Africa Embraces AI, Robotics, and Machine Learning

David Vernon

Institute for Artificial Intelligence
University of Bremen
Germany

www.vernon.eu

www.vernon.eu/wiki/Artificial_Intelligence,_Robotics,_and_Machine_Learning_in_Africa

German-African Cooperation in Education and Research

On the Impossibility of Speaking of Africa

"I would like, if I may, to clear up one misunderstanding right away: **Horst Köhler is not an Africa expert** …

the reality on the ground in Africa is so much more complex than written accounts suggest …

the more I learned about Africa, the more I realised how much there was still to learn"

**Speech by Horst Köhler
former President of Germany**

Federal Ministry of Education and Research

German-African Cooperation in Education and Research

BMBF Africa Days
16 – 18 March 2014

On the Impossibility of Speaking of Africa

David Vernon is not an Africa expert

www.africa.engineering.cmu.edu
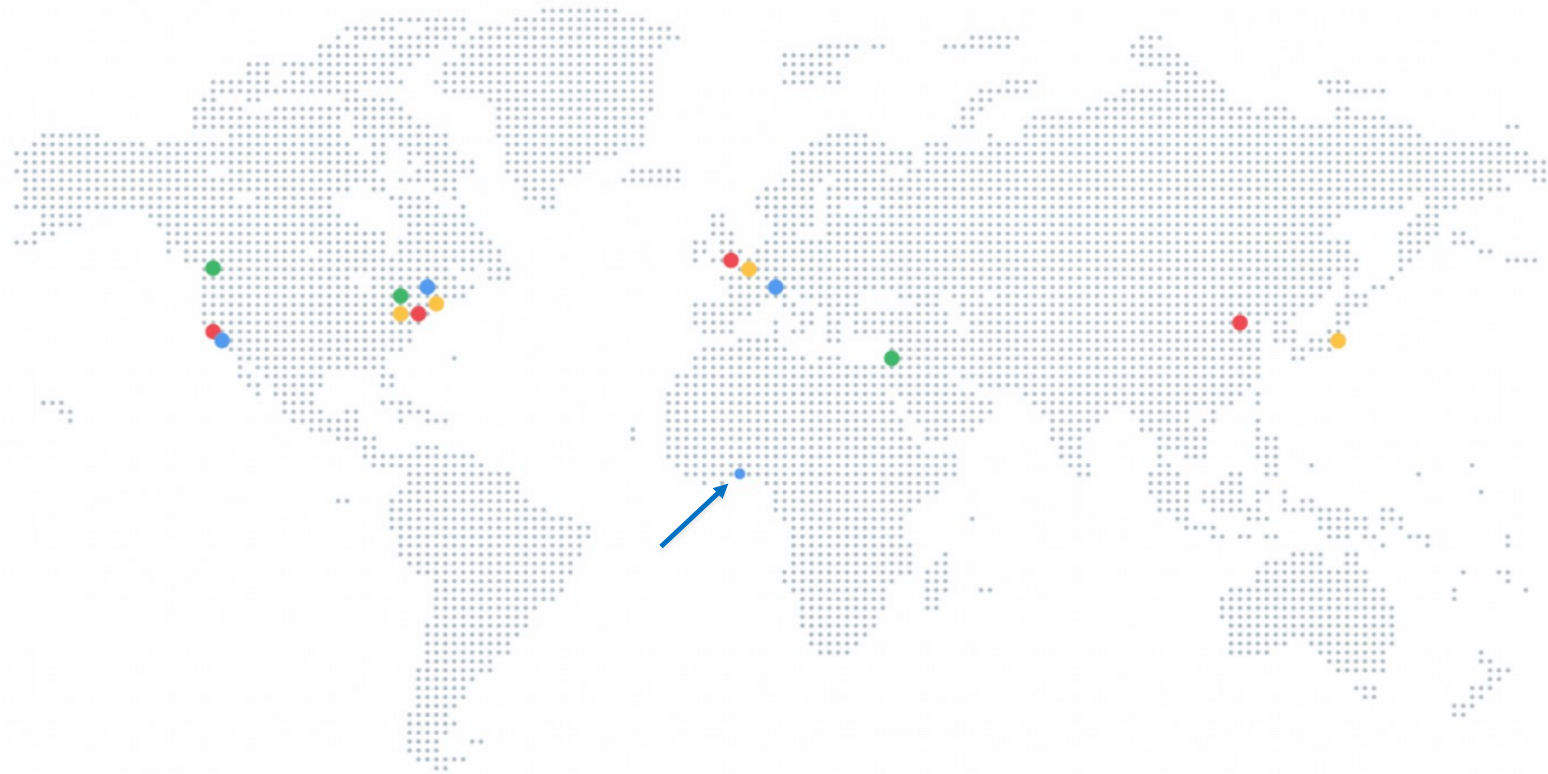
Carnegie Mellon University
Africa

www.africa.engineering.cmu.edu

WORLD VIEW · 23 OCTOBER 2018

Look to Africa to advance artificial intelligence

If AI is to improve lives and reduce inequalities, we must build expertise beyond the present-day centres of innovation, says Moustapha Cisse.

