

IST-Africa 2018

Final Programme

Gaborone, Botswana

09 - 11 May 2018

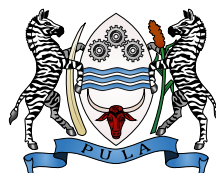
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ISTAfrica

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Introduction

IST-Africa 2018 Conference takes place 9 -11 May 2018 in Gaborone, Botswana, as part of **IST-Africa Week 2018**. 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 2018** is the thirteenth 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 has co-funded **IST-Africa** since 2006, to promote African - European research cooperation and support Information Society and ICT aspects of the Africa-EU Strategic Partnership.

Hosted by the Government of Botswana through DTPS, Ministry of Transport and Communications and Technically Co-Sponsored by IEEE, **IST-Africa 2018** 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, Technology Enhanced Learning and ICT Skills, eInfrastructures, eAgriculture, Societal Implications of Technology, International Cooperation, ICT4D and eGovernment. **IST-Africa 2018** 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 2018** 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 2018 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 2018 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 Call.

The Venue

IST-Africa 2018 Conference takes place in Gaborone International Conference Centre, Botswana.

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, Privacy and Trust, 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 2018** Organising Committee reserves the right to alter the contents, venue and/or speakers. This Programme is accurate as at 27 April 2018.

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 2018** 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 2018** 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 Walmont Hotel (4*) and Metcourt Hotel (3*) at discounted rates through online registration for **IST-Africa 2018**, based on payment in advance. Both hotels are within the complex where the conference is taking place. Hotel accommodation can only be confirmed upon receipt of the associated payment.

How to get there

Gaborone is located one hour by air from Johannesburg. Gaborone is the capital of Botswana. Delegates and accompanying persons should visit the National Museum, National Botanical Gardens, Gaborone Game Reserve, Mokoladi Nature Reserve and Mochudi. Botswana is renowned for its flora and fauna. Other places in Botswana include Okavango Delta, Chobe River and National Parks.

Climate

The climate in May is clear, warm and sunny with average temperatures of 14 - 25 degrees Celsius.

Host

IST-Africa 2018 is hosted by the Government of Botswana through the DTSP, Ministry of Transport and Communications.

IST-Africa Initiative

Supported by the European Commission (EC) and African Union Commission (AUC), and Co-Funded under Horizon 2020 (Contract 723240), **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); Ministère de l'Enseignement Supérieur 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 Commission on Research, Science and Technology (Namibia); Ministère de l'Enseignement Supérieur de la Recherche (Senegal); Department of Science and Technology (South Africa); Ministry of Information Communication Technology (Swaziland); COSTECH - Tanzania Commission for Science and Technology; Ministère de l'Enseignement Supérieur et de la Recherche Scientifique (Tunisia) and Uganda National Council for Science and Technology.

Plenary Session Speakers

Plenary Speakers & Panelists as at 27 April 2018 include:

- **His Excellency** Vice President of the Republic of Botswana, Botswana
- **Hon. Minister Onkokame Kitso Mokaola**, Ministry of Transport and Communications, Botswana
- **Kabelo Ebineng**, PS, Ministry of Transport and Communications, Botswana
- **Paola Cervo**, DG DEVCO, European Commission
- **Cathrin Stover**, Chief Collaboration Officer, GEANT, Netherlands
- **Bonny Khunga**, CEO, Zambia Research and Education Network / UbuntuNet Alliance

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 2018** International Programme Committee includes

- **Paul Cunningham** (Conference Chair), IST-Africa Institute / IIMC, Ireland
- **Tiwonge Msulira Banda**, UbuntuNet Alliance, Malawi
- **Dr. Philip A. Catherwood**, NIBEC Research Labs, Ulster University, Northern Ireland
- **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. Charmayne Hughes**, Health Equity Institute, San Francisco State University, USA
- **Dr. Mike Joy**, University of Warwick, United Kingdom
- **Dr. Chipo Kanjo**, Department of Computer Science, Chancellor College, University of Malawi, Malawi
- **Vasilis Koulolias**, eGovLab, Stockholm University, Sweden
- **Kristiina Lahde**, 4Front, Finland
- **Gareth MacNaughton**, RMIT University, Spain
- **Tatiana Mariscal**, Health Equity Institute, San Francisco State University, USA
- **Prof. Maurice Mars**, University of KwaZulu-Natal, South Africa
- **Morten Møller**, GRENET, Denmark
- **Dr Fungai Bhunu Shava**, Computer Science Department, Namibia University of Science and Technology, Namibia
- **Dr Adriana Mihai**, University of Bucharest, Romania
- **Dr Rayne Reid**, EBEIT, Nelson Mandela University, South Africa
- **Dr Marita Turpin**, Department of Informatics, University of Pretoria, South Africa
- **Prof. Darelle Van Greunen**, Nelson Mandela Metropolitan University, South Africa

