



## African Centres of Excellence



### ACE-ESD partners with HEDERA in organizing DAAD TUB Alumni Online Seminar 'Energy Transition in Africa'

The African Center of Excellence in Energy for Sustainable Development (ACE-ESD) partnered with HEDERA and other partners and organized an online seminar dubbed "Energy transition in Africa: Exploring Cooperations and Networks to strengthen North- South and South - South Interventions".

**Page 4**

### ACEITLMS hosts the 6th Africa Regional Conference of ICMI on Mathematical Education (FRICME6)

From 25<sup>th</sup> to 27<sup>th</sup> October 2021, the University of Rwanda through its African Centre of Excellence in Innovative Teaching and Learning Mathematics and Science (ACEITLMS), in collaboration with the International Commission on Mathematical Instruction (ICMI) hosted the 6th Africa Regional Conference of ICMI on Mathematical Education (AFRICME 6).

**Page 2**

### ACEDS held its 6th PhD symposium to assess the progress of their research

From 28<sup>th</sup> to 29<sup>th</sup> September 2021, the African Centre of Excellence in Data Science held its 6th PhD symposium in which students presented their research progress to their supervisors and co-supervisors.

**Page 5**

### The first three professionals successfully complete professional Data Science programs

The first students who enrolled in five various Data Science programs being taught in partnership with the Data Science Council of America (DASCA) have completed their programs.

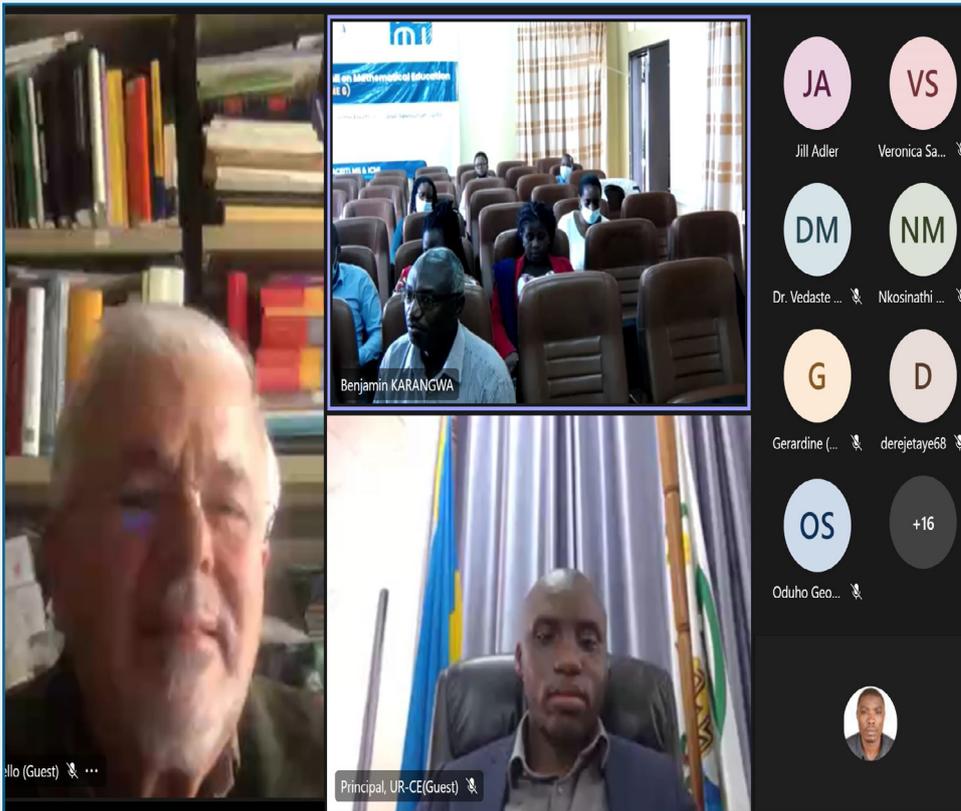
**Page 7**

### Recent graduate students reflect on a two-year long journey at ACEIoT

Master's students who graduated from the African Centre of Excellence in Internet of Things (ACEIoT) have commended the support

**Page 6**

## ACEITLMS hosts the 6<sup>th</sup> Africa Regional Conference of ICMI on Mathematical Education (AFRICME6)



*The Conference was conducted virtually due to Covid-19 restrictions*

From 25<sup>th</sup> to 27<sup>th</sup> October 2021, the University of Rwanda through its African Centre of Excellence in Innovative Teaching and Learning Mathematics and Science (ACEITLMS), in collaboration with the International Commission on Mathematical Instruction (ICMI) hosted the 6<sup>th</sup> Africa Regional Conference of ICMI on Mathematical Education (AFRICME 6). The AFRICME was launched in 2005 and aims at offering a forum for mathematics educators throughout Africa. The conference was held virtually due to Covid-19 restrictions.

