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Machine Learning (ML) and Artificial Intelligence (AI), Nigerian Perspective

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Overview

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Future Networks

In the history of technology, FUTURE NETWORKS are contemporary advances and innovation in various fields of technology. Technological growth includes incremental developments and disruptive technologies. These includes: artificial technologies, Machine learning, internet of things (IoT), robotics, E-smart services and Sensor technology, Over-the-Top services, Big data, Cloud computing Services, block chain and etc.

Future Networks

- Globally, these technologies are bringing about transformation in all dimensions of life, and this provides an opportunity for Africa to harness these technologies to advance its socio-economic development agenda and position itself as a frontrunner in the 4th Industrial Revolution.

- For a long time, Africa has not had an opportunity to be part of the first, second, and third industrial revolutions. While others led in disrupting the world, Africa was relegated to being a consumer.

- But now that, the 4th industrial revolution is here with us and with it comes yet another opportunity for Africa. Whether the continent steps up and plays a role in these future networks or remains a consumer remains to be seen.

Standardization of Future Networks in Africa

It was on 8th of June, 2018. Three reports were launched by Honourable Mr. Jean de Dieu Rurangirwa, Minister of information, Technology and Communications of Rwanda and the African Union (AU) High Level Panel on Emerging Technologies (APET) at the Africa Innovation Summit II held in Kigali, Rwanda.

APET has called for functional Standardization/Regulatory systems at national and regional levels in order to ensure timely and safe application of these technologies for Africa's economic development.

Standardization of Future Networks in Africa

Chair of the High Level Panel Prof. Yaye Gassama Dia emphasized the need to strengthen regulatory systems in order to ensure timely access and effectiveness of these technologies.

She also stated that there are perceived risks associated with these technologies and further research is encouraged with full participation of African scientists, policy makers, regulators with active engagement of the target communities.

Standardization of Future Networks in Africa

APET further argues that Africa cannot afford to play the "waiting-game" in putting together regulatory requirements for technologies that are on the horizon but should be actively involved and come up with harmonised policies, guidelines and standard operating procedures taking advantage of its regional integration agenda.

The APET calls upon research and development institutions and entrepreneurs and further calls upon African governments, regional organisations and partners to support in taking this work to the next level.

New Age of Artificial Intelligence, Machine Learning and Nigeria's preparedness

- Truth be told, AI & ML is already making an impact in Nigeria, with various applications in fields such as healthcare, education, agriculture, and finance.
- However, the use of AI has yet to be widespread across the country, and there are several challenges that need to be addressed to fully harness its potential.
- A major challenge is the lack of infrastructure and connectivity in many parts of Africa. Without reliable and affordable internet access, it is difficult to deploy and use AI & ML solutions effectively.

New Age of Artificial Intelligence, Machine Learning and Nigeria's preparedness

- Additionally, there is a shortage of skilled AI & ML professionals One other challenge is the ethical and social implications of AI, such as the potential for bias and discrimination in automated decision-making systems.

- Nigeria stands a good chance to greatly benefit from AI & ML, especially considering her population and the vastness of her resources, however, it is also imperative to bear in mind that the age of AI & ML combines the promise of extraordinary scientific advances with risk of being an existential threat.

Impact of AI

In Nigeria, the prominent use of AI is in autonomous systems. These have a huge impact on the economy. A few examples of this are:

- Intelligent/Expert systems deployed for customer care services both as voice agents and chat agents. These help resolve minor customer issues for many multinationals.
- We have seen the boom in smart surveillance and smart home systems which rely on the AI system to utilize the vast sensor networks.
- Another very impactful application of AI is in our navigational systems. We have seen a huge reliance on navigational systems among Nigerians especially in the logistics sector.
- The one very close to some of us here is the transcription services on online meeting platforms.

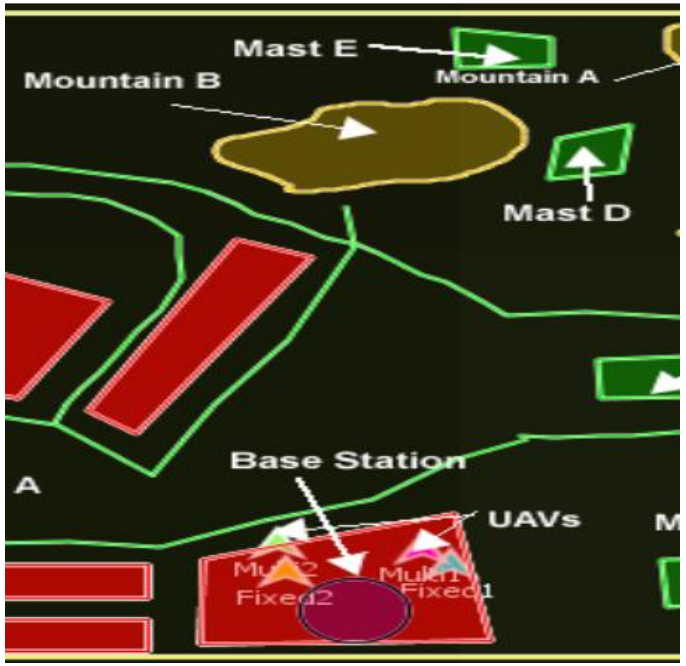
Promotion of ICT Innovation and Investment Opportunities.

- In year 2020, the Nigerian Government Established Artificial Intelligence research center to promote Research and development in the country
- Research and development – NCC
  - Intelligent and Autonomous Multi-UAVs (Multiple Drones) Swarm Monitoring for Effective Surveillance and Situation Awareness in the Nigerian Telecommunication Industry.

Summary of the Project Outcomes

- The project took a direction of formalizing the concept of multi-UAVs (multi-drones) swarm coordination to conduct surveillance mission especially for the purpose of monitoring telecommunication industry properties, services monitoring, and Situation Awareness management.

- The primary focus points are: (i) development of algorithms and methods to effectively coordinate the swarm activities; and (ii) development of models to effectively manage Situation Awareness (SA) of the UAVs (Unmanned Aerial Vehicle) and overall telecommunication industry data.



Simulation of Multi-UAVs Surveillance Problem for Telecommunication Industry

Practical Application to the Telecommunication Industry Problem

- The practical application aimed at developing a swarm of UAVs to perform surveillance mission (remember, the surveillance can be utilised to address signal booster detection, properties monitoring, location security, etc.). The demonstration addresses two issues i.e., surveillance and signal boosting system.

AI in Security

One of the most prominent areas of AI application has been in mitigating cyber crimes.

In Nigeria, a few Computer Security incidence response teams (CSIRTs) have been established to help combat cyber crimes. These CSIRTs are integrated into the country's network in different sectors thereby becoming a key component on the network.

They learn and help identify and mitigate threats on these networks in the different sectors.

WAY FORWARD

Things to consider for Future Networks revolution:

Policies/Regulations

In order to take advantage of these technologies and ensure future generations benefit, the right policies/regulations need to be implemented. African countries need to position themselves on the same level as developed nations if they are to play a dominant role in the coming revolution.

Education.

Africa needs to develop and build capacity within the continent that will enable it remain and be competitive in this revolution. It will be necessary to offer the needed training and skillsets in these technologies in a way that, that fits the African context.

Integration

Integration will enable businesses to connect these technologies to their existing business structure and help them take advantage of the opportunities they offer. AI, IOT, and robotics are great technologies in themselves, but having the skillsets is not enough. In order to leverage these in industries and businesses, they need to be integrated and managed properly.

THANK YOU ALL