Organising Committee

- **Miriam Cunningham**, IST-Africa Institute / IIMC, Ireland
- **Paul Cunningham**, IST-Africa Institute / IIMC, Ireland
- **Itumeleng Batsalelwang**, DTPS, Ministry of Transport and Communications, Botswana
- **Phodiso Phole**, DTPS, Ministry of Transport and Communications, Botswana
- **Ronald Keikotlhaile**, DTPS, Ministry of Transport and Communications, Botswana

Conference Secretariat

IIMC Ltd
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/Conference2018



Republic of Botswana



Wednesday,
May 9, 2018

08:00

Registration

09:00 Opening Plenary 1a

Moderator: [Itumeleng Batsalelwang, DTPS, MTC, Botswana](#)**Opening Remarks**

Kabelo Ebineng, PS, Ministry of Transport and Communications, Botswana

EU Africa Research and Innovation Cooperation

Paola Cervo, DG DEVCO, European Commission, Belgium

High-Level Roundtable focused on Role of ICT, Research and Innovation in Supporting Entrepreneurship and Socio-Economic Development in Africa

Moderator: [Paul Cunningham, IIMC, Ireland](#)

Panelists include:

Paola Cervo, DG DEVCO, European Commission

Cathrin Stover, Chief Collaboration Officer, GEANT, Netherlands

Bonny Khunga, CEO, Zambia Research and Education Network / UbuntuNet Alliance

10:30

Coffee Break & Networking

11:00 Workshop 2a: [IST-Africa - Research Capacities and Priorities I](#)Chair: [Paul Cunningham, IIMC / IST-Africa Institute, Ireland](#)**IST-Africa Initiative & African Engagement in Horizon 2020**

Paul Cunningham, IIMC / IST-Africa Institute, Ireland

ICT Initiatives and Research Capacity in Botswana

Phodiso Poteshe Phole, Ministry of Transport and Communications, Botswana

ICT Initiatives and Research Capacity in Namibia

Ebenhezer Kauhonina, National Commission on Research, Science and Technology, Namibia

ICT Initiatives and Research Capacity in Mozambique

Augusto Nunes, INTIC, Mozambique

ICT Initiatives and Research Capacity in Lesotho

Lieketseng Tjokotsi, Department of Science and Technology, Lesotho

ICT Initiatives and Research Capacity in South Africa

Peacemaker Dlamini, Department of Science and Technology, South Africa

11:00 Session 2b: [mHealth - Issues](#)Chair: [Tatiana Mariscal, San Francisco State University, United States](#)**Factors Motivating the Adoption of Self-Healthcare Monitoring Mobile Applications by the South African Youth**

Patrick Ndayizigamiye, University of KwaZulu-Natal, South Africa

Role of Information Literacy in Evidence Based Practice by Nurses at Kenyatta National Hospital, Kenya

Rose Njoroge, Kenyatta University, Kenya

Access Control Model for E-Health in a Cloud-Based Environment for HIV Patients in South Africa

Nureni Azeez, North-West University, South Africa

A Review of Applications of Image Analysis and Machine Learning Techniques in Automated Diagnosis and Classification of Cervical Cancer from Pap-smear Images

William Wasswa, Mbarara University of Science and Technology, Uganda

Gamification in Healthcare: Motivating South Africans to Exercise

Thaverson Devar, University of Pretoria, South Africa

11:00 Session 2c: [Technology-enhanced Learning I](#)Chair: [Morten Møller, GRELEN Consulting, Denmark](#)**A Critical Review of eLearning Research Trends in Tanzania**

Joel Mtebe, University of Dar es Salaam, Tanzania, Tanzania

A Conceptual Integrated Model for Measuring the Success of eLearning in Developing Countries: Literature Review

Lydia Kimani, University of the Western Cape, South Africa

ICT in Education in Mozambique – the example of EquaMat@moz

Antonio Jose Batel Anjo, ISCTEM, Mozambique

Ambient Learning - Knowledge as a Service Model: Towards the Achievement of Sustainable Development Goal Four

Simon Mwenda, KCA University, Kenya

The Impact of School Management Support on Individual Characteristics Towards Knowledge Sharing and Trust as a Motivating Factor: Structural Equation Modeling Approach

