenya

Socio-Technical Insights Deploying Rural Solar Computer Housings for Informal Learning and Information Access

Kim Gush, CSIR, South Africa

Teaching as a Service: An Exploration of Educational Framework for Technology driven teaching for Higher Education Institutions

Adam A. Allii, Islamic University, Uganda

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Lunch

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Session 19: [Technology Enhanced Learning 3](#)

Guidelines for Effective Use of ChatGPT in Introductory Programming Education

Tlou Ramabu, Tshwane University of Technology, South Africa

The Application of Augmented Reality in Teaching Symbolic Mathematical Expressions

Elona Mbalekwa, University of the Western Cape, South Africa

LiDAR-Based Augmented Reality Implementation for Library Tours

Kapoko Mojapelo, University of the Western Cape, South Africa

A Baseline Study on Responsible Computing Integration in Computing Courses: A Case Study of Dedan Kimathi University of Technology

George Musumba, Dedan Kimathi University of Technology, Kenya

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Lunch Break

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Session 20: [Technology Enhanced Learning 4](#)

Building an AI Future: Research and Policy Directions for Africa's Higher Education

Anthony Maina, Dedan Kimathi University of Technology, Kenya



Friday,
24 May, 2024

07:30 (UTC+1) / 08:30 (SA) / 09:30 (East Africa)

Session 21: **eGovernment**

Assessing the Usability of Integrated Financial Management Information Systems (IFMS) in Uganda: Case Study of Mbale Local Government

Emmanuel Eilu, Uganda Christian University, Uganda

E-HRM Practices and Public Value Creation. A Case of County Government in Kenya

Gabriel Kamau, Murang'a University of Technology, Kenya

08:15 (UTC+1) / 09:15 (SA) / 10:15 (East Africa) Break

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Session 22: **Energy and Infrastructures**

A Solar PV Hybrid System Sizing Procedure for the South African Tourism Industry

Bradley Mercur, Lean Energy, South Africa

Challenges of Migration from 2G to 3G/4G of Mobile Broadband Connectivity and Services in Tanzania

Moses Ismail, University of Dar es Salaam, Tanzania

Factors Influencing the Integration of Robotic Process Automation in Banking

Komla Pillay, University of Johannesburg, South Africa

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Session 23: **eAgriculture and Environmental Sustainability 1**

The Perceived Influence of Internet of Things on Precision Agriculture for Small-Scale Farming

Tinashe Chizema, Nelson Mandela University, South Africa

Design and Implementation of an IoT-based Smart Household Biogas Digester

Francis Aweenagua, Ashesi University, Ghana

Tailoring, Access, and Creation of Digital Content: Catalysts for Agricultural Development for Smallholder Farmers

Jimmy Macharia, United States International University, Kenya

Mapping of the Maize Area Using Remotely Detected Multispectral and Radar Images Based on a Random Forest Machine Learning Algorithm

Simbarashe Jombo, Sol Plaatje University, South Africa

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Session 24: **eAgriculture and Environmental Sustainability 2**

Urban Gardens Impact on Food and Environmental Sustainability: Study Case of Aguascalientes, Mexico

Maria-Teresa Hernandez-Herrera, Universidad Panamericana Bonaterra, Mexico

Integrating Fuzzy Logic, Solar Power and IoT for Real-Time Water Quality Monitoring in Cage Fish Culture

Aggrey Shitsukane, Technical University of Mombasa, Kenya

Ensemble Deep and Machine Learning for Improving Short-Term Water Demand Forecast in Cities

Paul Toto, Jomo Kenyatta University of Agriculture and Technology, Kenya

AI-Driven Carbon Emissions Tracking and Mitigation Model

Billy Ochieng, Kisii University, Kenya

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