Moustapha Cisse ✉

Moustapha Cisse is head and co-founder of the Google AI Research Lab in Accra, Ghana, and professor of machine learning at the African Institute of Mathematical Sciences.

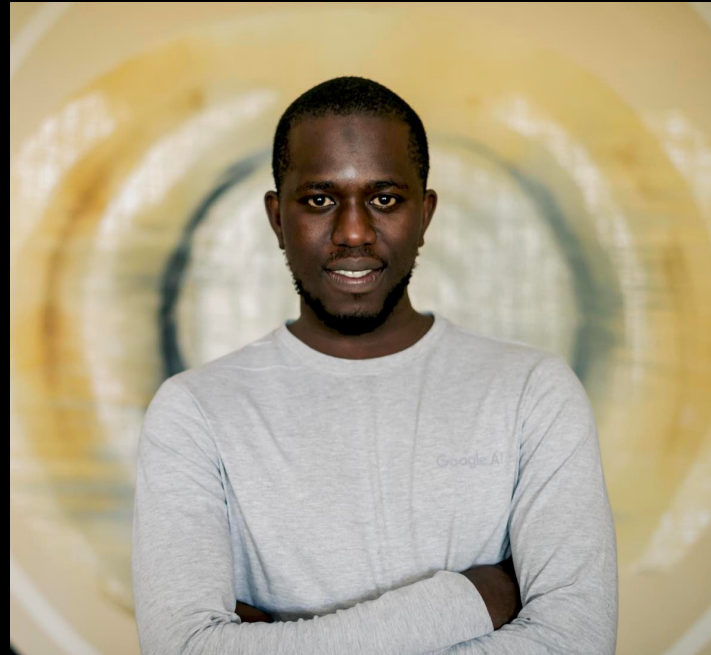✉ Contact

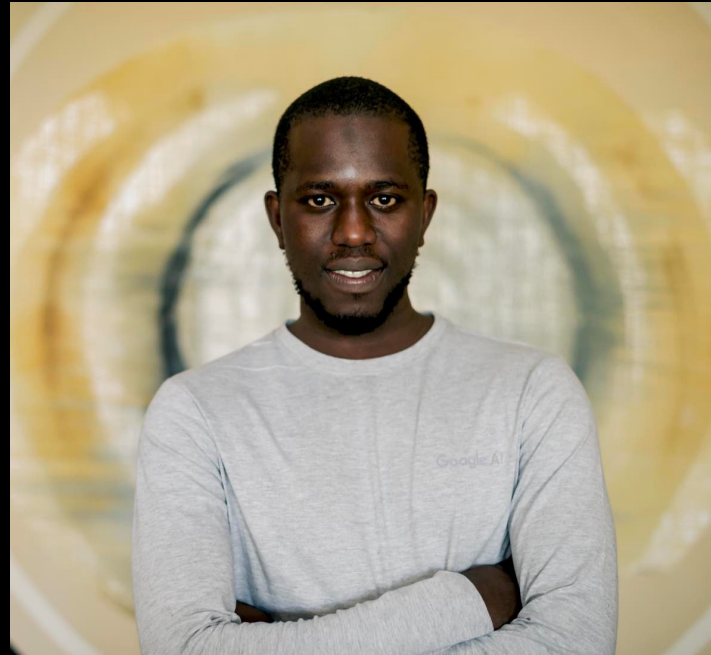**Search for this author in:**

Pub Med

Nature.com

Google Scholar

"AI ... offers a unique chance to improve lives
without opening up and exacerbating global inequalities."

Moustapha Cissé

Head of the Google AI Center in Accra, Ghana

"That will require widening of the locations where AI is done."

Moustapha Cissé

Head of the Google AI Center in Accra, Ghana

"The vast majority of experts are in North America, Europe and Asia.