Lovemore Motsi, University of South Africa, South Africa

11:00 Session 2d: [CyberSecurity- Issues](#)Chair: [Peter Mokube, National Agency for Information and Communication Technologies, Cameroon](#)**Measuring Cybersecurity Wellness Index of Critical Organisations**

Husin Jazri, Namibia University of Science and Technology, Namibia

Major Security Incidents since 2014: an African Perspective Social Networks Systems using Homomorphic Cryptographic Techniques in Ubiquitous Computing Environment

Kosmas Kapis, University of Dar es Salaam, Tanzania

The Race Towards Quantum Security

Yaseera Ismail, University of KwaZulu-Natal, South Africa

Enhancing Privacy in Social Networks Systems using Homomorphic Cryptographic Techniques in Ubiquitous Computing Environment

Kosmas Kapis, University of Dar es Salaam, Tanzania

14:00 Session 2e: [Next Generation Computing I](#)Chair: [Mohamed Jmaiel, Ministere de l'Enseignement Superieur et de la Recherche Scientifique, Tunisia](#)**Selective Mobile Cloud Offloading Decisions**

Marijke Coetzee, University of Johannesburg, South Africa

Time-Cost Effective Algorithms for Cloud Workflow Scheduling - Extension of An Earlier Work

Lakshmi Narasimhan, University of Botswana, Botswana

ANN-MIND: A Comparative Study on the Training of Neural Networks with Incomplete Datasets

Tshilidzi Mudau, University of Johannesburg, South Africa

Adaptive Algorithm for Parameterization of Feature Extraction Techniques in Remote Sensing Image Processing.

Edmore Chikohora, Namibia University of Science & Technology

12:30

Lunch & Networking

13:30 Workshop 3a: [IST-Africa - Research Capacities & Priorities II](#)Chair: [Paul Cunningham, IIMC / IST-Africa Institute, Ireland](#)**ICT Initiatives and Research Capacity in Malawi**

Gift Kadzamira, National Commission for Science and Technology, Malawi

ICT Initiatives and Research Capacity in Swaziland

Rejoice Maseko, Ministry of Information Communication Technology, Swaziland

ICT Initiatives and Research Capacity in Mauritius

Ashwin Seegolam, National Computer Board, Mauritius

ICT Initiatives and Research Capacity in Kenya

Jacob Njagih, Ministry of Education, Science and Technology, Kenya

ICT Initiatives and Research Capacity in Ethiopia

Leulseged Alemie, Ministry of Communications and Information Technology, Ethiopia

ICT Initiatives and Research Capacity in Burundi

Tatien Masharabu, Ministere de l'Enseignement Superieur et de la Recherche Scientifique, Burundi



Thursday,
May 10, 2018

13:30 Session 3b: [mHealth - Issues & Applications](#)

Chair: [Charmayne Hughes, San Francisco State University, United States](#)

From Sustainable to Continuously Adaptive Information Systems
Flora Asah University of Oslo, Cameroon

Using Patient Information Systems for Primary Health care in Hospitals – Implications for Data Structures and User Interaction
Tiwonge Manda, University of Malawi, Chancellor College, Malawi

mPOWERED System for Comprehensive Health Care Provider Focused Intimate Partner Violence Care
Tatiana Mariscal, Health Equity Institute, San Francisco State University, United States

Leveraging Local Resources in Information Systems Development: MIS for Persons with Disabilities in Malawi
Patrick Albert Chikumba, University of Malawi

13:30 Session 3c: [Technology Enhanced Learning in Universities](#)

Chair: [Lieketseng Tjokotsi, Department of Science and Technology, Lesotho](#)

The Use of Git as Version Control in the South African Software Engineering Classroom
Frans Blauw, University of Johannesburg, South Africa

Developing an Accreditation System to Recognize Competence in Mathematics Education Students in Germany
Melanie Platz, University of Siegen, Germany

Influence of the Leader as a Developer on E-Readiness Accession in Higher Education Institutions in Kenya
Mwirigi Kiula, JKUAT, Kenya

How to Train a Data Scientist for the Global South?
Tomi Westerlund, University of Turku, Finland

Evaluating Machine Learning Techniques for Improved Adaptive Pedagogy
Methembe Dlamini, University of Johannesburg, South Africa

13:30 Session 3d: [Cyber Security - Networks](#)

Chair: [Peacemaker Dlamini, Department of Science and Technology, South Africa](#)

