**Introduction**

**IST-Africa 2019** Conference takes place 8-10 May 2019 in Nairobi, Kenya, as part of IST-Africa Week 2019. An activity of IST-Africa, which is supported by the European Commission and African Union Commission and co-funded under the EU Framework Programme, IST-Africa 2019 is the fourteenth 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.

European research activities are structured around consecutive multi-annual programmes, or so-called Framework Programmes. Horizon 2020 sets out the Priorities and thematic areas, including ICT, for 2014-2020. Horizon 2020 is fully open to international co-operation with the aim to jointly address major challenges where significant added value is expected to be gained from a world-wide R&D cooperation. In this context, the European Commission co-funded IST-Africa from 2006-2018, to promote African - European research cooperation and support Information Society and ICT aspects of the Africa-EU Strategic Partnership.

Hosted by the Government of Kenya through the Ministry of Education and Technically Co-Sponsored by IEEE, IST-Africa 2019 focuses on the Role of ICT, Research and Innovation in Africa's Development and specifically on Applied ICT research in the areas of eHealth, Technology Enhanced Learning and ICT Skills, eInfrastructures, eAgriculture, Societal Implications of Technology, International Cooperation, ICT4D and eGovernment. IST-Africa 2019 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 2019 will also provide an opportunity to identify potential partners for future proposals under Horizon 2020.

IST-Africa directly supports Information Society, Innovation and ICT aspects of the Africa-EU Strategic Partnership and the Science, Technology and Innovation Strategy for Africa (STISA-2024)

The goals of the IST-Africa Conference Series are Community Building to facilitate EU-African research cooperation and successful exploitation of research 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, and to support International Cooperation and open up the European Research Area (ERA) to Africa.

**Who will you meet?**

**IST-Africa 2019** 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 2019** 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 2020. The Programme also facilitates sharing of interim results from ongoing Horizon 2020 projects including projects funded under the ICT-39-2015 and ICT-39-2017 Calls.

**The Venue**

**IST-Africa 2019** Conference takes place in Laico Regency Hotel, Loita Street, Nairobi, which is located in the city centre.

**The Programme**

The 3-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 37 thematically focused parallel sessions featuring different aspects of International Cooperation, eHealth, Technology Enhanced Learning and ICT Skills, CyberSecurity, Next Generation Computing including Internet-of-things, eGovernment, ICT4D, eAgriculture, Content Technologies and Societal Implications of Technology. Session Chairs will ensure active discussion and facilitate delegate participation.

In the context of focusing on the Role of ICT, Research and Innovation in Africa's Development, the Opening Plenary on Wednesday 9 May features a high level Roundtable on the Role of ICT, Research and Innovation in Supporting Entrepreneurship and Socio-Economic Development in Africa.

The programme is subject to change and the IST-Africa 2019 Organising Committee reserves the right to alter the contents, venue and/or speakers. This Programme is accurate as at 03 May 2019.
Networking

Networking is a key feature of the IST-Africa Conference Series. Sessions are designed to maximise knowledge sharing by providing time for interactive discussions during the conference programme itself. Coffee breaks and lunch facilitate informal one-on-one and small group discussions.

The Delegate Showcase on the Conference Portal allows registered delegates, speakers and exhibitors to publish their own short profile and research interests to facilitate networking before, during and after the conference.

Conference Proceedings

The IST-Africa 2019 conference proceedings will be published on a USB Drive and published on an open access basis in the Paper Repository on the Conference Portal. Each delegate will receive a free copy of the conference proceedings at Registration.

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 2019 Conference Proceedings submitted for publication in IEEE Xplore. Each presenter will present one paper in the Programme.

Security, Health and Safety

Please wear your name badge for all IST-Africa activities, as it is your identification and allows you access to the facilities on offer. It is necessary to take care of bags, personal computers and other personal belongings. The organisers cannot accept any responsibility for losses incurred or for personal health and safety. Delegates should ensure that they have personal health insurance and take due care when exploring Gaborone.

Hotel Accommodation

Delegates can book accommodation in the Laico Regency Hotel, through online registration for IST-Africa 2019, based on payment in advance.

How to get there

Nairobi is the capital of Kenya. The conference venue is located in the city centre. While in Nairobi, delegates should visit the National Museum, National Park, Bomas of Kenya and the City Market. Given that Nairobi is a large and busy city, delegates should take care when walking around the city centre.

