

IST-Africa 2021 Final Programme

10 - 14 May 2021



Hosted by

science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

ISTAfrica

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Introduction

Due to the unprecedented circumstances during the COVID-19 pandemic, **IST-Africa 2021** will take place as a virtual event from 10 - 14 May. An activity of **IST-Africa**, **IST-Africa 2021** is the sixteenth in an Annual Conference Series bringing together senior representatives from leading public, private, education & research organisations, to discuss ICT policy, showcase research results and share knowledge.

Hosted by the Government of South Africa through the Department of Science and Innovation, Supported by the European Commission and African Union Commission, **IST-Africa 2021** focuses on the the Role of ICT, Research and Innovation in Africa's Development and specifically on Applied ICT research in the areas of eHealth, eGovernment, eInfrastructures, Technology Enhanced Learning and ICT Skills, Cyber Security, Next Generation Computing, eAgriculture, Societal Implications of Technology, International Cooperation and ICT4D. **IST-Africa 2021** will provide a collegiate setting for presentations and discussions of national & regional developments, issues of concern & good practice models, and networking with peers. **IST-Africa 2021** will also provide an opportunity to identify potential partners for future proposals under Horizon Europe.

IST-Africa 2021 is Technically Co-Sponsored by IEEE Africa Council, IEEE Society on Social Implications of Technology, IEEE Education Society, IEEE Technology and Engineering Management Society, IEEE South Africa Section, IEEE Tunisia Section, IEEE Uganda Section and IEEE UK and Ireland SSIT Chapter.

IST-Africa directly supports Information Society, Innovation and ICT aspects of the Africa-EU Strategic Partnership, the Science, Technology and Innovation Strategy for Africa (STISA-2024), the Digital Transformation Strategy for Africa (2020-30) and the UN Sustainable Development Goals.

The goals of the **IST-Africa** Conference Series are Community Building to facilitate EU-African research cooperation and successful exploitation of Research and Innovation results, to stimulate take-up of RTD results, to promote knowledge sharing between commercial, government and research organisations, to exchange experiences about the current state of eAdoption at a sectoral, national or regional level, to support International Cooperation and open up the European Research Area (ERA) to Africa.

Who will you meet?

IST-Africa 2021 Conference attracts policy makers, practitioners, and researchers from leading commercial, government and research organisations around the world. Unlike many research conferences, **IST-Africa** provides an opportunity to meet with senior managers, practitioners, project managers, software engineers and researchers from industry, government and research organisations. Delegates and speakers attend to share knowledge, experience and lessons learnt, and network with their peers from around the world.

IST-Africa 2021 Conference also provides the unique opportunity to identify partners and opportunities to co-operate in international ICT research projects co-funded by the European Commission under Horizon Europe. The Programme also facilitates sharing of interim results from ongoing Horizon 2020 projects as well as projects supported by national and international funding sources.

Virtual Event

Due to the unprecedented circumstances during the COVID-19 pandemic, **IST-Africa 2021** will take place as a virtual event from 10 - 14 May.

The Programme

The 5-day programme features an invigorating mix of business and government case studies, technical and policy papers and interactive workshops. As well as opening and closing plenary sessions, delegates may participate in 31 thematically focused sessions:

Monday 10 May - CyberSecurity, Collaborative Open Innovation and ICT-enabled Entrepreneurship, Global Development, Content Technologies

Tuesday 11 May - eHealth, eGovernment, Societal Implications of Technology

Wednesday 12 May - Next Generation Computing, eInfrastructure, ICT Supporting Power Delivery

Thursday 13 May - Technology-enhanced Learning

Friday 14 May - eAgriculture, Environment Sustainability

Plenary presentations will provide insights into Horizon Europe, Lessons Learnt from Leveraging Technological Innovation to Manage a Pandemic; Fourth Industrial Revolution (4IR) and Open Science in Africa.

The programme is subject to change and the **IST-Africa 2021** Organising Committee reserves the right to alter the contents and/or speakers. This Programme is accurate as at 11 May 2021. ***The timing of all sessions are based on South Africa Time (GMT+2).***

Conference Proceedings

The **IST-Africa 2021** conference proceedings will be published on an open access basis in the Paper Repository on the Conference Portal.

