

# IST-Africa 2026 Final Programme

25 - 29 May 2026

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Monday,  
25 May, 2026

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

**Welcome Address**

Paul Cunningham, IST-Africa Institute, Ireland

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Session 2: [eHealth 1](#)

**Conversational Artificial Intelligence for Health Information Access in Developing Countries: A Systematic Review**

Esther Nderitu Imbamba, United States International University-Africa, Kenya

**Optimizing Performance and User Experience in Healthcare Dashboards**

Ann Chemutai, Strathmore University, Kenya

**Performance Engineering of a National eLMIS: Optimising Microservices, Caching and High-Volume Workflows in Lesotho's Health Supply Chain**

Lebajoa Mphatsi, National University of Lesotho, Lesotho

**Recommendations for Enhancing Offline Functionality to ensure Information Availability in South African Public Electronic Health Information Systems**

Ronewa Nthatheni, Council of Scientific and Industrial Research, South Africa

**A Lightweight IoT and Blockchain-Based Cold Chain Track-and-Trace Prototype for Medical Materials in Resource-Constrained Environments**

Julian Kanjere, Council for Scientific and Industrial Research, South Africa

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Session 3: [eHealth 2](#)

**Implementing AI-based Disease Modelling in Tanzania's Healthcare Sector: Experts' Insights into Awareness, Barriers, and Perceived Impacts**

Bernard Mussa, University of Dar es Salaam, Tanzania

**Developing a Machine Learning Model to Detect Unauthorised Access in Electronic Health Records of HIV Patients at Grootfontein State Hospital**

Elizabeth Ndamona Malulu, Namibia University of Science and Technology, Namibia

**Local Social Structures as Enablers and Barriers for AI Enabled Medical Drone Delivery: Early Evidence from a Developing Economy**

Evode Ndayishimiye, University of Cape Town, South Africa

**Design and Localisation of a Sustainable Electronic Logistics Management Information System for Lesotho**

Lineo Mejaele, National University of Lesotho, Lesotho

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Session 4: [eHealth 3](#)

**AI-Powered Mental Health Chatbots in Africa: A Systematic Review and Culturally Adaptive Framework**

Matshepo Lebeso, University of Cape Town, South Africa

**Design of a Robotic Hand System to address Therapist Shortages in Stroke Recovery**

Suvendi Rimer, University of Johannesburg, South Africa

**A Framework to influence the Behavioural Intention of Adults to Monitor their Health using Gamification: A Qualitative Case from South Africa**

Liezal Cilliers, University of Fort Hare, South Africa

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13:00 (UTC+1) / 14:00 (SA) / 15:00 (East Africa)

Session 5: [ICT-enabled Entrepreneurship](#)

**A Framework for Digital Transformation of SMEs in South Africa (DTF4SMEs)**

Jeetesh Seecharan, UNISA, South Africa

**Open Innovation as a Catalyst for Grassroots Entrepreneurship: Insights from Collaborative Digital Platforms in Nigeria**

Nankyer Sarah Joseph, American University of Nigeria, Nigeria

**Overcoming Barriers to Technology Adoption Among Immigrant Entrepreneurs in the Informal Economy**

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

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Session 6: [Technology Enhanced Learning 1](#)

**SANReN Connect Proof of Concept – Keeping the Research Community Connected**

Kasandra Pillay, CSIR, South Africa

**Computer-Aided Learning Management Suite (CALMS): An Offline-First, TV White Space-Enabled Architecture for Equitable Education in Rural Zimbabwe**

Atleee Munyaradzi Gamundani, Namibia University of Science and Technology, Namibia

**Academic Library's Perspective for AI Integration: Case Study of Rhodes University Library**

Anele Mabona, Nelson Mandela University, South Africa

**Performance Evaluation of Two Private Cloud Systems to Provide Educational e-Services to South African Public Schools Clusters**

Tinashe Magwenzi, Rhodes University, South Africa

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Tuesday,  
26 May, 2026

07:30 (UTC+1) / 08:30 (SA) / 09:30 (East Africa)  
Session 7: Technology Enhanced Learning 2

**Gamification in Education: Exploring the Impact of Gamified Learning on Student's Engagement and Achievement**

Kutlwano Sedimo, Botho University, Botswana

**A Model for Teaching Responsible Computing through Animations**

Malanga Kennedy Ndenga, Karatina University, Kenya

**EcoSkillVR: A VR Training Simulation for Lithium-ion Battery Pack Assembly for Four-Wheel Electric Vehicles**

Yanga Rubushe, University of the Western Cape, South Africa

**Capacity building in STEMS through IoT**

Alfredo M. Ronchi, Politecnico di Milano, Italy

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Session 8: Technology Enhanced Learning 3