The airport is situated between 45 - 60 minutes drive from the city centre, depending on traffic. An official taxi from the airport to city centre costs in the region of 2,000 KES each way.

Climate

Nairobi has a moderate climate average temperatures of 22 degrees Celsius. It is cooler in the evening. Rains are possible during May and delegates should bring rain wear.

Support Organisations

IST-Africa 2019 is hosted by the Government of Kenya through the Ministry of Education. Support Organisations include the European Commission, National Research Fund Kenya, Global Good and IEEE Humanitarian Activities Committee.

IST-Africa Initiative

Supported by the European Commission (EC) and African Union Commission (AUC), IST-Africa facilitates and supports:

- Strategic engagement with Africa focused on International Research, Innovation and Policy Cooperation
- Knowledge Sharing, Capacity Building and Skills Transfer between IST-Africa Partner Countries
- Collaborative Open Innovation, ICT4D, Technology & Social Entrepreneurship
- Africa – EU Strategic Partnership (ICT, Information Society, Innovation)

IST-Africa Activities include:

- Annual IST-Africa Week Hosted by IST-Africa Partner Governments and associated Scientific Proceedings
- Monitoring and Analysis of African Technology-related Research & Innovation Priorities
- Analysis of African Research & Innovation Capacity, and Innovation Spaces
- Horizon 2020 Training Workshops to support Research and Innovation
- Capacity Building and promote Africa - EU Cooperation Opportunities
- Help Desk supports African - European Research Collaboration
- Participation in Technology, ICT4D, Policy and Innovation related International Cooperation Events

The IST-Africa Initiative is a strategic collaboration between IST-Africa Institute (Ireland), IIMC (Ireland, Coordinator), Ministry of Transport and Communications (Botswana); Ministere de l’Enseignement Superieur et de la Recherche Scientifique (Burundi); Agence Nationale des Technologies de l’Information et de la Communication (Cameroon); Information Technology Industry Development Agency (Egypt); Ministry of Communication and Information Technology (Ethiopia); Ministry of Higher Education, Science and Technology (Kenya); Ministry of Communications, Science and Technology (Lesotho); National Commission for Science and Technology (Malawi); National Computer Board (Mauritius); Instituto Nacional de Tecnologias de Informacao e Comunicacao (Mozambique); National Research Fund Kenya, Global Good and IEEE Humanitarian Activities Committee.
Plenary Session Speakers

- Prof. George Magoha CBS, Cabinet Secretary, Ministry of Education
- Prof. Collette A. Suda, PhD, FKNAS, CBS, Chief Administrative Secretary and Principal Secretary, State Department for University Education and Research, Ministry of Education
- Walter Tretton, Head of Infrastructure Section, First Counsellor, Delegation of the European Union to the Republic of Kenya
- Dr. Jemimah Onsare, Ag. CEO, National Research Fund, Kenya
- Dr. Gilbert Mugeni, Ag. Assistant Director, Innovation and Research Development, Communications Authority of Kenya
- Dr. Katherine Getao, CEO, ICT Authority of Kenya
- Dr. Moses Rugutt, Director General, National Commission for Science Technology and Innovation (NACOSTI)
- Prof. Meoli Kashorda, Executive Director, Kenya Education Network (KENET)
- Megan Bettilyon, Director, Renewable Energy and Special Projects, Global Good
- Dr. Salome Guchu, Ag. CEO, Kenya National Innovation Agency (KENIA)
- Dr. Charity Wayua, Senior Manager, IBM Research Africa
- Dr. Maxwell Otim Onapa, Director Science, Research and Innovation, Ministry of Science, Technology and Innovation, Uganda
- Boniface Akuku, Director, Information and Communication Technology, Kenya Agricultural and Livestock Research Organization

International Programme Committee

A distinguished Programme Committee has been formed to review and provide feedback on papers and presentations, and chair sessions.