The conference was conducted under the theme, “Teaching and Learning Mathematics in the Fourth Industrial Revolution (4IR)”. The main objective of the conference was to give an opportunity for Mathematics

Educators and researchers to share the findings of their research through keynotes and oral presentations.

**“This AFRICME6 provides us with opportunity to share our experience because since 2016 with the establishment of the ACEITLMS we have accomplished a lot in terms of STEM education, research and more specifically in Mathematics education”, he noted.**

The Minister of Education, the Vice Chancellor of the University of Rwanda and the Principals of the

University of Rwanda-College of Education and College of Medicine and Health Sciences attended the opening ceremony of the conference.

In his remarks, Dr. Florian Nsanganwimana, the Acting Principal of College of Education valued the contribution of Mathematics to understand scientific knowledge and to explain different phenomena including even the current ones like the climate change and others.

“This AFRICME 6 provides us with opportunity to share our experience because since 2016 with the establishment of the ACEITLMS we have accomplished a lot in terms of STEM education, research and more specifically in Mathematics education”, he noted.

In her remarks, Prof. Mercy KAZIMA, on behalf of the executive committee of ICMI, noted that the ICMI is very pleased for the AFRICME 6 to take place in Rwanda with participants of many countries.

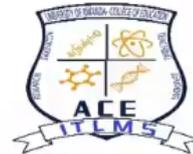
She informed the participants that this AFRICME 6 Conference realizes the two goals of ICMI which are “to offer a forum to promote the reflection, collaboration, exchange and dissemination of ideas on Teaching and Learning of mathematics from primary to the university level, and to provide the link between educational researchers, curriculum designers and policy makers, teachers of mathematics and others interested in mathematical education around the world. She thanked the Honorable Minister of Education of Rwanda and the Vice Chancellor of the University of Rwanda for their support and presence.

Recording has started. This meeting is being recorded. By joining, you are giving consent for this meeting to be recorded. [Privacy policy](#)



UNIVERSITY of  
RWANDA

COLLEGE OF EDUCATION



*African Centre of Excellence for Innovative Teaching and Learning  
Mathematics and Science (ACEITLMS)*

**A paper presentation in AFRICME 6 Conference (22-27<sup>th</sup> October 2021)**

**A paper title: Facing the effects of COVID-19 on Grade-12 students in  
mathematics education**



*During the conference some research papers were presented*

The Vice Chancellor of the University of Rwanda, Professor Alexandre Lyambabaje, noted that for mathematicians the AFRICME6 Conference is an important day because it gives mathematicians an opportunity to rethink the way that could be used to improve the numeracy in our society, the way to improve on teaching & learning mathematics in Rwanda, in East Africa & in Africa as a whole.

He highlighted the need to devise strategies to teach better and in an effective way mathematics at all levels from primary to university taking advantage of information and communication technologies.

The Vice Chancellor stressed the importance that the Government of Rwanda attaches to mathematics, as it is indicated by heavy investment in teaching and learning as well as the use of mathematics.