Minimising Black Hole Attacks to Enhance Security in Wireless Mobile Ad Hoc Networks
Gibson Chengetanai, Botswana Accountancy College, Botswana

Preventing Utilization of Shared Network Resources by Detecting IP Spoofing Attacks through Validation of source IP Address
Hussein Lema, University of Dar-Es-Salaam, Tanzania

A Review of New Trends in Cyber Attacks: A Zoom into Distributed Database Systems
Attlee M. Gamundani, Namibia University of Science and Technology

Shared Wireless Access Point Security in a Hybrid Star Topology using Primary Host Authentication: A Case Study of NAITES Wi-Fi
Moses Agana, University of the Free State, South Africa

A Model to Mitigate Session Hijacking Attacks in Wireless Networks
Enos Letsoalo, Tshwane University of Technology, South Africa

13:30 Session 3e: [Next Generation Computing II](#)

Chair: [Haitham Hamza, ITIDA, Egypt](#)

SDN-enabled Infrastructure Sharing in Emerging Markets: CapEx/OpEx Savings Overview and Quantification.
Lusani Mamushiane, CSIR, South Africa

Stochastic Modeling of Internet Service for Profit Optimization in Uganda
Kizito Paul, Kyambogo University, Uganda

Fuzzy Logic Sensor Fusion for Obstacle Avoidance Mobile Robot.
Aggrey Shitsukane, Technical University of Mombasa, Kenya

Choosing an Appropriate Algorithm for Reduction of Night Vision Digital Image Noise: A Comparison of BM3D and KSVF
Bulelani Gunu, University of Fort Hare, South Africa

15:00 Plenary Session 4a: [Formal Opening](#)

Moderator: [Itumeleng Batsalelwang, DTPS, MTC, Botswana](#)

Welcome

Hon. Minister Onkokame Kitso Mokaola, Ministry of Transport and Communications, Botswana

Opening Address

His Excellency Vice President of the Republic of Botswana, Botswana

16:00

Coffee Break & Networking

09:00 Workshop 5a: [IST-Africa - Research Capacities & Priorities III](#)

Chair: [Paul Cunningham, IIMC / IST-Africa Institute, Ireland](#)

ICT Initiatives and Research Capacity in Tanzania

Mauridi Abubakari, COSTECH, Tanzania

ICT Initiatives and Research Capacity in Uganda

Loi Namugenyi, Uganda National Council for Science & Technology

ICT Initiatives and Research Capacity in Cameroon

Peter Mokube, National Agency for Information and Communication Technologies, Cameroon

ICT Initiatives and Research Capacity in Egypt

Haitham Hamza, ITIDA, Egypt

ICT Initiatives and Research Capacity in Senegal

Salif Gaye, Ministère de l'Enseignement Supérieur de la Recherche, Senegal

ICT Initiatives and Research Capacity in Tunisia

Mohamed Jmaiel, Ministère de l'Enseignement Supérieur et de la Recherche Scientifique, Tunisia

09:00 Session 5b: [mHealth - Applications](#)

Chair: [Tatiana Mariscal, Health Equity Institute, San Francisco State University, United States](#)

Porting Bacis Decision Support System for Antenatal Care onto OpenMRS

Vincent Horner, University of South Africa, South Africa

Integrated System for Health Services Management

Mateus Padoca Calado, Universidade Agostinho Neto, Angola

A Mobile Telehealth Application for Rural Namibia

Nomusa Dlodlo, Namibia University of Science and Technology, Namibia

09:00 Session 5c: [Technology Enhanced Learning - Issues](#)

Chair: [Jacob Njagih, Ministry of Education, Science and Technology, Kenya](#)

South Africa's e-Skills Policy. From e-Skills to Media Literacy?

Wouter Grove, University of the Western Cape, South Africa

Knowledge Society for Africa: ICT Development in the Education Sector in Namibia

Aletta Mweneni Hautemo, Namibia University of Science and Technology

IT Governance Steering Committee, IT Competence and IT Governance Performance in Ugandan Public Universities

Sonny Nyeko, Makerere University Business School, Uganda

Facilitating Group Learner Participation using Intelligent Agents in Collaborative M-Learning

Stephen Njenga, Murang'a University of Technology, Kenya

A Metaphor-driven Interactive Multimedia Simulation for teaching and learning of programming concepts

Gina Moape, Tshwane University of Technology, South Africa

09:00 Session 5d: [Cyber Security - Case Studies](#)

Chair: [Ashwin Seegolam, National Computer Board, Mauritius](#)

Investigating the Level of Awareness on Information Security amongst users at Botho University