The IST-Africa 2019 International Programme Committee includes:
- Paul Cunningham (Conference Chair), IST-Africa Institute / IIMC, Ireland
- Prof. Manuel Castro, UNED, Spain
- Laurens Cloete, University of Pretoria, South Africa
- Miriam Cunningham, IST-Africa Institute / IIMC, Ireland
- Kim Davis, Research Council of Norway, Norway
- Prof. Love Ekenberg, DSV, University of Stockholm, Sweden
- Dr. Shaikh Fattah, BUET, Bangladesh
- Prof. Kenneth Foster, North Carolina State University, USA
- Dr Javier Garcia-Zubia, University of Deusto, Spain
- Vicky Hailey, VHailey, USA
- Dr Hailam Hamza, ITIDA, Egypt
- Dr Charmayne Hughes, Health Equity Institute, San Francisco State University, USA
- Prof. Mohamed Jmaiel, University of Sfax, Tunisia
- Dr Chipa Kanjo, Chancellor College, University of Malawi, Malawi
- Vasilis Koulolias, eGovLab / DSV, Sweden
- Kristiina Lahde, Saliens Ltd, Finland
- Ilari Lindy, SAIS II, Namibia
- Gareth MacNaughton, RMIT University, Spain
- Mørtens Møller, GRENE, Denmark
- Dr Tshiamo Motshegwa, University of Botswana, Botswana
- Dr Joshua Ndjege, United States International University - Africa, Kenya
- Vasilis Koulolias, eGovLab, Stockholm University, Sweden
- Dr David Quaglia, Università degli Studi di Verona, Italy
- Dr Fungai Bhunu Shava, NUST, Namibia
- Prof Darelle van Greunen, Nelson Mandela University, South Africa

Organising Committee

- Miriam Cunningham, IST-Africa Institute / IIMC, Ireland
- Paul Cunningham, IST-Africa Institute / IIMC, Ireland
- Jacob Njaghi, State Department for University Education and Research, Ministry of Education, Kenya
- Dr. Eric Mwangi, State Department for University Education and Research, Ministry of Education, Kenya
- Dr. Jemimah Onsare, Ag. CEO, National Research Fund, Kenya

Conference Secretariat

IIMC Ltd / IST-Africa Institute
Docklands Innovation Park, 128 East Wall Road, Dublin 3, Ireland
Tel: +353 (0) 1 8170607, Fax: +353 (0) 1 8170606
e-mail: secretariat@IST-Africa.org
www.IST-Africa.org/Conference2019
Wednesday, May 8, 2019

08:00 Registration

09:00 Opening Plenary 1a
Moderator: Dr. Eric Mwangi, State Department for University Education and Research, Ministry of Education

Opening Remarks
Prof. Collette A. Suda, PhD, FKNAS, CBS, Chief Administrative Secretary and Principal Secretary, State Department for University Education and Research, Ministry of Education

EU Africa Research and Innovation Cooperation
Walter Tretton, Head of Infrastructure Section, First Counsellor, Delegation of the European Union to the Republic of Kenya

Welcome Address
Prof. George Magoha CBS, Cabinet Secretary, Ministry of Education

10:00 Coffee Break & Networking

10:30 Plenary Session 2a: High-Level Roundtable focused on Role of Co-Design and Innovation, Science and Technology in Achieving Sustainable Socio-Economic Development in Africa
Moderator: Paul Cunningham, IIMC / IST-Africa Institute, Ireland
Panelists include:
- Dr. Jemimah Onsare, Ag. CEO, National Research Fund, Kenya
- Dr Gilbert B. Mugenzi, Ag Assistant Director, Innovation & Research, Communications Authority of Kenya
- Dr. Moses Rugutt, Director General, National Commission for Science and Technology (NACOSTI), Kenya
- Prof. Meddi Kashorda, Executive Director, Kenya Education Network (KENET)
- Dr. Moses Rugutt, Director, General, National Commission for Science Technology and Innovation (NACOSTI), Kenya
- Dr. Maxwell Otien Omapa, Director Science, Research and Innovation, Ministry of Science, Technology and Innovation, Uganda
- Boniface Akuku, Director, Information and Communication Technology, Kenya Agricultural and Livestock Research Organization

12:30 Lunch & Networking

14:00 Workshop 3c: Innovation in STEM Education using Technology-enhanced Learning: the GO-GA Experience
Chair: Célia Gavaud, MITO Technology, Italy

Introduction
Célia Gavaud, MITO Technology, Italy

The Go-Lab Ecosystem
Denis Gillet, EPFL, Switzerland

Inquiry Based Learning in the Context of Technology Enhanced Learning and Teacher Training
Rosa Doran, NUCLIO - Núcleo Interativo de Astronomia, Portugal