In her official opening remarks, the Minister of Education

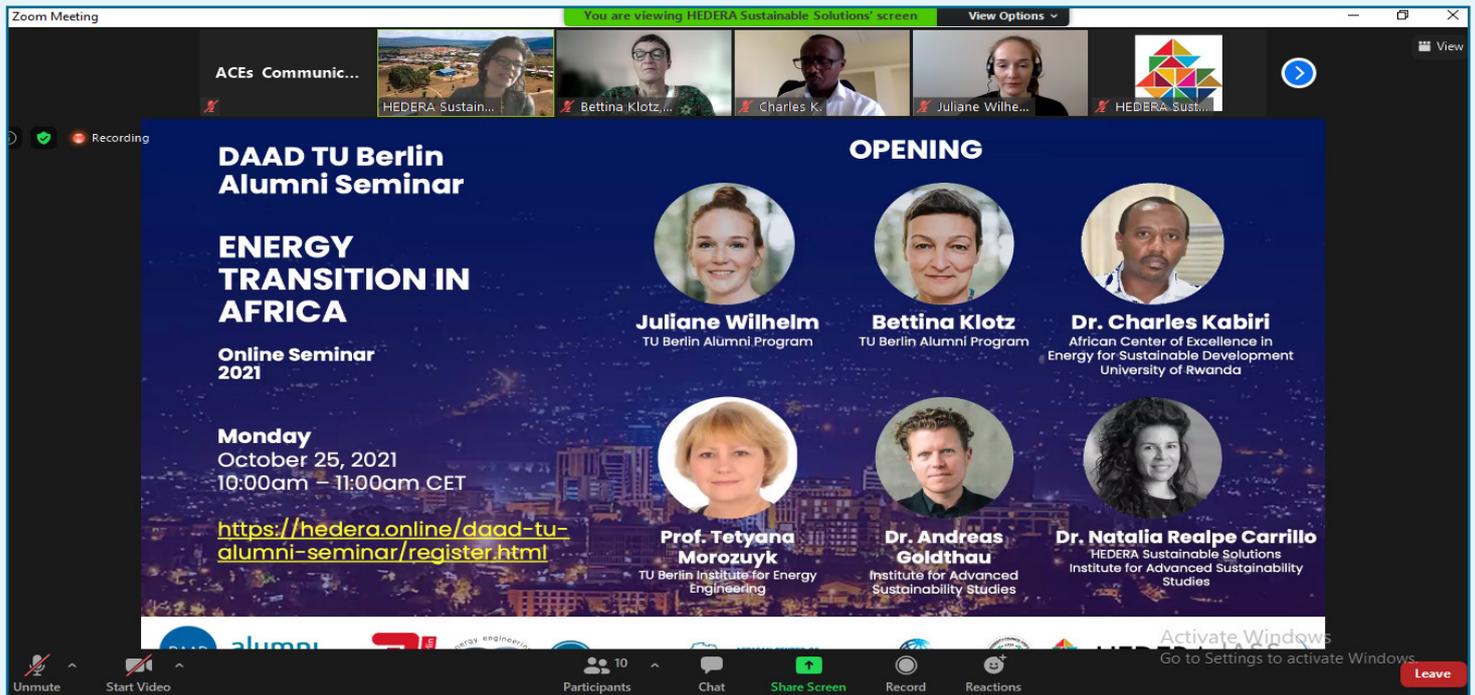
Dr. Valentine Uwamariya noted that it was a good opportunity for Rwanda to host the conference despite the conditions imposed by the Covid-19 pandemic.

“While the presence and impact of digital technology is not debated, especially after COVID-19 disruption on society norms, the optimal ways of embedding it in the education sector remain questionable. 4IR is perceived as the application of amalgams of many technologies, and its application in the teaching and learning of mathematics should be investigated further”, she said.

The conference featured exciting combination of keynote lectures, panel and round table discussions, paper presentations, workshops, East Africa presentations, displays of local teaching learning materials among other forms of information sharing.

[www.aceitlms.ur.ac.rw](http://www.aceitlms.ur.ac.rw)

## ACE-ESD partners with HEDERA in organizing DAAD TUB Alumni Online Seminar ‘Energy Transition in Africa’



### Speakers to the Seminar were experts from Energy sector

The African Center of Excellence in Energy for Sustainable Development (ACE-ESD) partnered with HEDERA and other partners and organized an online seminar dubbed “Energy transition in Africa: Exploring Cooperations and Networks to strengthen North- South and South - South Interventions”. The virtual seminar took place from October 25-29.

**“ This seminar aimed to explore the lessons learnt, challenges, and outlook for transdisciplinary and transnational cooperation in the energy sector in Africa”**

in view of the expected population growth, climatic and public health-

related issues, and ongoing policies and initiatives to improve energy access.

The seminar targeted alumni of German institutions of higher education/non university research institutes who are actively involved in the energy sector, be it in government, academia, or industry and who are from or based in Africa and other interested professionals, researchers, students in energy field.

Topics in the seminar included research findings from researchers, experiences from experts in energy, different interventions from energy organizations among others.