Kabelo Mberekhi, Botho University, Botswana

Towards Information Security Savvy Students in Institutions of Higher Learning in Africa: A Case of a University in Kenya

Joshua Ndiege, United States International University-Africa, Kenya

Investigating Secure Implementation of Government Web based Systems in Tanzania

Aron Kondoro, University of Dar-es-Salaam, Tanzania

Perceptions of Online Banking Custodians on System Development and User Behaviour: An Empirical Study

Mathias Mujinga, University of South Africa, South Africa

09:00 Session 5e: **Next Generation Computing III - IoT**

Chair: **Oteng Tabona, BIUST, Botswana**

An Analysis of CoAP as Transport in an Internet of Things Environment

Louis Coetzee, Meraka Institute, CSIR, South Africa

CDE for ICT Innovation Through the IoT Based iGrid Project in Tanzania

Diana Severine Rwegasira, University of Dar es Salaam, Tanzania

Internet-of-Things for Air Pollution Monitoring in Smart Cities: A Network Selection Model

Shu Chen, ISAT-UWC, South Africa

An IoT Middleware for Air Pollution Monitoring in Smart Cities: A Situation Recognition Model

Tafadzwa Mandava, ISAT-UWC South Africa

Implementation of a K-means Tweet Clustering Engine

Phumelela Mjoli, University of Fort Hare, South Africa

10:45

Coffee Break

11:15 Workshop 6a: **WS: Strategic Capacity Building for Open Innovation**

Chair: **Ville Mikael Taajamaa, University of Turku, Finland**

Promote International Research Innovation, and Policy Cooperation and Coordination: "case Africa from a global bird's view"

Hannu Tenhunen, Royal Institute of Technology (KTH), Sweden

Collaborative Open Innovation and ICT-enabled Entrepreneurship (including Social Entrepreneurship): "Global business development platforms as catalysts of local innovation and entrepreneurship"

Antero Järvi, University of Turku, Finland

Showcase African Research and Innovation Capacity: "Building students innovation capacity and educational innovations"

Ville Mikael Taajamaa, University of Turku, Finland

11:15 Session 6b: **mHealth - Disease Management**

Chair: **Charmayne Hughes, San Francisco State University, United States**

Using Ley's Extended Model as a Framework to Explore Factors that Influence Patient's Adherence to Tuberculosis Medication

Harma Motsi, University of South Africa, South Africa

An Expert System for Malaria Diagnosis using the Fuzzy Cognitive Map Engine

Faith-Michael Uzoka, Mount Royal University, Canada

WikiTropica: Collaborative Knowledge Management in the field of Tropical Medicine and International Health

Jan Kennis, Institute of Tropical Medicine, Belgium

11:15 Session 6c: **Technology Enhanced Learning - Applications**

Chair: **Mauridi Abubakari, COSTECH, Tanzania**

Pre-Processing and Feature Extraction Technique for Hand-drawn Finite Automata Recognition

Kehinde Aruleba, University of the Witwatersrand, South Africa

Using WhatsApp to Support Communication in Teaching and Learning

Martin Ujakpa, International University of Management, Namibia

Automatic Attendance Capturing Using Histogram of Oriented Gradient on Facial Images

Abejide Ade-Ibijola, University of Johannesburg, South Africa

Sign Language Gesture Recognition through Computer Vision

Ruth Wario, University of the Free State, South Africa

Fighting Unemployment through Java Internships: Creating a Path to Software Development through Test Automation

Laurie Butgereit, Nelson Mandela University, South Africa

11:15 Workshop 6d: **Research Cyber-infrastructure and NRENS**

Chair: **Tshiamo Motshegwa, University of Botswana**

A Case for NRENS

Cathrin Stöver, GEANT, Netherlands

Progress on the Development of the BotsREN

Seretse Bagopi, BIUST, Botswana

NREN Case Studies - ZamREN

Bonny Khunga, ZAMREN, Zambia

Lessons learnt - Designing, implementing and governing the South African Federated Identities for Research and Education (SAFIRE) platform and Security Incidence Response Team (SIRT) of the South African NREN

Renier Pelser van Heerden, SANReN/CSIR, South Africa

Panel Discussion - Future Services of NRENS & Supporting Open Data and Open Science

Tshiamo Motshegwa, University of Botswana

11:15 Workshop 6e: **WAZIUP**

IoT Standards for Africa and Sustainable Development Goals (SDGs)