Ongoing GO-GA Pilots
Fer Coenders, University of Twente, Netherlands

Interim Pilot Results, Kenya
Isaac Kinyanjui, eLMu eLearning Company, Kenya

Interim Pilot Results, Nigeria
Olatunbosun Tijani, Co-creation Hub, United Kingdom

Wrap Up & Discussion
Célia Gavaud, MITO Technology, Italy

14:00 Session 3d: Content Technology Applications 1
Chair: Gift Kadzamira, National Commission for Science and Technology, Malawi

DBI : A Model for Drive-By Intelligence
Laurie Butgereit, Nelson Mandela University, South Africa

FileLinker: Simple Peer-to-Peer File Sharing Using Wi-Fi Direct and NFC
Brian Greaves, University of Johannesburg, South Africa

Ontology-driven Open Data Enrichment Framework for Value Optimisation: The Case of National Performance Indicators for Botswana
Qarabile Sebubi, BUIST, Botswana

14:00 Session 3e: eGovernment I
Chair: Njei Check, National Agency for Information and Communication Technologies (ANTIC), Cameroon

Improving capacity for knowledge management in county governments: Perspectives from selected counties in Kenya
Joshua Ndiege, United States International University-Africa, Kenya

Muthoni Masinde, Central University of Technology, South Africa

Analysis of the adoption and use of ICT for e-government services: The case of Mozambique
Domingos Luis Rhongo, Catholic University of Mozambique(FGTI), Mozambique

Adoption of Virtualization by Government Organizations in Kenya
Tabitha Kihara, Moi University, Kenya

15:30 Coffee Break & Networking

16:00 Workshop 4a: IST-Africa - Research Capacities and Priorities II
Chair: Paul Cunningham, IIMC / IST-Africa Institute, Ireland

ICT Initiatives and Research Capacity in Cameroon
Njei Check, National Agency for Information and Communication Technologies (ANTIC), Cameroon

ICT Initiatives and Research Capacity in Egypt
Haitam Harmaa, ITIDA, Egypt

ICT Initiatives and Research Capacity in Senegal
Toumane Dourouba, Ministère de l’Enseignement Supérieur et de la Recherche, Senegal

ICT Initiatives and Research Capacity in Tunisia
Mohamed Jmaiel, Ministère de l’Enseignement Supérieur et de la Recherche Scientifique, Tunisia

ICT Initiatives and Research Capacity in Lesotho
Lieketseng Tjekotse, Department of Science and Technology, Lesotho
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<td>16:00 Session 4b</td>
<td>eHealth Applications &amp; Case Studies 2</td>
<td>Kenya</td>
<td>Augusto Nunes, INTIC, Mozambique</td>
<td>Re-visitng National eHealth Strategies in the IoT and Big Data Era Anthony Maina, Dedan Kimathi University of Technology, Kenya Developing a Mobile Application to Simulate Surgeries without the Use of a Cadaver Suama Hamunyela, Namibia University of Science and Technology, Namibia Standards for Sensor Technologies that Support Mobile Patient Health Monitoring in Resource Constrained Settings Andrew Alunyu Egwar, Busitema University, Uganda IoT based Appliances Identification Techniques with Fog Computing for eHealth Amleth Keliati, Royal Institute of Technology (KTH), Sweden</td>
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<td>16:00 Session 4c</td>
<td>Technology-enhanced Learning I</td>
<td>Lesotho</td>
<td>Lefa Thamea, Department of Science and Technology, Lesotho</td>
<td>Mobile Technology as an Enabler of Innovation in Kenya’s Micro, Small and Medium Establishments Elkud Moyo, Kenya Institute for Public Policy Research and Analysis (KIPPRA), Kenya An Extensible Framework for Developing Android Image Processing Applications. Buyelelu Oriental University, Fort Hare, South Africa A Noticeboard Application Using Context Aware Services: Case of Strathmore University, Kenya Bernard Shibwabo, Strathmore University, Kenya</td>
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<tr>
<td>16:00 Session 4d</td>
<td>Content Technology Applications 2</td>
<td>Malawi</td>
<td>Mateus Padoca Calado, Universidade Agostinho Neto, Angola</td>
<td>eHealth Applications &amp; Case Studies 3</td>
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<td>17:30</td>
<td>End of Parallel Sessions</td>
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11:00 Session 6a: Cyber Security Issues 1
Chair: Halitham Hamza, ITIDA, Egypt
- Fostering the Culture of Cyber Security
  Alfredo M. Ronchi, Politecnico di Milano, Italy
- A Review of Security Techniques against Black hole Attacks in Mobile Ad Hoc Networks
  Ephantus Gichuki Mwangi, Keriya University, Kenya
- Verifying Literal and Conceptual Consistency for Anti-Phishing
  Nurenzi Azeez, North-West University, South Africa