After the seminar, there has been a Photo & Video Exhibition, “Awakening the senses on energy transition in Africa” at the Embassy of the Republic of Rwanda to Germany in Berlin.

This exhibition featured different video and photos of beneficiaries of different energy activities.



**Dr. Charles Kabiri virtually speaking at photo-video exhibition**

This event is organized by the Technische Universität Berlin Alumni Programme, TUB Institute for Energy Engineering in cooperation with the African Center of Excellence Energy for Sustainable Development (ACE-ESD) of the University of Rwanda and hosted by the Technische Universität Berlin Alumni Programme together with HEDERA Sustainable Solutions and the Institute for Advanced Sustainability Studies (IASS).

[www.aceeds.ur.ac.rw](http://www.aceeds.ur.ac.rw)

## ACEDS held its 6th PhD symposium to assess students' research progress



*The symposium was conducted virtually due to Covid-19 restrictions*

From 28<sup>th</sup> to 29<sup>th</sup> September 2021, the African Centre of Excellence in Data Science held its 6<sup>th</sup> PhD symposium in which students presented their research progress to their supervisors and co-supervisors.

A two-day symposium was held virtually in respect to the restrictions to curb the spread of Covid-19 pandemic.

The main objective of the symposium for PhD students is to assess their research progress, guide and provide inputs to their research with the support of multidisciplinary panelists from the University of Rwanda, with inputs from regional and International Universities for a smooth completion of the program.

In his welcome remarks, the Acting Principal of the College of Business and Economics (CBE) hosting the Centre Dr. Pierre Claver Rutayisire commended all participants for attending and added,

**“ This is the opportunity not only for the Centre to achieve its mandate but also for PhD students to present their research progress and get constructive comments from data science experts ”**

During the symposium, there was identification of students who are

ready for synopsis presentation from cohort 1, those who are ready for comprehensive exam by Doctoral Committee from cohort 1, 2 & 3 and some students from cohort 1&2 presented their PhD research proposals.

A two-day symposium is attended by 40 ongoing PhD students split into 3 cohorts and their national & international supervisors.

The PhD symposium is organized every six months.



*Participants were students, supervisors and co-supervisors*

## Recent graduate students reflect on a two-year long journey at ACEIoT

**R** Master's students who graduated from the African Centre of Excellence in Internet of Things (ACEIoT) have commended the support and the skills they got while pursuing their master's degree saying that they are now ready to use these skills to contribute to the national and regional development. The graduation ceremony took place on 27<sup>th</sup> August 2021.

Students expressed satisfaction while meeting with the Centre management to reflect on the journey at ACEIoT.

Marguerite Bamurere who specialized in Wireless Sensor Networking said that she is going to transfer the knowledge she got to the rest of the region towards regional development.

"Being the first to have these skills in Internet of Things, we feel accountable of transferring the knowledge we got to the rest.

Internet of Things may be used in different sectors health, agriculture, education and so much more. So we are ready to use the skills we got to contribute to the national development", she said.



*Some ACEIoT Master's students pose with some staff*

**“ Wherever you are, with the use of internet of things, you can find ways of contributing in finding solutions, which is the main objective of the project to find solutions to national and regional economic challenges ”**

"Wherever you are, with the use of internet of things, you can find ways of contributing in finding solutions, which is the main objective of the project to find solutions to national and regional economic challenges ", another graduate said.

Dr. Damien Hanyurwimfura, the Ag. Director of the Centre said, " We teach them so that they can contribute in finding solutions to existing challenges to develop the country either in agriculture, energy... so they are needed to contribute to the national and regional development "

This year, 22 Master's students from ACEIoT graduated in two specializations: Embedded Computing Systems and Wireless Sensor Networking. It is the first time that students under the Africa Higher Education Centers of Excellence Project graduate.



[www.aceiot.ur.ac.rw](http://www.aceiot.ur.ac.rw)

## The first three professionals successfully complete professional Data Science programs



*Different professional certificates are offered in partnership with DASCA*

The first students who enrolled in five various Data Science programs being taught in partnership with the Data Science Council of America (DASCA) have completed their programs. So far three candidates have successfully completed their courses. They are Elias Mutezimana (Senior Big Data Engineer (SBDE™)), Valens Ndagijimana (Associate Big Data Analyst (ABDA™)) and Angelique Dukunde (Senior Big Data Analyst (SBDA™)).