**Assessing East Africa Leading Universities' Adherence to Regional and Global Computer Science Curriculum Guidelines**

Leonard Peter Binamungu, University of Dar es Salaam, Tanzania

**Teaching by Doing: Integrating Learning Theories with Cybersecurity Pedagogy**

Sinovuyo Mzanywa, Nelson Mandela University, South Africa

**Factors Influencing Continued Use of e-Learning among Students in Institutions of Higher Learning: A Case from Namibia**

Simson Mashimba, Namibia University of Science and Technology, Namibia

**Exploring the Knowledge-Base and Institutional Integration of the Twin Transition in Higher Education: A Sub-Saharan African Perspective**

Abeeku Sam Edu, University of Ghana, Ghana

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Session 9: Technology Enhanced Learning 4

**Student Perspectives on Responsible AI and Academic Integrity in Higher Education**

Anthony Maina, Dedan Kimathi University of Technology, Kenya

**Exploring Adoption of Generative AI in Higher Education Institutions: A Systematic Literature Review**

Mariam Nalumansi, Islamic University in Uganda, Uganda

**A Comparison of OpenAI's GPT-3.5-turbo, GPT-4-turbo, and GPT-4o when Communicating in Shona in an Educational Environment**

Laurie Butgereit, Nelson Mandela University, South Africa

**A Bibliometric Analysis of Student Academic Performance Prediction Using Data Mining in Education Research**

Nwabisa Prudence Ledidi, Central University of Technology FS, South Africa

**Machine Learning Grade Prediction Using Students' Grades and Demographics**

Mwayi Sonkhanani, Malawi University of Science and Technology, Malawi

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Session 10: Technology Enhanced Learning 5

**Transforming Classroom Management Through Learning Management Systems in African Higher Education: Evidence from Botswana**

Clifford Lekopanye, Botho University, Botswana

**Temporal Patterns of Struggle and Success in Asynchronous Problem-Based Learning**

Munyaradzi Maravanyika, Namibia University of Science and Technology, Namibia

**Resource Efficiency in Problem-Based Learning: A Productive Struggle Perspective**

Alpheas Shindi, Namibia Training Authority, Namibia

**Development of a Mobile Application to Support isiXhosa Learning for Non-Xhosa Speakers in Eastern Cape Universities**

Prince Daughin Ngqabutho Ncube, Walter Sisulu University, South Africa

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Session 11: Technology Enhanced Learning 6

**University-Industry Collaboration Typology: A Systematic Literature Review**

Meriam Kakuwaezi, University of Cape Town, South Africa

**Integrating Emerging Technologies in Computing Curricula: Industry-Academia Collaboration Models**

Kwanele Mgadleni, University of Cape Town, South Africa

**Regenerative Education Systems: Aligning Experiential Learning with Africa's Emerging Opportunity Landscapes**

Ndubueze Mbah, State University of New York at Buffalo, United States

States

**Why African Universities Should Prioritize Open-Source Large Language Models: Evidence from Computing Career Guidance Across Ten Countries**

Precious Eze, Florida International University, United States

**Empowering Local Innovation through Community-Driven Digital Hubs: Lessons from the NEST Dormitory Model**

Geraldine Light, Walden University, United States

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Wednesday,  
27 May, 2026

**RandX: Decentralizing the South African Rand through Blockchain**

Ndumiso Zondi, University of Pretoria, South Africa

**The Security Risks of Keyless Car Entry Systems: A Qualitative Study on South African Drivers**

Emil Reuben Murray, Independent Institute of Education, Emeris, Westville, South Africa

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Session 16: **eGovernment**

**A Zero-Trust Architecture for Public Service Delivery: Securing Cross-Agency Data Sharing in Ghana's eGovernment Framework**

Forgor Lempogo, Ghana Communication Technology University, Ghana

**Extraction and Classification of Financial Documents: State of the Art, Methodology and Perspectives**

Fousseni Seri, Université Nazi BONI (UNB), Burkina Faso

**Machine Learning-based Prediction of Remaining Useful Life of Mobile Devices for Circular Economy E-Waste Management**

Mulisa Thovhale, Council for Scientific and Industrial Research (CSIR), South Africa

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Session 12: **Cyber Security 1**