Africa, in particular, is barely represented."
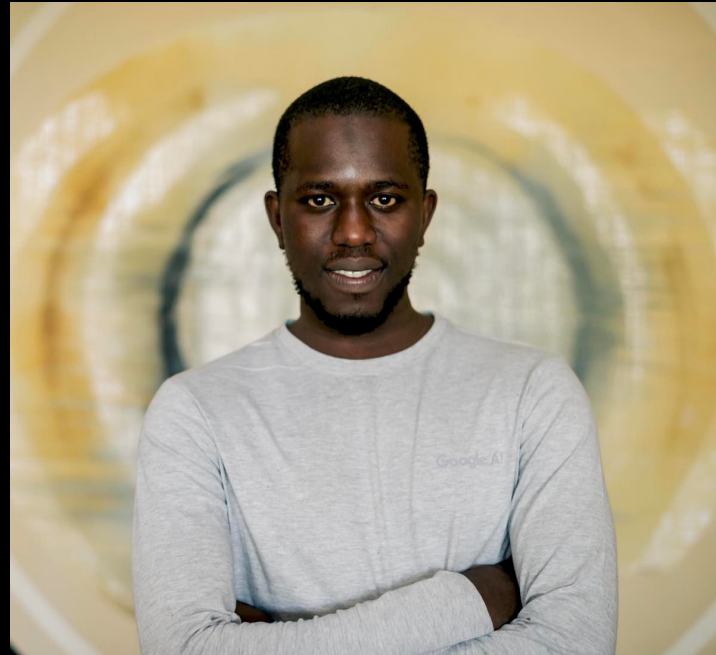
Moustapha Cissé

Head of the Google AI Center in Accra, Ghana

"Such lack of diversity can entrench unintended algorithmic biases and build discrimination into AI products."

Moustapha Cissé

Head of the Google AI Center in Accra, Ghana

"Fewer African AI researchers and engineers means fewer opportunities to use AI to improve the lives of Africans."

Moustapha Cissé

Head of the Google AI Center in Accra, Ghana

Thanks to people like Moustapha Cissé and many others,

this is changing ... fast

Why?