The five introduced certifications programs are Associate Big Data Engineer (ABDE™), Senior Big Data Engineer (SBDE™), Associate Big Data Analyst (ABDA™), Senior Big Data Analyst (SBDA™), Senior Data Scientist (SDS™), and Principal Data Scientist (PDS™).

These certifications were introduced in 2020 by the African Centre of Excellence in Data Science (ACE-DS) in partnership with the Data Science Council of America (DASCA).

Mutezimana was among the first to be enrolled.

**“ After hearing about these certifications and going deep into the content, with my experience in Information Technology field, I felt interested hoping that the skills I will gain will boost my skills in both information technology and Data Science fields, thus developing myself into a world-class data scientist ”, he noted.**

Mutezimana has a Master’s degree in Data Science (Data Mining) and Bachelor’s degree in Computer Engineering and Information Technology from the former KIST.

These online certifications help participants build a strong base of knowledge and skills on multiple tools, techniques, concepts and

technologies, and in the process, equip them for an exciting breadth of roles and career opportunities that are available with a wide range of Data Science employers across verticals, environments and markets.

Participants are provided with the complete suite of learning and exam-preparation resources and are linked with data experts if needed.

“With these programs, we are given well prepared resources with simulations, lab environment, e-books, video, physical books to be prepared for this international certification. Linux Server administration skills, database Administration skills, coding skills were some of the key weapons that accompanied me during the eight - month journey”, he testified.

Topics that are covered include Big Data Processing Using the Hadoop Ecosystem, Big Data Analytics with Python & Hadoop, Building Data Analytics Applications with R, Machine Learning and Artificial Intelligence, MongoDB for high volume streaming data storage, Spak, kakfa, Scala and flink for Stream & Batch Data Processing & Analytics among others.

“ The skills I got will expose me to more opportunities for both Information Technology and Data Science as twofields that go hand in hand and also will help me improve my performance in my future career ”, he noted.

The launch of the globally renowned Data Science certifications programs came as a result of partnership between ACE-DS and DASCA to enhance professional employability of African technology talent and improve their technology research

and development outcomes. So far 16 candidates are pursuing these certification programs.

The Data Science Council of America (DASCA) is a USA-based institution, which researches, designs, builds

platform-independent Data Science knowledge frameworks, standards, and credentials, and certifies individuals entering or working across the spectrum of emerging Data Science professions.

[www.aceds.ur.ac.rw](http://www.aceds.ur.ac.rw)

## 2 PhD students defended their final thesis



### ACE-ESD's Katundu Imasuku

**Topic:** Avoiding Ecological Sustainable Development trade-offs with renewable energy in sub-Saharan Africa.

### ACE-DS's Kasahun Takele Geneti

**Topic:** Malnutrition and Morbidity Data Analytics for Under-Five Children in Ethiopia



## A delegation from Nigeria visited UR-ACEs to explore potential collaboration opportunities



*UR Vice Chancellor Prof. Alexandre Lyambabaje receiving a gift from the Head of delegation*

**A** delegation led by Prof. Suleiman E. Bogoro from Nigeria-based TETFUND, an organ responsible for imposing, managing and disbursing the Education Tax to public tertiary institutions in Nigeria, paid a five-day visit to UR-ACEs.

The visit aimed at discussing and exploring different potential collaboration and partnerships opportunities with UR Centres of Excellence.

Having established their own Centres of Excellence, TETFund wants to engage in South to South Cooperation with various institutions in the education, research and development sectors.

**“ The visit aimed at discussing and exploring different potential collaboration and partnerships opportunities with UR Centres of Excellence. ”**



## The visit in pictures



# Our respective programs

## African Centre of Excellence in Data Science (ACEDS) based at UR-College of Business and Economics, Gikondo



### We have Day and evening Programs:

- Master/PhD of Science in Data Science in Data Mining
- Master/PhD of Science in Data Science in Econometrics
- Master/PhD of Science in Data Science in Biostatistics
- Master/PhD of Science in Data Science in Demography
- Master/PhD of Science in Data Science in Actuarial Sciences

**N.B: All PhD programs are by research.**



**In partnership with Data Science Council of America (DASCA), we also offer certified professional Short courses:**

- a. Associate Big Data Engineer (ABDE)
- b. Senior Big Data Engineer (SBDE)
- c. Associate Big Data Analyst (ABDA)
- d. Senior Big Data Analyst (SBDA)
- e. Senior Big Data Analyst (SBDA)