**Cybersecurity Preparedness in South African Local Governments**

Kudzayi Chegovo, University of Cape Town, South Africa

**Cybersecurity Awareness in Public Schools: the Case of Western Cape Township**

Ronald Chiwariro, University of Cape Town, South Africa

**Unpacking the Cybersecurity Skills Gap: Insights from Employers, Graduates and Faculty**

Paula Musuva, USIU-Africa, Kenya

**A Framework for Cybersecurity Education and Certification in Africa, An OER-Enabled Postgraduate Framework**

Nonkululeko Ntshela, University of Pretoria, South Africa

**A Framework for Dynamic Cybersecurity Awareness (DCA) in Digital Economies**

Washington Omollo, University of KwaZulu-Natal, South Africa

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Session 13: **Cyber Security 2**

**A Comprehensive Analysis of Identity Theft: Definitions, Types, and Impacts**

Cynthia Sthembele Ntshangase, CSIR, South Africa

**PHAST: A Multi-Context Framework for Hybrid Threat Intelligence and Automated Detection Systems**

Victor Obojo, CyberDome Nigeria, Nigeria

**Typing Speed for Continuous Authentication on Short Messages**

Christopher Njaravani, University of Pretoria, South Africa

**Large Scale Actualisation of Post-Quantum Cryptography Migration**

Giulio Di Clemente, Namirial S.p.A., Italy

**Operationalizing Digital Sovereignty: A Privacy-Preserving Protocol for Cross-Border Threat Intelligence in East Africa**

Steve Gamba, University of Nairobi, Kenya

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Session 14: **Cyber Security 3**

**Machine Learning-Based Security Mechanisms for Threat Detection in Smart Manufacturing**

Siyabulela Dyakalasho, University of Fort Hare, South Africa

**A Zero-Trust Framework for Continuous Authentication of BYOD**

Michael Mathebula, North-West University, South Africa

**Aviation Cybersecurity Incident Response Challenges: A Review**

Faith Nombulelo Lekota, University of Johannesburg, South Africa

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Session 15: **Cyber Security 4**

**Smart Channel Hopping Model for Mitigating Reactive Jamming Attacks in Internet of Things Networks**

Enos Letsoalo, Tshwane University of Technology, South Africa

**Hybrid ResNet50, Convolution Neural Network and Support Vector Machine for Face Recognition in Unconstrained Environment**

Samwel Muchina, Dedan Kimathi University of Technology, Kenya



Thursday,  
28 May, 2026

**Nice Intelligent Network Assistant (NINA): A Multi-Lingual Chatbot API for Subscription and Order Services Using REST and GraphQL**  
Tinashe Crispin Garidzira, Walter Sisulu University, South Africa

**Building SME Resilience through Business Analytics: A Dynamic Capabilities Perspective**

Kakale Ndwapi, University of Pretoria, South Africa

**Systematic Literature Review on Blockchain Adoption in Global South**

Rethabile Modise, University of Cape Town, South Africa

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Session 21: [Next Generation Computing 3](#)

**Intelligent Credit Monitoring: An AI-Powered Credit Monitoring Approach for Real-Time Risk Assessment in African Development Finance Institutions**

Olusola Salami, University of South Africa, Nigeria

**Developing an AI-Driven System for Enhancing Know your Customer (KYC) for Microlenders**

Suama Hamunyela, Namibia University of Science and Technology, Namibia

**Perceived Use of AI in Enhancing IT Compliance and Risk Management in the Financial Industry of Namibia**

Ester Shikudule, Namibia University of Science and Technology, Namibia

**From Smartphones to Feature Phones: Lessons from Akili AI on Inclusive AI Adoption in Low-Connectivity Settings**

Moses Ismail, University of Dar es Salaam, Tanzania

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Session 17: [Content Technologies 1](#)

**Digital Twin: Key Considerations for Business Adoption**

Elnu van Rensburg, University of Pretoria, South Africa

**A Unified Framework for Secure and Interoperable Digital Identity in South Africa**

Siphelele Myaka, CSIR, South Africa

**Multilingualism and Digital Discourse in Namibia: The Role of Indigenous and Hybrid Languages on Social Media**

Sebastian Muronga Munenda, The International University of Management (IUM), Namibia

**Transcription System for Regional Accents in Angola Using Whisper and LLM**

Mateus Padoca Calado, Faculdade de Ciências Naturais da Universidade Agostinho Neto, Angola

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Session 18: [Content Technologies 2](#)