Formal Education

Become a Machine Intelligence Expert

Improve the World

African Masters in Machine Intelligence

African Institute for Mathematical Sciences

aimsammi.org
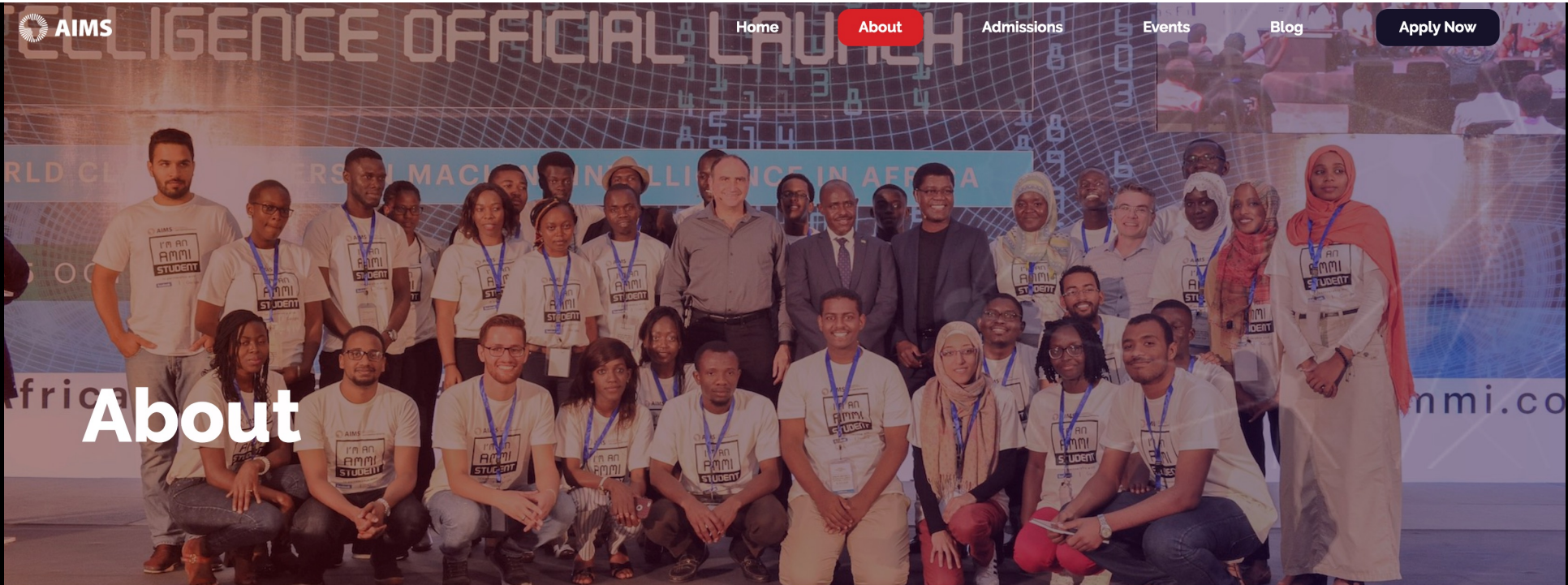
About

Today's students | Tomorrow's leaders

Now is the time to build a foundation that ensures that Artificial Intelligence (AI) helps bring better lives in Africa and beyond. With foresight and planning, the technological revolution that AI brings will be a force to empower a fair and prosperous society.

Moustapha Cisse (Ph.D)

Director

MS in Engineering Artificial Intelligence (MS EAI)
Planned launch Fall 2021

https://www.africa.engineering.cmu.edu/

Informal Education

AI Saturdays Lagos

Learning Tracks   About Us   Contact Us

AI Saturdays Lagos

Aimed at getting you to kickass in AI!

http://www.aisaturdayslagos.com/index.html

Learning Tracks

Data Science & ML	Deep Learning	Research

With a strong commitment to quality learning, we carefully select resources from well recognised professionals, to aid teaching and learning throughout the cohort.

Some of the resources we have used in the past are:
- Stanford Univesity's CS231n class
- Jeremy Howard's fast.ai tutorials
- Udacity's Introduction to Deep Learning with Pytorch

http://www.aisaturdayslagos.com/index.html

http://www.aisaturdayslagos.com/index.html

Organisers

Tejumade Afonja

Founder

🐦 in

Femi Azeez

Founder | Research Track Lead

🐦 in
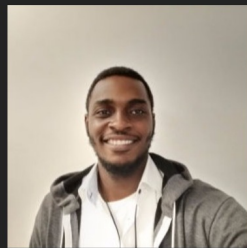
Kenechi Dukor

Co-organiser | Community Lead

🐦 in
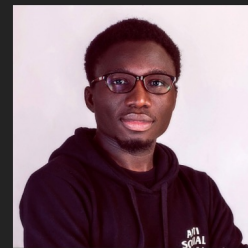
Ibrahim Gana

Co-organiser | Media Lead

🐦 in

AI Saturdays Lagos

Organisers

Stanley Dukor

Co-organiser | Deep
Learning Instructor

Lawrence Francis

Co-organiser
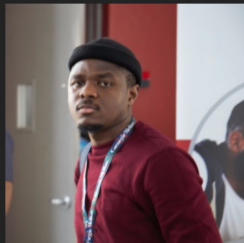
Tayo Jabar

Co-organiser
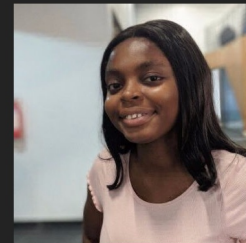
Orevaoghene Ahia

Co-organiser

http://www.aisaturdayslagos.com/index.html
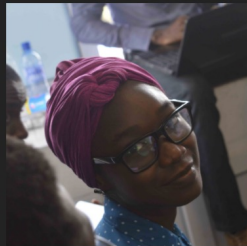
Organisers

Tola Adetunji

Co-organiser

George Igwegbe

Co-organiser

Robotics camp ends with call for more investment

By MIT-Africa | January 10th, 2019 | News

Share This Story, Choose Your Platform!   f 𝕏 in reddit t G+ 𝕻 vk ✉
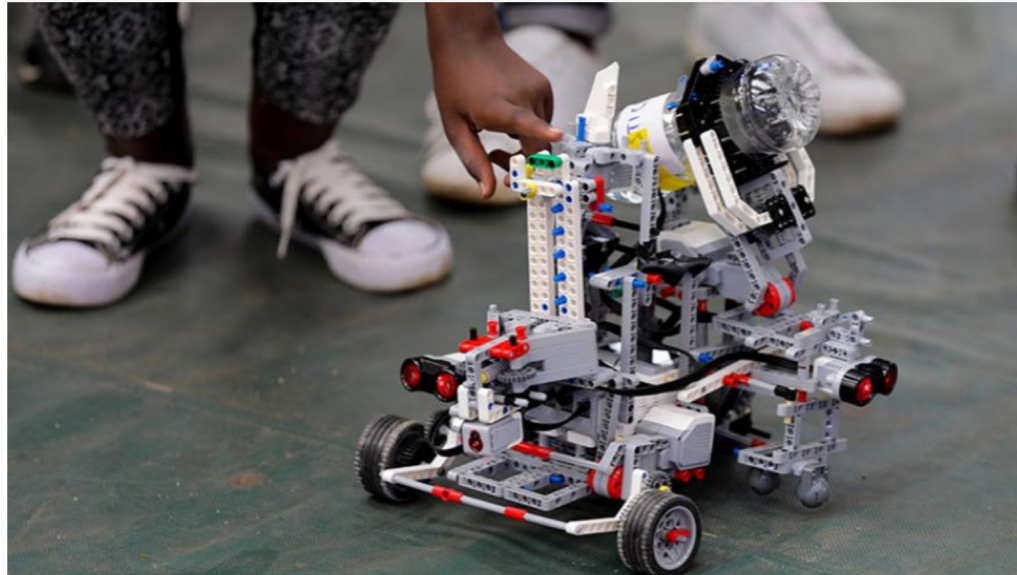
The New Times (from Jan. 2018, but posted Jan. 2019)