11:00 Workshop 6b: mHealth4Afrika
Chair: Paul Cunningham, IIMC / IST-Africa Institute, Ireland
- mHealth4Afrika Initiative
  Paul Cunningham, IIMC / IST-Africa Institute, Ireland
- mHealth4Afrika System
  Mwirigi Kiula, JKUAT, Kenya
- Results from mHealth4Afrika pilot sites in Ethiopia
  Binyam Tilahun, University of Gondar, Ethiopia
- Results from mHealth4Afrika pilot sites in Kenya
  Emmanuel Kweyu, Strathmore University, Kenya
- Results from mHealth4Afrika pilot sites in Malawi
  Chipo Kano, University of Malawi, Chancellor College, Malawi

11:00 Session 6c: Technology Enhanced Learning Applications 1
Chair: Lwande Simelane, Ministry of Information Communication Technology, Eswatini
- Glove Based Sign Interpreter for Medical Emergencies
  Sheila Mugalala, Makerere University, Uganda
- WhatsApp as Part of Blended Learning Model to Help Programming Novices
  Tiou Ramabu, Tshwane University of Technology, South Africa
- CS Challenger: Gamifying the Learning of Computer Science Concepts through a Mobile Application Platform
  Collins Oduor Ondiek, United States International University-Africa, Kenya
- Cloud Based Tutorial Management System to Enhance Student Participation in Learning
  John K. Thuku, Kenyatta University, Kenya

11:00 Session 6d: Societal Implications of Technology
Chair: Ebenhezer Kauhonina, National Commission on Research, Science and Technology, Namibia
- Television White Space Opportunities and Challenges: What Next for the Developing Countries?
  Moses Ismail, University of Dar es Salaam, Tanzania
- Performance Monitoring of Mobile Broadband in a Developing Country
  Folaseade Dahunsi, Federal University of Technology, Akure, Nigeria
  Victor Rigworo Kebande, Malmö Universitet, Sweden
- The Role of Leadership in Building the Foundations for Data Analytics, Visualization and Business Intelligence
  Mwirgi Kiula, JKUAT, Kenya

12:30 Lunch

14:00 Workshop 7b: IEEE Humanitarian Activities Committee Participatory Workshop
Chair: Paul Cunningham, IIMC / IST-Africa Institute, Ireland
- Behavior prediction in a Learning Management System
  Charles Omordi Lwande, University of Nairobi, Kenya
- Towards a Personalized Adaptive Remedial e-Learning Model
  George Musumba, University of the Free State, South Africa
- A Conceptual Model for Measuring and Supporting Self-Regulated Learning using Educational Data Mining on Learning Management Systems
  Eric Araka, Technical University of Kenya, Kenya
- Exploring the Adoption of Virtual and Augmented Reality in Enhancing Interactive Learning in Tanzania
  Angelina Misso, University of Dar es Salaam, Tanzania

14:00 Session 7c: Technology Enhanced Learning - Case Studies
Chair: Toumani Dombouya, Ministère de l'Enseignement Supérieur et de la Recherche, Senegal
- Annotation Framework for Hate Speech Identification in Tweets: Case Study of Tweets during Kenyan Elections
  Edward Ombui, Africa Nazarene University, Kenya
- Situation Analysis and Technology Value Proposition for Geriatric Care for Philanthropic Social Homes in Kenya.
  Njeri NGariuiya, University of Nairobi, Kenya
- Role of Mobile Apps in Absorptive Capabilities of Small and Medium-sized Enterprises in Nigeria
  Adedamola Tolani, University of South Africa, South Africa
- A Pilot E-literacy Environmental Scan in the Northern Cape Province of South Africa
  Antoinette Lombard, Vaal University of Technology, South Africa