Papers that are physically presented during the event will also have the option after the event for their paper to be included in the **IST-Africa 2021** Conference Proceedings submitted for publication in IEEE Xplore. Each presenter will present one paper.

Plenary Speakers

Plenary Speakers as at 11 May 2021 include:

- **Welcome Address** - Hon. Buti Manamela, Deputy Minister of Higher Education, Science and Technology, South Africa
- **Horizon Europe - Building on EU-Africa Cooperation** - Maria Cristina Russo, Director, Global Approach & International Cooperation in R&I, DG: Research & Innovation, European Commission
- **Lessons Learnt from Leveraging Technological Innovation to Manage a Pandemic** - Dr Mmboneni Muofhe, Deputy Director-General: Technology Innovation, Department of Science and Innovation, South Africa
- **IST-Africa Journey**- Daan du Toit, Deputy Director-General: International Cooperation and Resources, Department of Science and Innovation, South Africa
- **Fourth Industrial Revolution (4IR)** - Professor Tshilidzi Marwala, Vice-Chancellor and Principal of the University of Johannesburg, South Africa
- **From Principles to Actions: Open Science in Africa** - Dr Sepo Hachigonta, Director, Strategic Partnerships, National Research Foundation, South Africa
- **C4IR South Africa - Supporting Transformation of Manufacturing by Leveraging the Current Wave of Technological Revolution** - Ntsibane Ntlatlapa, Head of the South African Affiliate C4IR Centre

International Programme Committee

A distinguished Programme Committee reviewed and provided feedback on blind peer reviewed papers.

The **IST-Africa 2021** International Programme Committee includes

- **Prof. Paul Cunningham** (Conference Chair), IST-Africa Institute / IIMC, Ireland
- **Tiwonge Banda**, UbuntuNet Alliance, Malawi
- **Prof. Mouna Baklouti**, National Engineering School of Sfax, Tunisia
- **Prof. Abdessattar Ben Amor**, National Institute of Applied Sciences and Technology, Tunisia
- **Dr Yassine Ben Salem**, University of Gabes, Tunisia
- **Dr Hatem Ben Sta**, University of Tuis El Manar, Tunisia
- **Prof. Faouzi Benzarti**, High School Engineering of Tunis, Tunisia
- **Dr Laurie Butgereit**, Nelson Mandela University, South Africa
- **Laurens Cloete**, University of Pretoria, South Africa
- **Prof Bruno Crispo, University of Trento, Italy**
- **Miriam Cunningham**, IST-Africa Institute / IIMC, Ireland
- **Kim Davis**, Research Council of Norway, Norway
- **Dr Jan-Carel Diehl**, Delft University of Technology, Netherlands
- **Prof Love Ekenberg**, DSV, Stockholm University, Sweden
- **Prof. Jejel Ezzine**, ENIT, Tunisia
- **Prof Farid Farahmand**, Sonoma State University, USA
- **Prof. Kenneth Foster**, North Carolina State University, USA
- **Felix Holl**, DigiHealth Institute, Neu-Ulm University of Applied Sciences, Germany
- **Prof. Mohamed Jmaiel**, University of Sfax, Tunisia
- **Dr Chipo Kanjo**, Chancellor College, University of Malawi, Malawi
- **Vasilis Koulolias**, eGovLab / DSV, Sweden
- **Kristiina Lahde**, Saliens Ltd, Finland
- **Ilari Lindy**, SAIS II, Namibia
- **Prof. Johann Marquez-Barja**, University of Antwerp - imec Belgium
- **Prof. Maurice Mars**, University of KwaZulu-Natal, South Africa
- **Morten Møller**, GREPEN, Denmark
- **Dr Tshiamo Motshegwa**, University of Botswana, Botswana
- **Esteban Municio**, University of Antwerp - imec, Belgium
- **Dr Joshua Ndiege**, United States International University - Africa, Kenya
- **Dr Sameerchand Pudaruth**, University of Mauritius, Mauritius