With more investments, the future for robotics in Rwanda presents positive prospects, officials have said

The remarks were made on Saturday during the conclusion of the robotics camp in Kigali where students from different schools showcased what they can do after three-week training in the field.

Categories

> About MIT-Africa

> Alumni

> Collaborations

> Competitions

> Education

> Events

> Faculty

> Featured Projects

> Innovators & Inventions

> Media Coverage

> News

> Research

> Student Opportunities

> Students

> Uncategorized

Search ...   🔍

https://africa.mit.edu/news-and-events/robotics-camp-ends-with-call-for-more-investment/

Summer Schools

NEW WEBSITE LAUNCHED

February 2020:

We've launched a new website that will make it easier to communicate our mission and keep everyone up to date.

STRENGTHENING AFRICAN MACHINE LEARNING

Support Africa's community in AI to be owners and shapers of the advanced in technology and artificial intelligence. We do this by building communities, creating leadership, and recognising excellence in the development of machine learning and artificial intelligence across Africa.

22 March update: Due the seriousness and uncertainty regarding the spread of the virus, have decided, with great sadness, to cancel all in-person Indaba events for the rest of the year. Read our blog and check back for updates. The next Indaba will take place in 2021 the Institut Supérieur des Arts Multimédia de la Manouba (in English, Higher Institute of Multimedia Arts of Mannouba), Tunisia

https://deeplearningindaba.com/2020/

INDABAX–AI4D
INNOVATION GRANTS

June 2020:

Apply for funding to support you research projects for the next 6 months (including funding for the challenge). Details here.

STRENGTHENING
AFRICAN
MACHINE
LEARNING

Support Africa's community in AI to be owners and shapers of the advanced in technology and artificial intelligence. We do this by building communities, creating leadership, and recognising excellence in the development of machine learning and artificial intelligence across Africa.

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https://deeplearningindaba.com/2020/

← **Back to blog**

Grants   IndabaX

📅

**Wed 02.
Sep 2020**

RECIPIENTS OF THE 2020 INDABAX–AI4D INNOVATION GRANTS

In executing our mission to *Strengthen African Machine Learning and Artificial Intelligence*, this year, instead of hosting our usual activities (the annual Indaba, IndabaX, or the Maathai and Kambule awards), we are experimenting with several new programs, one of these being the **IndabaX-AI4D Innovation Grants**, which aim to fund 6-month projects that support AI research communities and the work they do, especially now during the COVID pandemic. They gave overviews of their work at our #IndabaSession live stream on the 1st September – a fun and inspiring session – and you can watch the session here (second half).

Categories

Awards   Annual Indaba

Mission   IndabaX   Grants

Visual Question Answering in the Medical Domain

- *Quick summary:* This system takes as input a medical image and a clinical relevant question and outputs the answer based on the visual content.
- *Country*: Cameroon 🇨🇲
- *Team*: Volviane Saphir MFOGO, Dr. Georgia Gkioxari, Dr. Xinlei Chen and Jeremiah Fadugba,

Locally run Web–based App for Interpretable Breast Cancer Diagnosis from Histology Images

- *Quick summary:* Wee will be building a Locally run web-based app for interpretable breast cancer diagnosis.
- *Country*: Ghana 🇬🇭
- *Team*: Jeremiah Fadugba and Moshood Olawale

AI System for MNC (Maternal, Neonatal and Child Health)

- *Quick summary:* We will be building an AI system for predictors of early detection of maternal, neonatal and child health risks and their timely management.
- *Country*: Tanzania 🇹🇿
- *Team*: Gladness G. Mwanga, Timothy Y. Wikedzi and Scott Businge

Improving Online Learning Experience using Accent Transfer

- *Quick summary:* This work will focus on making online educational content accessible through the reformulation of content in local accents.
- *Country*: Nigeria 🇳🇬
- *Team*: Tejumade Afonja, Munachiso Nwadike, Olumide Okubadejo, Lawrence Francis, Clinton Mbataku, Femi Azeez and Wale Akinfaderin.