15:30 Coffee Break & Networking

16:00 Session 8a: Cyber Security 3
Chair: Mohamed Jmaiel, Ministère de l’Enseignement Supérieur et de la Recherche Scientifique, Tunisia
- Botnet's Obfuscated C&C Infrastructure Take-down Approaches Based on Monitoring Centralized Zeus Bot Variant's Propagation Model
  Victor Rigworo Kebande, Malmö Universitet, Sweden
- Analysis of BitTorrent P2P network as a strategy for survivability of networks using NS-3
  Bongisa Dyosoba, University of Fort Hare, South Africa
- Scenario-Based Digital Forensic Investigation of Compromised MySQl Database
  Taurai Hungwe, Sefako Makgatho Health Sciences University, South Africa

16:00 Workshop 8b: WS: IoT – From idea to reality (WAZIUPI/WAZIHub)
Chair: Abdur Rahim, FBK, Italy
- WAZIUPI cost-effective and open IoT solutions
  Abdur Rahim, FBK, Italy
- WAZIHUB IoT Innovation Program
  Fifid Baidoo, iSpace Foundation, Ghana
- WAZIHUB IoT start-ups in ILabs
  Margaret Njenga, Strathmore University, Kenya
- ACESS IoT and WAZIUP Collaboration
  Santhi Kumaran, Ministry of IT Governance, Uganda

16:00 Session 8c: Technology Enhanced Learning Case Studies 1
Chair: Madoda Mdziniso, Ministry of Information Communication Technology, Eswatini
- M Phil in IT Governance - a postgraduate qualification for all
  Rossouw Von Solms, Nelson Mandela university, South Africa

Programme
08 - 10 May 2019
The Role of Technology in Monitoring Inter-institutional Lecturers’ Teaching Workload in Kenya
Evans Ombati, Kabarak University, Kenya

ICT support environment in developing countries: The multiple cases of school teachers in rural South Africa
Samwel Mwapwele, UNISA, South Africa

16:00 Session 8d: ICT & Financial Services
Chair: Amancio Ubisse, INTIC, Mozambique
An Enquiry into Digital Inequality Implications for Central Bank Digital Currency
Thabo J. Gopane, University of Johannesburg, South Africa
IT governance frameworks and their impact on strategic alignment in the South African banking industry
Mpho Leketi, University of Johannesburg, South Africa
The Determinants of Mobile Phone Users’ Intention to Use mobile Phone Money Services: A Qualitative Understanding
Odoyo Collins, Masinde Muliro University of Science and Technology, Kenya

17:30 End of Parallel Sessions

09:00 Session 9a: eAgriculture
Chair: Phodiso Potesh Phole, Ministry of Transport and Communications, Botswana
Long Range Low Power Sensor Networks for Agricultural Monitoring - A Case Study in Kenya
Jared Makario, Dedan Kimathi University of Technology, Kenya
e-Pest Surveillance: Large Scale Crop Pest Surveillance and Control
Fredrick Awuor, Kisii University, Kenya
Design and Implementation of a Smart Bee Hiving & Monitoring System
Santhi Kumaran, University of Rwanda, Rwanda

09:00 Session 9b: Next Generation Computing
Chair: Zamokwakhe Dlamini, Department of Science and Technology, South Africa
Edge Computing for Emerging Markets Addressing African Needs
Mxolisi Mtshali, Council for Scientific and Industrial Research, South Africa
A Novel Integrated Conceptual Smart Cities Framework Leveraging on Open Data towards UN SDGs.
Obways Mogire, SEKU, Kenya
High performance computing (HPC) in Africa – A status mapping and potential hybridization
Francis Xavier Ochieng, University of Nottingham Ningbo CHina, China
Institutional Pressures and Cloud Computing Adoption: The Moderating Effect of Organizational Mindfulness
John Oredo, University of Nairobi, Kenya

09:00 Session 9c: Technology Enhanced Learning Case Studies 2
Chair: Loi Namugenyi, Uganda National Council for Science & Technology, Uganda
The Reality of Library E-resources Acceptance by Postgraduate students of Digital School of virtual and Open Learning, Kenyatta University, Kenya
Michael Maua, Pwani University, Kenya
Use and Acceptance of E-Books among Undergraduate Students
Martin Ujakpa, International University of Management, Namibia
Enabling Quality Education In Namibia Through Mobile Learning Technologies. The High School Teachers’ Perspective
Jude Osakwe, Namibia University of Science and Technology, Namibia