- **Prof. Hamadou Saliah-Hassane**, TELUQ University, Canada
- **Prof. Ilhem Slama-Belkhdja**, University of Tunis El Manarr-ENIT, Tunisia
- **Dr Fungai Bhunu Shava**, Namibia University of Science and Technology, Namibia
- **Dr Julian Sterling**, Bath University, United Kingdom
- **Dr Oteng Tabona**, Botswana International University of Science and Technology, Botswana
- **Martin Ujakpa**, International University of Management (IUM), Namibia
- **Prof Darelle van Greunen**, Nelson Mandela University, South Africa
- **Dr Amin Zribi**, Higher Institute of Communication Technologies (ISETCom), Tunisia

Organising Committee

- **Miriam Cunningham**, IST-Africa Institute / IIMC, Ireland
- **Prof. Paul Cunningham**, IST-Africa Institute / IIMC, Ireland
- **Daan du Toit**, Department of Science and Innovation, South Africa

Conference Secretariat

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science & innovation
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Monday,
10 May, 2021

09:00 Opening Plenary 1

Welcome Address

Paul Cunningham, IST-Africa Institute, Ireland

Welcome Address

Hon. Buti Manamela, Deputy Minister of Higher Education, Science and Technology, South Africa

09:15 Session 2: [Cyber Security 1](#)

Assessing Organisational Information Security Culture Among,
Stanford Musarurwa, Namibia University of Science and Technology,
Namibia

**Predicting Cyber Attacks in a Proxy Server using Support Vector
Machine (SVM) Learning Algorithm**

Moses Agana, University of Calabar, Nigeria

**Recursive Feature Elimination for DDoS Detection on Software
Define Network**

Lonnie Shumirai Matsa, Namibia University of Science and
Technology, Namibia

**A Preliminary Integrated Network Security Framework for
Tertiary Institutions**

Knowledge Rusere, University of South Africa, Namibia

10:35 Break

10:40 Session 3: [Cyber Security 2](#)

Security by Design: Rethinking Resilience of IoT in Healthcare
Sophia Moganedi, CSIR, South Africa

A Model for Protecting Personal Information using Blockchain
Thauriq Jappie, University of Johannesburg, South Africa

Towards User Online Security and Privacy Protection
Julius Silaa, Namibia University of Science and Technology, Namibia

An Intelligent Security Model For Online Banking Authentication
Zanele Zwane, Tshwane University of Technology, South Africa

12:05 Plenary 4

**Lessons Learnt from Leveraging Technological Innovation to
Manage a Pandemic**

Dr Mmboneni Muofhe, Deputy Director-General: Technology
Innovation, Department of Science and Innovation, South Africa

12:20 Lunch Break

13:20 Session 5: [Collaborative Open Innovation and ICT-enabled
Entrepreneurship](#)

**Biotechnology as a Tool: Empowering Women to Lead Change
in Africa**

Freda Gbande, Kumasi Hive, Ghana

**Transitioning from Academic Innovation to Viable Humanitarian
Technology: The Next Steps for the OpenFlexure Project**

Joe Knapper, University of Bath, United Kingdom

**An Ecosystem enabled Framework for Digital Co-operation
- A Collaborative Platform that Supports Technology Enabled
Entrepreneurship**

Brian Omwenga, University of Nairobi, Kenya

**Mind the Gap: Aligning Software Engineering Education and
Industry in Namibia**

Maria Ndapewa Ntinda, University of Turku, Namibia

Automatic Diagnostic Combo Machine (ADCM)

Kedumetse Liphi, Ked-Liphi (pty) Ltd, Botswana

15:00 Break

15:05 Session 6: [Global Development](#)

Defining 'Smart Rural' in the Framework of Regional Digitalisation

Pekko Lindblom, University of Turku, Finland

Development by Design

Petter Nielsen, University of Oslo, Norway

**Assessment Regional Attractiveness of African Countries Based
on UN SDG**

Otakar Cerba, Plan4all z.s., Czech Republic

**Conceptualizing Artefact Influence: A Grounded Theory
Exploration of an ICT4D Study in Uganda**

Musa Chemisto, Islamic University In Uganda, Uganda

16:30 Break

16:35 Session 7: [Content Technology Applications and Case Studies](#)