An African Short Story Language Corpus

- *Quick summary:* is intended to develop openly licensed free to use African language corpora.
- *Country*: Kenya 🇰🇪
- *Team*: Prof. Audrey Mbogho, Dr. Lilian Wanzare, Dr. Benson Muite, Prof. Constantine Yuka and Mr. Juan Steyn,

Keyword Spotting with African Languages

- *Quick summary:* The motivation of this work is to extend a speech commands dataset to include African languages, particularly focusing on 6 Senegalese languages: Wolof, Poular, Sérère, Mandingue, Diola, Soninké.
- *Country*: Senegal 🇸🇳
- *Team*: Jean Michel Ahmath Sarr, Daouda Tandiang Djiba, Thierno Diop, Derguene Mbaye, Elias waly Ba, Ousseynou Mbaye and Dr Mamour Dramé.

ChexNet Model Compression for Pneumonia Detection Using Low Powered Edge Devices

- *Quick summary:* The goal of this work is to build a model compression algorithm for ChexNet. The ChexNet network is chosen as the base model because it is the current state of the art technique in detecting Pneumonia on chest x-ray and as such, a reasonable choice.
- *Country*: Rwanda 🇷🇼
- *Team*: Rukayat Sadiq, Brume Love, Jeremiah Fadugba, Olalekan Olapeju, Oluwafemi Azeez, Pelumi Oladokun and Tella Hambal.

Computationally Accelerating Protein–Ligand Matching for Neglected Tropical Diseases

- *Quick summary:* We will be working on a solution for the Indaba Grand Challenge: Curing Leishmaniasis.
- *Country*: Ivory Coast 🇨🇮 and United States 🇺🇸
- *Team*: Kane Mohamed Hassan, Nkwate Ebenezer and Loic Kwate Dassi

IBRO-SIMONS COMPUTATIONAL NEUROSCIENCE IMBIZO

#isiCNI2022

The next Imbizo will be held in <u>2022</u>

Imbizo is a Xhosa word meaning "a gathering to share knowledge". The IBRO-SIMONS Computational Neuroscience Imbizo, or *ISi-CNI* is exactly that: an opportunity for African and international students to learn about cutting edge research techniques in computational neuroscience.

Computational neuroscience is a rapidly expanding subject focussed on understanding and modeling the brain, while helping to designing and interprete future experiments. This school aims to promote computational neuroscience in Africa by bringing together international and local students under the tutelage of world-leading experts in the field.

The format of the school will be a combination of intensive lectures on advanced topics in computational and theoretical neuroscience as well as practical exercises in simulation and data analysis. In addition, students will perform a mini-research project under the supervision of one of the school tutors, to be presented at the end of the school.

https://imbizo.africa/
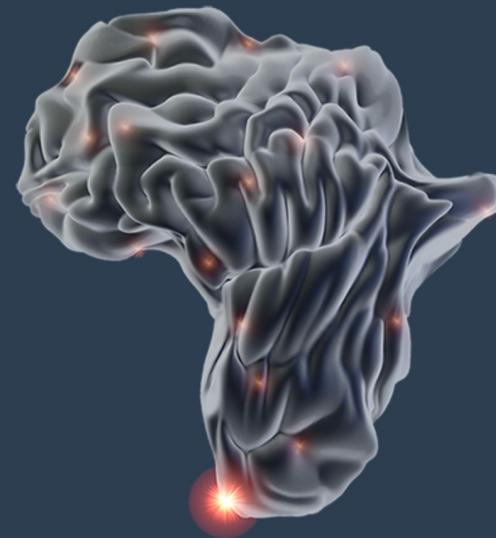
Meetings and Networking Forums

Competitions

The Future of Work
Kigali, Rwanda

Africa is the youngest and fastest-growing continent in the world. By 2030, there will be 375 million young people in the job market in Africa. Within a few decades, this demographic boom will push Africa's workforce to more than a billion people, the largest in the world. There is a significant gap between the number of young people seeking work and the employment opportunities available to them. Young people will face challenges finding formal employment and a pathway out of poverty. The theme of this year's PARC is *The Future of Work*. Students are challenged to create solutions for job creation and workforce innovation in Africa.