Congduc Pham, University of Pau, France

Low-Cost IoT Solutions for Fish Farmers in Africa

Sadouanouan Malo, Nazi BONI University, Burkina Faso

13:00

Lunch

14:00 Workshop 7a: **Geospatial Sciences & Land Administration**

Chairs: **Joyce Gosata Maphanyane, University of Botswana & Boniface Hungwe, Botswana Institute of Geomatics, Botswana**

Opening Remarks

Kekgonne Baipoledi, Ministry of Tertiary Education, Research, Science and Technology, Botswana

Keynote Speech

Motsotse Modisi, University of Botswana

Changing Phases of Land Administration, Laws, Acts and Policies

Bareng Malatsi, Ministry of Land Management, Water and Sanitation Services, Botswana

LAPCAS GIS & LIS Advanced Land Allocation and Registration

Jakoba Kgopolelo, Botswana Institute of Geomatics, Botswana

Developments in Teaching & Research Innovation in Geospatial Science at University of Botswana

Julius Athlopheng, University of Botswana

Towards the Building of a Robust National Database Infrastructure (NSDI) Developing Country Needs: Botswana Case Study

Tshiamiso Oitsile, Department of Surveys and Mapping, Botswana

Reconstruction of Historical Landscapes: An Alternative Approach to Monitor Land Cover Change

Joyce Gosata Maphanyane, University of Botswana

Closing Remarks

Isaac Mazonde, University of Botswana

14:00 Workshop 7b: **mHealth4frika**

Chair: **Paul Cunningham, IIMC / IST-Africa Institute, Ireland**

mHealth4frika Initiative

Paul Cunningham, IIMC / IST-Africa Institute, Ireland

mHealth4frika Beta Validation Results

Miriam Cunningham, IIMC / IST-Africa Institute, Ireland

mHealth4frika System

Miriam Cunningham, IIMC / IST-Africa Institute, Ireland

14:00 Session 7c: **Technology Enhanced Learning - Case Studies**

Chair: **Love Ekenberg, Stockholm University, Sweden**

mLearning in Nursing and Midwifery Education: Are Ghana's Students Ready?

Robert Kaba Alhassan, University of Health and Allied Sciences, Ho, Ghana

Case Study: Experiences in the Use of CommCare Technology in Mapping Assistive Technology in Southern Africa

George Kayange, Southern Africa Federation of the Disabled (SAFOD), Botswana

An Open-Source Tool-set for Meaningful Monitoring and Visualisation of Rural ICT Projects

Kim Gush, CSIR, South Africa

Lessons Learned in an Experiments comparing PDF Format and EPUB Format in an Arabic Language Secondary Level Grade 2 Biology Classroom in Khartoum

Muna Mohamed Mahmoud Abu Gosseisa, The National Ribat University, Sudan

Grade Monitoring System: A Prototype for Thulamela Secondary Schools

Pardon Takalani Ramazhamba, CSIR, South Africa

14:00 Session 7d: **eInfrastructure**

Chair: **Augusto Nunes, INTIC, Mozambique**

Research and Education Networking Across the African Continent - an update on the AfricaConnect2 project and GEANT's global activities

Cathrin Stöver, GEANT, Netherlands

A Proposed Architecture for Distributed Internet eXchange Points in Developing Countries

Diarmuid O'Briain, netLabs!UG Research Centre, Makerere University, Uganda

Challenges Faced by ZAMREN's Affiliates in the Provision of E-Learning: A Cross-Country Analysis

Mbuyu Sumbwanyambe, University Of South Africa, South Africa

14:00 Session 7e: **Mobile Technology**

Chair: **Salif Gaye, Ministère de l'Enseignement Supérieur de la Recherche, Senegal**

Assisting Tourism in Underserved Areas with TensorFlow: A Proof-of-Concept Mobile App

Laura Martinus, CSIR, South Africa

Evaluating Quality of Service for Short Message Service as a Platform to Transmit Seismic Data in Earthquake Early Warning System

Eva Shayo, University of Dar es Salaam, Tanzania

Assessment of Radio-Frequency Radiation Exposure Levels: A Case of Selected Mobile Base Stations in Dar es Salaam, Tanzania

Zaituni Kaijage, University of Dar es salaam, Tanzania

Mobile Video Comparison to Help Deaf People Make Informed Choices: a South African Case Study with Provincial Data

Andre Henney, University of the Western Cape, South Africa

An Analysis for Convergence and Culture Awareness in Mobile Technology: Towards Convergence Related Culture-Aware Technology Developments