**A Method for Classifying Neighbourhoods In GIS Applications
by Counting Landmarks**

Laurie Butgereit, Nelson Mandela University, South Africa

**Implementing a Content-Based Routing Framework for
Application Integration on to Teleweaver Application Server**

Sikhumbuzo Ngwenya, University of Fort Hare, South Africa

**Effective Ingestion of Digital Objects in Institutional
Repositories Using Subject Repositories**

Lighton Phiri, University of Zambia, Zambia

**Model for Semantic Network Generation from Low Resource
Languages as Applied to Question Answering – Case of Swahili**

Barack Wanjawa, University of Nairobi, Kenya

**Bantu Machine Translation Proof-of-Concept Using ciNyanja and
ciYawo**

Zangaphee Chimombo, University of Malawi - Chancellor College,
Malawi

18:15 End of Sessions



Tuesday,
11 May, 2021

09:00 Session 8: [eHealth 1: Applications and Case Studies](#)

Factors Affecting e-health adoption in South African Public Hospitals: A Case of Edendale Hospital

Samuel Faloye, Varsity College, Westville, South Africa

Lessons Learnt from Initial Deployments of Rocket Health Telemedicine Service to Deliver Last Mile Medical Services in Uganda

Louis Kamulegeya, The Medical Concierge Group, Uganda

Designing a Data Exchange Model for the Directorate of Special Programs Systems - Namibia

Puyeipawa Ndaendelao Kandume, University of Science and Technology, Namibia

Acceptability, Feasibility and Accuracy of 99DOTS Adherence Technology in Mining Region of Tanzania

Egwuma Efo, KNCV Tuberculosis Foundation, Netherlands

Best Practices to Address Medical Identity Theft Awareness

Brandon Ah Why, Nelson Mandela University, South Africa

10:40 Break

10:45 Session 9: [eHealth 2: Applications and Case Studies](#)

Electronic Health Records for Improved Data Sharing during Patient's Mobility Across Namibian Public Hospitals

Irja Shaanika, Namibia University of Science and Technology, Namibia

Performance Evaluation for Electronic Health Information Systems in Uganda

Margaret Nagwovuma, Makerere University, Uganda

A Framework for e-Health Information Management in Ugandan Hospitals: A Case of Kampala and Arua

Lawrence Nkamwesiga, MUNI University, Uganda

Gluing Papers to Computers: How QR- and Bar-codes Enable Hybrid Information Systems

Tiwonge Manda, University of Malawi, Chancellor College, Malawi

Asynchronous Transmission Mode as the Entry Point of Teleradiology Connectivity in Developing Countries: Case Study Tanzania

Kenedy Greyson, Dar es Salaam Institute of Technology (DIT), Tanzania

12:25 Plenary 10

Fourth Industrial Revolution (4IR)

Professor Tshilidzi Marwala, Vice-Chancellor and Principal of the University of Johannesburg, South Africa

12:40 Lunch Break

13:40 Session 11: [eHealth 3: Applications and Case Studies](#)

Experimental Investigation on the Analysis of Three Data Imputation Methods for Cervical Cancer Risk Prediction Algorithms

Emmanuella Budu, University of Botswana, Botswana

Comparative Performance of Machine Learning Algorithms in Prediction of Cervical Cancer

Ruth Wario, University of the Free State, South Africa

Sensitivity Analysis of Coronary Heart Disease using Two Deep Learning Algorithms CNN & RNN

Mildred Nwonye, University of Botswana, Botswana

A Fuzzy Patient Matching Algorithm Based on HIV/AIDS Patient Identifiers in Kampala, Uganda

Patience Atukunda, Makerere University, Uganda

A Dictionary Learning Approach for Joint Reconstruction and Denoising in Low Field Magnetic Resonance Imaging

Emmanuel Ahishakiye, Mbarara University of Science and Technology, Uganda

15:20 Break

15:25 Session 12: [eGovernment](#)

Open Government Data Support for the Awareness of Employment Opportunities Among the Youth in Alexandra Township in Gauteng Province in South Africa

Vincent Mwendwa Masavah, University of South Africa, South Africa

Residential Plot Record Management System for Windhoek City

Valerianus Hashiyana, University of Namibia, Namibia

A Review of the Siyakhula Living Lab's Network Solution for Internet in Poor Communities