⤓ Download PARC Letter of Notice (English & French)

PARC
Pan-African Robotics Competition

PARC 2021
THE FUTURE OF WORK

It's more than a Robotics Competition
IT'S LIFE CHANGING

Dear Mr. Sidy, it is my pleasure to meet you again a few years after participating in the 2015 Robotics Camp. Three years later, I am pursuing my studies in Electrical Engineering at École Polytechnique de Montréal, and I must admit that my participation in this camp is one of the factors that pushed me in the field of engineering." – Participant, PARC/Camp 2015

Read PARC 2019 Activity Report

www.parcrobotics.org/

PARC COMPETING TEAMS

TECHS LEAGUE: ARTIFICIAL INTELLIGENCE

Angola: Complexo Escolar Privado Internacional
Benin: femCoders
Botswana: EduStore Africa
Chad: Chadian Canadian International School
Cote d'Ivoire: International Bilingual School of Africa
Djibouti: Centre de Leadership et de l'Entrepreneuriat
DR Congo: SpringX
Gabon: Team Gabon
Gambia: Robotics Hub, The Gambia
Ghana: University Basic School, LegonOur
Guinea: STEM Club Guinea
Kenya: Edustore Africa (Toni Focus)

Lesotho: Lesotho Science and Mathematics Teachers Association
Liberia: SOAR-METS Afrika4D
Mali: RobotsMali
Mauritania: InnovRim
Nigeria: Graceland International School
Rwanda: Green Hills Academy
Senegal: Cours Sainte Marie de HANN
Somalia: Duggaal Media Pro
South Africa: Sci-Bono
Tanzania: Karume Institute of Science and Technology
USA: The BlkRobot Project
Zimbabwe: Tynwald High School

STARS LEAGUE: AVATAR TECHNOLOGY

Angola: Complexo Escolar Privado Internacional
Benin: femCoders
Botswana: The Clicking Generation
Burundi: Great Lakes Initiatives for Communities Empowerment-Glice Burundi
Cameroon: Africagadget
Chad: WenakLab
Congo: UCAC-ICAM
Cote d'Ivoire: AUTO-HUBUTECH
Djibouti: Centre de Leadership et de l'Entrepreneuriat (CLE)
DR Congo: SpringX
Gabon: Team Gabon
Gambia: Robotics Hub, The Gambia
Ghana: SOS - Hermann Gmeiner International College
Guinea: STEM Club Guinea

Kenya: MPESA Foundation Academy
Lesotho: Girls Coding Academy
Liberia: SOAR-METS Afrika4D
Madagascar: ROBOTIAKO
Mali: RobotsMali
Mauritania: Hadina Rimtic
Niger: Google Developer Group Niamey
Nigeria: BredHub (Bliss Robot Education Hub)
Rwanda: Rwanda Coding Academy
Senegal: Senegalease American Bilingual School
Sierra Leone: National Commission for Children
South Africa: SB Decryptors
South Sudan: Team South Sudan Robotic
Tanzania: Apps and Girls
Tunisia: First Skills Club
Uganda: Oysters & Pearls
USA: Neo Engineering League of America
Zimbabwe: Tynwald High School

MAKERS LEAGUE: AFRICAN YOUTH WORKS

Angola: Complexo Escolar Privado Internacional
Benin: femCoders
Botswana: EduStore Africa
Cameroon: Africagadget
Chad: WenakLab
Cote d'Ivoire: AUTO-HUBUTECH
Djibouti: Centre de Leadership et de l'Entrepreneuriat (CLE)
DR Congo: SMARAF EDUK
Egypt: Ismailia STEM high school
Gambia: Robotics Hub, The Gambia
Ghana: PRESEC Robotics And Programming club
Kenya: St. Paul's Gekano boys high school

Lesotho: Soofia International School
Liberia: SOAR-METS Afrika4D
Madagascar: ROBOTIAKO
Malawi: Malawi Robotics Foundation
Mali: DoniFab
Nigeria: The Hillside School Abuja
Rwanda: Agahozo Shalom Youth Village
Senegal: Lycee Billes
South Africa: Sci-Bono Discovery Centre
South Sudan: Team South Sudan Robotic
Sudan: NECFSudan chapter
Tanzania: NLab Innovation Academy
Uganda: Mt. St. Mary's College Namagunga
Zimbabwe: Tynwald High School

The Future of Work | Kigali, Rwanda

www.parcrobotics.org

All-girls robotics team from Ghana wins World Robofest Championship in the U.S.