Galamoyo Male, Botswana Accountancy College, Botswana

Battery and Data Drain of Over-The-Top Applications on Low-end Smartphones

Shree Om, University of the Western Cape, South Africa

15:45

Coffee Break

16:15 Workshop 8a: **WS: Open Data Open Science**

Chair: **Julius Athlopheng, University of Botswana**

Developing a Cyber-infrastructure for Enhancing Regional Collaboration on Education, Research, Science, Technology and Innovation

Tshiamo Motshegwa, University of Botswana

Botswana Open Data Open Science Case Study

Julius Athlopheng, University of Botswana

African Open Science Platform

Ina Smith, Academy of Science of South Africa, South Africa

Emerging Outcomes of Open Data in Tanzania: A Case of the Tanzania Data Lab

Moses Ismail, University of Dar es Salaam, Tanzania

FAIR Data & The International Data Week

Simon Hodson, Committee on Data of the International Council for Science, France

Q&A and Panel Discussion – Making Data Sharing Work

Tshiamo Motshegwa, University of Botswana

16:15 Session 8b: **mHealth - Security**

Chair: **Aubrey Pheto Mokotedi, Botswana Institute for Technology Research and Innovation**

Blockchain Technology: Is this the Solution to EMR Interoperability and Security Issues in Developing Countries?

Elizaphan Maina, Kenyatta University, Kenya

A Framework for User Awareness and Acceptance of Smart Card and Fingerprint-Based Access Control to Medical Information Systems in South Africa

Elisa Maeko, University of Johannesburg, South Africa

Enhancing Security in Electronic Health Records using AES and PBKDF2: A case study of Zimbabwe e-health system

Macdonald Mukosera, HIT, Zimbabwe

Towards Fog-based Cyber-Healthcare Data Storage Security and Availability

Samson Akintoye, University of the Western Cape, South Africa

16:15 Session 8c: **eGovernment - eVoting & Local Governance**

Chair: **Leulseged Alemie, Ministry of Communications and Information Technology, Ethiopia**

Online Voting System with Reliable Voter Authentication Protocols

Emily Bagarukayo, Makerere University, Uganda

Electronic Voting System for University Student Elections: The Case of Kabarak University, Kenya

Moses Thiga, Kabarak University, Kenya

The Role of ICT in Electoral Processes: Case of Kenya

Elyjoy Micheni, The Technical University of Kenya, Kenya

Implementing Financial Management Information Systems in Local Governments: A Model of Success Factors

Gilbert Maiga, Makerere University, Uganda

A Framework to Mitigate Water Billing Information Systems Integration Challenges at Municipalities

Duane Boucher, University of Fort Hare, South Africa

16:15 Session 8d: **eInfrastructure -Transport**

Chair: **Ebenhezer Kauhonina, National Commission on Research, Science and Technology, Namibia**

Real-time Driver Advisory Model: Intelligent Transportation Systems

James Obuhuma, Africa Nazarene University, Kenya

Assessing Scheduled Public Transport Reliability Using MATSim Toolkit

Edmore Chindenga, University of Fort Hare, South Africa

16:15 Session 8e: **Promoting Entrepreneurship**

Chair: **Tirelo Ramasedi, Botswana Innovation Hub**

Investigating the Impact of Rural Incubation Hubs in Kenya: A Case of Sote Hub

David Ogiga, Sote Hub, Kenya

Promoting Women Ict Start-Ups to Accelerate Women's Economic Empowerment: A Case of Strathmore Univerisity-@Ibizafrica

Tracy Weru, Strathmore University, Kenya

Assessing the Presence of Innovation Elements in Competitions and Awards Events in Tanzania

Angelina Misso, University of Dar es Salaam, Tanzania

Challenges Botswana's Mobile Application Developers Encounter: Funding, Commercial and Technical Support

Admore Tutsirayi Nyamaka, UNISA, Botswana

18:00

End of Parallel Sessions



Friday,
May 11, 2018

09:00 Session 9b: **mHealth - Case Studies**

Chair: **Vasilis Kouloulas, eGovlab, Sweden**

Understanding the Effects of Decentralization on Health Information Systems in Developing Countries: A Case of Devolution in Kenya

Belina Shisia, Ministry of Health, Kenya

Perceived Impact of Devolved Health Services on Implementation of DHIS2 in Kenya: A Qualitative Study

Josephine Karuri, Moi University, Kenya

A Cross-cultural Comparison of Design Feature Preferences Required for a Stroke Tele-rehabilitation System