Hilbert Muchatibaya, Rhodes University, South Africa

E-Recruitment System: A Case of Namibian Government

Theodora Mukaya, University of Namibia, Namibia

16:45 Break

16:50 Session 13: [Societal Implications of Technology](#)

The African Perspective of a Smart City: Conceptualisation of Context and Relevance

Mourine Achieng, Cape Peninsula University of Technology, South Africa

Analysis of the Impact of ICT for the Management and Control of Public Transport: A Review of Scientific Literature from 2015 - 2020

Michael Cabanillas-Carbonell, Universidad Privada del Norte, Peru


Skills to Support Managers in Data-based Decision-making

Mambolo Smuts, University of Pretoria, South Africa

Women as Citizen Scientists: Identifying Potential Digital Solutions for Addressing Gender-Based Challenges

Benjamin Akinmoyeje, Namibia University of Science and Technology, Namibia

18:15 End of Sessions



Wednesday, 12 May, 2021

09:00 Session 14: **Next Generation Computing 1**

The Ethical Switch: An Automated Policy and Regulation Framework for Data Dissemination in Cloud Environments
Bernard Alaka, Strathmore University, Kenya

An Exploration of Decision Making for Cloud Computing in South Africa
Andile Mkhabela, Tshwane University of Technology, South Africa

The Potential of Big Data Analytics to replace Managerial Decision-Making: Findings of a Systematic Review
Sedzani Mathoho, University of Pretoria, South Africa

An Overview of Time-Sensitive Communications for the Factory Floor
Arnold Kinabo, University of Cape Town, South Africa

Dynamic Spectrum Sharing for Future Wireless Networks: Regulators Perspective
Gcina Dlodla, CSIR, South Africa

10:40 **Break**

10:45 Session 15: **Next Generation Computing 2**

A QoS-based Evaluation of SDN Controllers: ONOS and OpenDayLight
Lusani Ravhuanzwo, CSIR, South Africa

Enhanced Corporate Network Management using Software Defined Network: The Case of Salt Essential, Namibia
Nalina Suresh, University of Namibia, Namibia

Techno-economic Analysis for 5G Network Slicing: eMBB Slice
Mpho Nkosi, CSIR, South Africa

Fault-tolerance to Cascaded Link Failures of Video Traffic on Attacked Wireless Networks
Akeem Owoade, University of South Africa, South Africa

Deepfake Detection using a Two-Stream Capsule Network
Zane Joseph, University of the Western Cape, South Africa

12:25 Plenary 16

C4IR South Africa - Supporting Transformation of Manufacturing by Leveraging the Current Wave of Technological Revolution
Ntsibane Ntlatlapa, Head of the South African Affiliate C4IR Centre

12:40 **Lunch Break**

13:40 Session 17: **Next Generation Computing 3**

Monitoring Coral Reefs Death Causes with Artificial Intelligence
Nabeelah Pooloo, Université des Mascareignes, Mauritius

Advancing Artificial Intelligence to Combat Escalating Cyberspace Human Rights Violations in Africa
Phumzile Nomnga, University of Fort Hare, South Africa

Natural Language Generation Requirements for Social Robots in Sub-Saharan Africa
C. Maria Keet, University of Cape Town, South Africa

Coverage and Rate Analysis of a UAV Enabled Heterogeneous Network
Sheila Mugala, Makerere University, Uganda

The Impact of Big data and Decision-Making in IoT-enabled applications for African Society
Lindelweyizwe Manqele, University of Limpopo, South Africa

15:20 **Break**

15:25 Session 18: **eInfrastructures**

AfricaConnect3: Connecting Africa to Unlimited Possibilities
Leila Dekkar, Geant, Netherlands

Leveraging TV White Spaces for Rural Broadband Connectivity
Ronald Lukanga, netLabs!UG, Uganda

A Survey of 5G for Rural Broadband Connectivity
Claire Najjuuko, Makerere University, Uganda

IPv6 Adoption in South Africa: Barriers, Benefits and Government Interventions
Themba Shoji, Council for Scientific and Industrial Research, South Africa

Experiences with TVWS, a Technology for Connecting the Unconnected
Albert Lysko, CSIR South Africa