09:00 Session 9d: WS: Nairobi INSPIRE Hackathon 2019 Results
Chair: Bente Bye, Plan4All, Norway
What is the INSPIRE Hackathon
Bente Bye, Plan4All, Norway
The Results from the Nairobi INSPIRE Hackathon 2019
Food Security in Relation to Earth Observation (GEOSS and COPERNICUS Relevance)
Karel Charvat, Club of Ossiach, Austria
Climatic Services for Africa
Karel Jedlička, University of West Bohemia, Czech Republic
Open Land Use for Africa (OLU4Africa)
Karel Charvat, Club of Ossiach, Austria
IoT Technologies for Africa
Michal Kepka, University of West Bohemia, Czech Republic
Agriculture Innovation Hub for Africa
Karel Charvat, Club of Ossiach, Austria
Open Data and Data Sharing in Agri-Food Chains in Africa
Runar Bergheim, Avinet
Smart Points of Interest - Publication of Open Data in Africa as 5-star Linked Open
Miriam Cunningham, IIMC / IST-Africa Institute, Ireland

Citizen Science in Africa to Ground Truth & Exploit Earth Observation data
Otakar Cerba, Plan4all z.s., Czech Republic

Open Transport Map (OTM) Applications for Africa
Daniel Beran, University of West Bohemia, Czech Republic

Summary/Conclusions
Karel Charvat, Club of Ossiach, Austria

10:30 Coffee Break & Networking

11:00 Session 10a: Environmental Sustainability
Chair: Maxwell Otim Onapa, Uganda National Council for Science and Technology, Uganda

Leveraging Data Analytics for Sustainable Agriculture
Isaac Chann, Oakar Services Ltd, Kenya

The Role of ICT Tools in the Access of Climate Information in Rural Communities
Michaelina Yohannis, University of Nairobi, Kenya

Exploitation of calculated local temperature topography variations - a case study in Kenya
Karel Jedlička, University of West Bohemia, Czech Republic

11:00 Session 10b: Global Development Case Studies
Chair: Chipo Kanjo, Chancellor College, University of Malawi

Women and ICT in South Africa: Mental Models on Gender and ICT in Marginalised Communities
Carlynn Pokpas, CoLab for eInclusion and Social Innovation - University of the Western Cape, South Africa

Martin Bright Msendema, University of Malawi, Malawi

Using Social Media to Support Community Development: A Case Study of E-Inclusion Intermediaries in Underprivileged Communities of South Africa
Natasha Katunga, University of the Western Cape, South Africa

11:00 Session 10c: Technology Enhanced Learning Case Studies 3
Chair: Frederic Bangirinama, Ministere de l’Enseignement Superieur et de la Recherche Scientifique, Burundi

Framework for Technology Enriched Active Class Learning of Physics in Secondary Schools in Kenya
Elijah Okono, Masinde Muliro University of Science and Technology, Kenya

Effectiveness of using WhatsApp for Grade 12 Learners in Teaching Mathematics in South Africa
Jose Manappattu kunnel Lukose, Walter Sisulu University, South Africa

Sports Coaching in Impoverished Communities Through the use of Virtual Reality
Riedwaan Fakier, University of the Western Cape, South Africa

11:00 Session 10d: Technology Enhanced Learning Case Studies 4
Chair: Jacob Njagh, Ministry of Education, Science and Technology, Kenya

Adoption of Self-Directed Learning: A Case Study of Kenya Jua Kali Sector
Elizabeth Muli, Technical University of Kenya, Kenya

An Overview of the Eastern Cape eSkills CoLab Training and Awareness Programmes
Mnoneleli Nogwina, Eastern Cape eSkills Colab, Walter Sisulu University, South Africa

Modeling TVET College's as Alternative Centres To Deliver eSkill's Training in Rural Communities of Eastern Cape
Ndiyakholwa Ngqulu, NEMISA-Walter Sisulu University, South Africa

12:30 Lunch & Networking

13:30 Closing Plenary 11a: Strategic and Multi-stakeholder Partnerships
Chair: Paul Cunningham, IIMC / IST-Africa Institute, Ireland

Dr Katherine Getao, CEO, ICT Authority of Kenya
Megan Bettilyon, Director, Renewable Energy and Special Projects, Global Good, US
Dr. Salome Guchu, Ag. CEO, Kenya National Innovation Agency (KENIA)
Dr Charity Wayua, Senior Manager, IBM Research Africa