Charmayne Hughes, San Francisco State University, United States

09:00 Session 9c: **eGovernment - eServices**

Chair: **Phodiso Phole, Ministry of Transport and Communications, Botswana**

Unified Cooperative Population Identification Architecture to Enhance the National Identity Ecosystem of Developing Countries

Stefanus Van Staden, Office of Prime Minister, Namibia

Investigation of a Co-Design Approach for a Civic Engagement Mobile Application

Shaun Pather, University of the Western Cape, South Africa

RDSMS – A South African Research and Development Survey Management System

Louis Engelbrecht, CSIR, South Africa

Document Management Systems – Legislative Compliance, Good Governance and Municipal Practice

Silma Koekemoer, Nelson Mandela University, South Africa

09:00 Session 9d: **mAgriculture - Applications**

Chair: **Lakshmi Narasimhan, University of Botswana**

Factors Impacting the Design of a Mobile Application for Soil Management: A Case Study of the Eastern Cape Crops

Stephan Botha, Nelson Mandela University, South Africa

An Integrated Multi-Function Information System Model for Livestock Stakeholders

Gladness Mwangi, Nelson Mandela African Institution of Science and Technology, Tanzania

Condition Monitoring and Reporting Framework for Wireless Sensor Network-based Automatic Weather Stations

Mary Nsabagwa, Makerere University, Uganda

What is the Impact of Digital Financial Service on Agribusiness Market Risk?

Thabo Gopane, Johannesburg Business School, University of Johannesburg, South Africa

09:00 Session 9e: **ICT4D & Content Technologies**

Chair: **Gift Kadzamira, National Commission for Science and Technology, Malawi**

What Theory of Change Can Contribute to Capability Approach: Towards Evaluating ICT-Enabled Interventions

Mathew Egessa, Technical University of Mombasa, Kenya

A Statistical Approach to Error Correction for isiZulu Spellcheckers

C. Maria Keet, University of Cape Town, South Africa

The Impact of Demographic Factors to the Adoption of Social Commerce in Tanzania

Edison Wazoel LUBUA, North-West University, South Africa

Innovation and Intellectual Property Rights: Shaping ICT landscape in Africa

Mhlambululi Mafu, Botswana International University of Science and Technology, Botswana

10:30

Coffee Break

11:00 Workshop 10b: **mHealth in Botswana**

Chair: **Kagiso Ndlovu, University of Botswana**

Botswana's Current eHealth/mHealth Status and Future Prospects

Tony Chebani, Ministry of Health & Wellness, Botswana

Status of eHealth Readiness in Botswana

Kabelo Leonard Mauco, Botho University, Botswana

Implementing School Vision Screening Programme using Smartphone Technology in Southern Botswana

Maipelo Jeremiah, Botswana-UPenn Partnership, Botswana

Scaling Up a Mobile Telemedicine Solution (Kgonafalo) in Botswana

Kagiso Ndlovu, University of Botswana

University-Industry Collaboration Model for Setting up an eHealth Research Unit

Audrey Masizana, University of Botswana

11:00 Session 10c: **eGovernment - Issues & Case Studies**

Chair: **Gladness Pinkie Mosigi, Department of Information Technology, Botswana**

eGovernment in Mozambique: Past, Future and New Prospects

Domingos Luis Rhongo, Catholic University of Mozambique (UCM)-FGTI, Mozambique

Enhancing e-Service Delivery in Rural Communities of South Africa

Lizo Masikisiki, University of Fort Hare, South Africa

Government Facilitated Access to ICTs: Adoption, Use and Impact on the Well-Being of Indigent South Africans

Rashidi F Kassongo, University of Western Cape, South Africa

TAS: Risk Analysis & Clustered Sensors

Alfredo M. Ronchi, Politecnico di Milano, Italy

11:00 Session 10d: **eAgriculture & Environmental Sustainability**

Chair: **Loi Namugenyi, Uganda National Council for Science & Technology**

Analysing the Relationship between the Use of ICTs and Food Insecurity in Smallholder Farmer Households

Ntabeni Jere, University of KwaZulu-Natal, South Africa

Community Climate Services for Small-Scale Farmers in Tanzania

Ville Myllynpää, University of Turku, Finland

Semantic Interoperability Middleware Architecture for Heterogeneous Environmental Data Sources

Adeyinka Akanbi, Central University of Technology, South Africa

Visualisation of Big Data in Agriculture and Rural Development

Karel Jedlička, UWB, Czech Republic

12.30 Closing Plenary 11a

Chair: **Itumeleng Batsalelwang, DTPS, MTC, Botswana**

Best Paper Award

14:00

Lunch