**Mapping the Research on Social Media Impact: Trends, Blind Spots, and Global South Representation**

Phumezo Ntlatywa, Sol Plaatje University, South Africa

**Developing a Mobile-Based ICT Framework to Enhance Digital Ministry in a Resource-Constrained Church**

Nsikelelo Tsoelopele Thamsanqa Kumalo, Independent Institute of Education, Emeris, Westville, South Africa

**Enhancing Anomaly Detection in IT Systems Using Machine Learning Techniques**

Thembisio Tshisikhawe, Tshwane University of Technology, South Africa

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Session 19: [Next Generation Computing 1](#)

**From Data to Cloud Sovereignty: A Framework for Secure and Compliant Cloud Adoption in South Africa**

Phumelela Mjoli, University of Pretoria, South Africa

**AI Reliability: A GPU - Native Framework for Real-Time Spectral Telemetry and Anomaly Sequencing in Data Centers and Beyond**

Amos Njeru, Robotics Reliability Research lab, Kenya

**Empirical Analysis of GNN Architectures for VM Power Consumption Prediction**

Morris Kaburu, Dedan Kiamathi university, Kenya

**Evaluation of Advanced Data Structures for Federated Learning Processes: Complexity, Trade-offs, and Design Considerations**

Anthony Njina, Meru University of Science & Technology, Kenya

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Session 20: [Next Generation Computing 2](#)

**Optimising Knowledge Sharing through Communication in South-African Hybrid Agile Software Development Teams**

Papama Mtambeka, University of Cape Town, South Africa

**Affordances of Automated Testing Tools and their Effects on Software Testing Professionals**

Ishmael Chikoo, University of Cape Town, South Africa



Friday,  
29 May, 2026

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Session 22: [eAgriculture 1](#)

**Smart Water Monitoring and Management: A Bibliometric Analysis of Global Research Trends**

Sizwe Ximba, Durban University of Technology, South Africa

**IoT-enabled Real-time Water Quality Monitoring System for Sustainable Small-scale Aquaculture in Sub-Saharan Africa**

Moleboge Mkhonto, University of Johannesburg, South Africa

**Reflections on e-Agriculture: Insights into Equity, Participation and Knowledge Transformation in Resource Constrained Aquaponics Settings**

Privilege Mabiza Kanotangudza, Nelson Mandela University, South Africa

**An Integrated System for Detection and Prediction of Soil Health using IoT and Machine Learning Techniques**

Kabelo Moroke, Tshwane University of Technology, South Africa

**Leveraging Data-Driven Machine Learning for Intelligent Shelf Life Prediction of Fresh Apple**

Tharollo Mphahlele, University of the Western Cape, South Africa

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Session 23: [eAgriculture 2](#)

**Intelligent Crop Disease Detection System using Leaf image Analysis with Computer Vision**

Lydie Simone TAPSOBA, Mathematics and Informatics laboratory (LAMI), Burkina Faso

**Explainable AI Enhanced Deep Learning for Tomato Disease Classification using Resnet-50 and Mobilenetv2**

Abrehale Gebreslassie Gebremariam, Adigrat University, Ethiopia

**Sensor-enabled Household Biodigester: A Student-driven IoT Prototype**

André Nitze, Brandenburg University of Applied Sciences, Germany

**A Lightweight Cryptography Framework for Secure mAgriculture: Securing IoT Endpoints for a Blockchain-based Traceability System in Ghana**

Joseph Kojo Asampanbilla, Ghana Communication Technology University, Ghana

**Gender and Generational Inequalities in ICT Adoption for Agricultural Decision-Making in KwaZulu-Natal**

Ntabeni Jere, University of KwaZulu-Natal, South Africa

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Session 24: [eAgriculture and Environmental Sustainability](#)

**Correlation of Remote Sensing Data for Assessing Carbon Credits under Climate Change in the Okavango Countries**

Isau Alfredo Bernardo Quissindo, Faculty of Agrarian Science - University José Eduardo dos Santos (UJES), Huambo, Angola, Angola

**Administering Weather Index Crop Insurance for Low-Income Farmers using Blockchain Technology and Internet-of-Things Sensors**

Tatenda Muvhu, University of Cape Town, South Africa

**Rethinking Emission Modelling Approaches for Sub-Saharan Africa's Complex Realities using Machine Learning Methods as a Decision Support System**

Elias Muhatia, Strathmore University, Kenya

**Designing and Localising a Climate Services Information System for Impact-Based Forecasting in Lesotho**

Khobatha Setetemela, The National University of Lesotho, Lesotho

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End of Sessions