**More details:** [www.aceds.ur.ac.rw](http://www.aceds.ur.ac.rw)

## African Centre of Excellence for Innovative Teaching and Learning Mathematics and Sciences (ACEITLMS) based at UR-College of Education, Rukara



### We have Day and Weekend Programs:

- Master of Education in Biology Education
- Master of Education in Chemistry Education
- Master of Education in Physics Education
- Master of Education in Mathematics Education
- PhD in Biology Education
- PhD in Chemistry Education
- PhD in Physics Education
- PhD in Mathematics Education

**N.B: All PhD programs are by research.**

**More details:** [www.aceitlms.ur.ac.rw](http://www.aceitlms.ur.ac.rw)

## African Centre of Excellence in Internet of Things (ACEIoT) based at UR-College of Science and Technology, Nyarugenge



### We have the following Programs:

- Master/PhD of Science in Embedded Computing Systems (ECS)
- Master/PhD of Science in Wireless Sensor Computing (WSC)

**N.B: All PhD programs are by research.**

### **Short courses:**

- Rapid Prototyping
- Blockchain Fundamentals and Applications
- Drone fundamentals and applications
- LoRA technologies
- IEEE GRSS Drone Sensor Deployment

**More Details:** [www.aceiot.ur.ac.rw](http://www.aceiot.ur.ac.rw)

## African Centre of Excellence in Energy for Sustainable Development (ACEESD) based at UR-College of Science and Technology, Nyarugenge



### We have the following Programs:

- Master/PhD of Science in Energy Economics
- Master/PhD of Science in Renewable Energy
- Master/PhD of Science in Electrical Power Systems

**N.B: All PhD programs are by research.**

### **Short courses:**

Power Engineering, Smartgrid, Microgrid

**More Details:** [www.aceesd.ur.ac.rw](http://www.aceesd.ur.ac.rw)

## Adresses and Contacts



**African Center of Excellence in Data Science (ACE-DS)**

**Email:** [aceds@ur.ac.rw](mailto:aceds@ur.ac.rw)

**Website:** [www.aceds.ur.ac.rw](http://www.aceds.ur.ac.rw)

**Phone:** + 250 788 521 896

**Twitter:** @UR\_aceds

**Facebook:** ACE in Data Science

**African Center of Excellence for Innovative Teaching and Learning Mathematics and Science (ACEITLMS)**

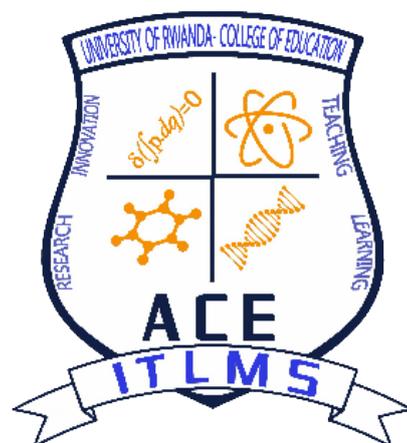
**Email:** [wrceaceitlms@gmail.com](mailto:wrceaceitlms@gmail.com)

**Website:** [www.aceitlms.ur.ac.rw](http://www.aceitlms.ur.ac.rw)

**Phone:** +250 788 221 035

**Twitter:** @aceitlms

**Facebook:** ACE for Innovative Teaching and Learning Mathematics and Science



**African Center of Excellence in Energy for Sustainable Development (ACEESD)**

**Email:** [aceesd@ur.ac.rw](mailto:aceesd@ur.ac.rw)

**Website:** [www.aceesd.ur.ac.rw](http://www.aceesd.ur.ac.rw)

**Phone:** +250 785 923 610

**Twitter:** @ace\_esd

**Facebook:** ACE in Energy for Sustainable Development

**African Center of Excellence in Internet of Things (ACEIoT)**

**Email:** [aceiot.cst@gmail.com](mailto:aceiot.cst@gmail.com)

**Website:** [www.aceiot.ur.ac.rw](http://www.aceiot.ur.ac.rw)

**Phone:** +250 783 016 900

**Twitter:** @ACEIoT\_UR

**Facebook:** African Center of Excellence in Internet of Things-ACEIoT