17:05 **Break**

17:10 Session 19: **ICT Supporting Power Delivery**

Improved Efficiency in Solar Cells using Fe-doped ZnS Quantum Dots as Sensitizer
Abhigyan Ganguly, Howard College, University of KwaZulu-Natal, South Africa

Water for Gashora Clinic
Geraldine Light, Walden University, United States

Understanding Mobile Phone Use in Electricity Scarce Context: Extended TAM for Sub-Saharan African Countries
Martin Ujakpa, International University of Management, Namibia

A Brazilian Legal and Technical Evaluation about Energy Binomial Tariff
Marcelo Daniel Berejuck, Federal University of Santa Catarina, Brazil

18:30 **End of Sessions**



Thursday,
13 May, 2021

15:05

Break

15:10 Session 25: [Technology-Enhanced Learning 4 - Applications & Case Studies](#)

Mobile Applications in Supporting Open and Distance Learning Students' Research

Phillip Choshi, University of South Africa, South Africa

An Analysis on the Adoption of High-Performance Computing (HPC) by State Universities: A case of Zimbabwe

Belinda Mutunhu, NUST, Zimbabwe

The Readiness for Adoption of Federated Social Networking Sites to Enhance Contemporary Educational Engagement. The Case of Zimbabwean Universities.

Beauty Mugoniwa, UNISA, Zimbabwe

Big Data Analytics Capacity Development with Radio Astronomy

Nikhita Madhanpall, IAU Office of Astronomy for Development, South Africa

The Intervention of Educational Big Data Analytics for an Effective eLearning Experience. The Case of Zimbabwe's Higher and Tertiary Education

Amanda Nyasha Mutembedza, Midlands state University, Zimbabwe

16:50

Break

16:55 Session 26: [Technology-Enhanced Learning 5 - Applications & Case Studies](#)

The Development of a Bilingual English-Oshikwanyama Dictionary App

Maria Alweendo, University of Namibia, Namibia

A Workflow System for Managing Ethical Clearance in Research Work

Olasupo Ajayi, University of the Western Cape, South Africa

EPFIDab Combined with Cloud Computing to Process Student Ratings in DRC

Léon Eyumu, University of Kinshasa, Congo (DRC)

17:55

End of Sessions

09:00 Session 20: [Technology-Enhanced Learning 1 - Issues and Applications](#)

Enhancing Parent-Teacher Communication through USSD-Based Services amid COVID-19 Lockdown

Titus Haiduwa, University of Namibia, Namibia

Role of Activity Theory in Examining the Interaction between ICT and Education

Shaloam Mutetwa, University of Cape Town, South Africa

Impact of Vocational Motivation for Teaching ICT Online During COVID-19 Pandemic in Sub-Saharan Africa

Narasimha Rao Vajjhala, American University of Nigeria, Nigeria

Adoption of Technology Enhanced Teaching and Learning Innovations during Covid-19 Lockdown in Rural Uganda

Deborah Manyiraho, Busitema University, Uganda

A Game-based Approach to Revive Cultural Heritage amongst the Youth

Kisa Mwangonde, University of Namibia, Malawi

10:40

Break

10:45 Session 21: [Technology-Enhanced Learning 2 - Applications and Case Studies](#)

An Overview of the Integration of Basic Research and Digital Skills in the High School Curriculum

Hope Mauwa, University of Mpumalanga, South Africa

Teaching and Learning CS1 with an Assist of Manipulatives

Tlou Ramabu, Tshwane University of Technology, South Africa

An Investigation of the Use of Career Guidance App by Undergraduate Students: Case Study of Namibia

Aussie Mutalya, International University of Management, Namibia

Adopting Course Completion Tracking and Conditional Activities to Enhance Engagement in eLearning for University Students

Anthony Wambua, Daystar University, Kenya

12:05 Plenary 22

From Principles to Actions: Open Science in Africa

Dr Sepo Hachigonta, Director, Strategic Partnerships, National Research Foundation, South Africa

12:25

Lunch Break

13:25 Plenary 23

Horizon Europe - Building on EU-Africa Cooperation

Maria Cristina Russo, Director, Global Approach & International Cooperation in R&I, DG: Research & Innovation, European Commission

13:45 Session 24: [Technology-Enhanced Learning 3 - Applications](#)

The Importance of Innovation in Agile Project Management

Boingotlo Peege, University of Johannesburg, South Africa

Predictive Analytics and Artificial Intelligence in Blended Learning: A New Dawn for Institutions of Higher Learning

Jackson Machii, The Technical University of Kenya, Kenya

LTSP Client Image Maintenance: Utilising a Virtualisation Player to Support Educators to Directly Manage Classroom Applications

Tichaona Zvidzayi, Rhodes University, South Africa

Advancing Sustainable Rural Education through ICT

Mphele Sylvia Yelane, Ezamazwe Education Centre for Innovation, South Africa



Friday,
14 May, 2021

09:00 Session 27: [eAgriculture 1](#)

smAvo and smaTo: Successes of eAgricultural Technologies in South Africa

André Broekman, University of Pretoria, South Africa

Digitalization of Indigenous Knowledge in African Agriculture for Fostering Food Security

Hana Kubíčková, Plan4all, Czech Republic

Impact of Information and Communication Technology in Enhancing Food Security in a Rural Area: Alice Community as a Case Study

Dare Ebenezer Fatumo, University of Fort Hare, South Africa

The Impact of ICTs on Smallholder Farmer Household Food Insecurity Status in iLembe District, KwaZulu-Natal Province, South Africa

Ntabeni Jere, University of KwaZulu-Natal, South Africa

Technology-enabled Sustainable Agriculture: the Agroecology Case

Philippe Cousin, SENSEEN, France

10:45

Break

10:50 Session 28 [eAgriculture 2](#)

A Bluetooth Low Energy (BLE) Based System for Livestock Tracking and Localization

Jared Makario, Dedan Kimathi University of Technology, Kenya

Design Considerations and Data Communication Architecture for National Animal Identification and Traceability System in Nigeria

Mobayode O. Akinsolu, Wrexham Glyndwr University, United Kingdom

Geo-information Technology Application Based Animal Health Management Decision Support System Development

Sudhanshu Panda, University of North Georgia, United States

Raspberry Pi Based Recording System for Acoustic Monitoring of Bird Species

Gabriel Njoroge, Dedan Kimathi University of Technology, Kenya

Farmers' Use of Mobile Devices in Developing Countries

Augusto Domingos, International University of Management, Namibia

12:25 Plenary 29

IST-Africa Journey

Daan du Toit, Deputy Director-General: International Cooperation and Resources, Department of Science and Innovation, South Africa

12:40

Lunch Break

13:40 Session 30: [eAgriculture 3](#)

Temperature and Humidity Control Algorithm for Poultry Farm Control Systems

Willie Kasakula, University of Rwanda, Rwanda

Leveraging COVID-19 Impact: Innovation, Science and Technology (IST) Integration for Boosting Resilience of Citrus Fruit Farmers in Teso Region of Uganda

John Kasse, Makerere University Business School, Uganda

Supporting Adoption of Precision Agriculture

Lindokuhle Mdletshe, INNOBIZ Group, South Africa

An Analysis of Farm-based Carbon Footprint Calculators: Insights for Farmers

Rufaida Auliar, University of Technology Mauritius, Mauritius

Bandits using Fuzzy to fill Knapsacks: Smallholder Farmers Credit Scoring

Benjamin Otieno, Kibabii University, Kenya

15:20

Break

15:25 Session 31: [eAgriculture and Environmental Sustainability](#)

An Indigenous Knowledge System for Promoting Awareness of Water Resource Issues

Dumani Kunjuzwa, Nelson Mandela University, South Africa

Leveraging IoT and Machine Learning for Improved Monitoring of Water Resources – A Case Study of the Upper Ewaso Nyiro River

Jason Kabi, Centre for Data Science and Artificial Intelligence, Dedan Kimathi University of Technology, Kenya

Real Time Flood Monitoring and Prevention Using IoT Sensors in Developing Countries

Fatimah Curumtally, Université des Mascareignes, Mauritius

Existing Optimal Water Network designs for addressing demand and supply needs for NamWater

Raimbert Namukuwa, Namibia University of Science and Technology, Namibia

GIS Applied to Ravine Mapping in the Peripheral Zones of Huambo (Central Angolan Plateau)

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

17:05

End of Sessions