ISMAIL AKWEI | Contributor

FULL BIO f 🐦 in ✉

May 20, 2019 at 05:00 pm | **TECH & INNOVATION**

27.1k shares

All-girls robotics team from Ghana (Team Acrobot) - Photo: Ghana Robotics Academy Foundation

International Support
for
Infrastructure, Training, and Start-ups

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

MARSHALLPLAN MIT AFRIKA

Suchbegriff eingeben

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- Home page
- Participate!
- economy
  - The development investment fund
  - Strategic Partnership Digital Africa
  - Make IT initiative
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  - Municipalities
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  - Teachers
  - Students and young professionals
  - Working people and seniors
  - consumer
  - Volunteers
  - Migrants
- Contact Person
- Publications
- Competitions and Prizes

Cooperation with business

Strategic Partnership Digital Africa

Digitization as an opportunity for business and development

Strategische Partnerschaft **Digitales Afrika**

The Digital Africa Strategic Partnership specifically networks companies with development cooperation organizations in order to initiate joint projects on site. The aim is to advance Africa's development through digital innovations.

Africa's change towards a well-networked information society holds great potential for local people. Of Internet-based citizen participation on agricultural Apps and telemedicine to e-learning platforms – there is a tremendous need for innovative solutions. This also opens up new business opportunities for German and European companies: the consulting agency Accenture estimates the possible income for digital products and services that contribute to sustainable development at around 2.1 trillion US dollars for the year 2030.

Contact

Contact person for the Strategic Partnership Digital Africa in the BMZ :

Tobias Lechtenfeld
Unit 110 (cooperation with industry; Sustainable Economic Policy)
Phone:
+49 30 18535-2060
Email:
Tobias.Lechtenfeld@bmz.bund.de

> Digitization offers scalable solutions for the rapidly growing Africa – we have to use the full potential of today's technology.
>
> Günter Nooke, the Federal Chancellor's Africa Representative at the Federal Ministry for Economic Cooperation and Development

http://www.bmz.de/de/mitmachen/Wirtschaft/Strategische_Partnerschaft_Digitales_Afrika/index.jsp

FAIR Forward – Artifical Intelligence for All

FAIR Forward – Artificial Intelligence for All
strives for a more open, inclusive and sustainable approach to AI on an international level.

Germany

India

Ghana

Uganda

Rwanda

South Africa

Our main goals

Strengthen local technical know-how on AI in Africa and Asia

Improve access to training data and AI technologies for local innovation

Develop policy frameworks for ethical AI, data protection and privacy

https://toolkit-digitalisierung.de/en/fair-forward/

FAIR Forward – Artifical Intelligence for All

The German Development Cooperation initiative **"FAIR Forward – Artificial Intelligence for All"** strives for a more open, inclusive and sustainable approach to AI on an international level. To achieve this, we are working together with five partner countries: Ghana, Rwanda, South Africa, Uganda and India. Together, we pursue three main goals:

1. STRENGTHEN LOCAL TECHNICAL KNOW-HOW ON AI	**+**
2. REMOVE ENTRY BARRIERS TO AI	**+**
3. DEVELOP POLICY FRAMEWORKS READY FOR AI	**+**

https://toolkit-digitalisierung.de/en/fair-forward/

Tech start-up promotion

© Karin Desmarowitz / GIZ

https://toolkit-digitalisierung.de/digitalstrategie/lokale-innovationen/tech-start-up-foerderung/

Make-IT Initiative

"It takes a village to raise a child and it takes an ecosystem to raise a start-up."

The Make-IT Initiative promotes digital innovations for sustainable and integrative development. This includes in particular the promotion of local technology start-ups in Africa and Asia. Initiated by the Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the German Society for International Cooperation (GIZ) GmbH, Make-IT in Africa has already established local structures in Ghana, Kenya, Nigeria, Rwanda and Tunisia and is currently scaling the approach to Asia.

→ More on this

Google for Startups Accelerator Africa

For top seed-stage African startups

If you're building a great business or product in Africa, for Africa, we should work together! Google for Startups Accelerator Africa accepts applications from startups located in Algeria, Botswana, Cameroon, Cote D'ivoire, Egypt, Ethiopia, Ghana, Kenya, Morocco, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Tunisia, Uganda, and Zimbabwe.

Apply Now

Foreign Direct Investment

"IRCAD (Institut de Recherche contre les Cancers de l'Appareil Digestif - Research Institute against Digestive Cancer) was founded in 1994 in Strasbourg, France by **Prof. Jacques Marescaux** a surgeon fascinated by technology."

www.ircad.africa

IRCAD-There is no better way to learn
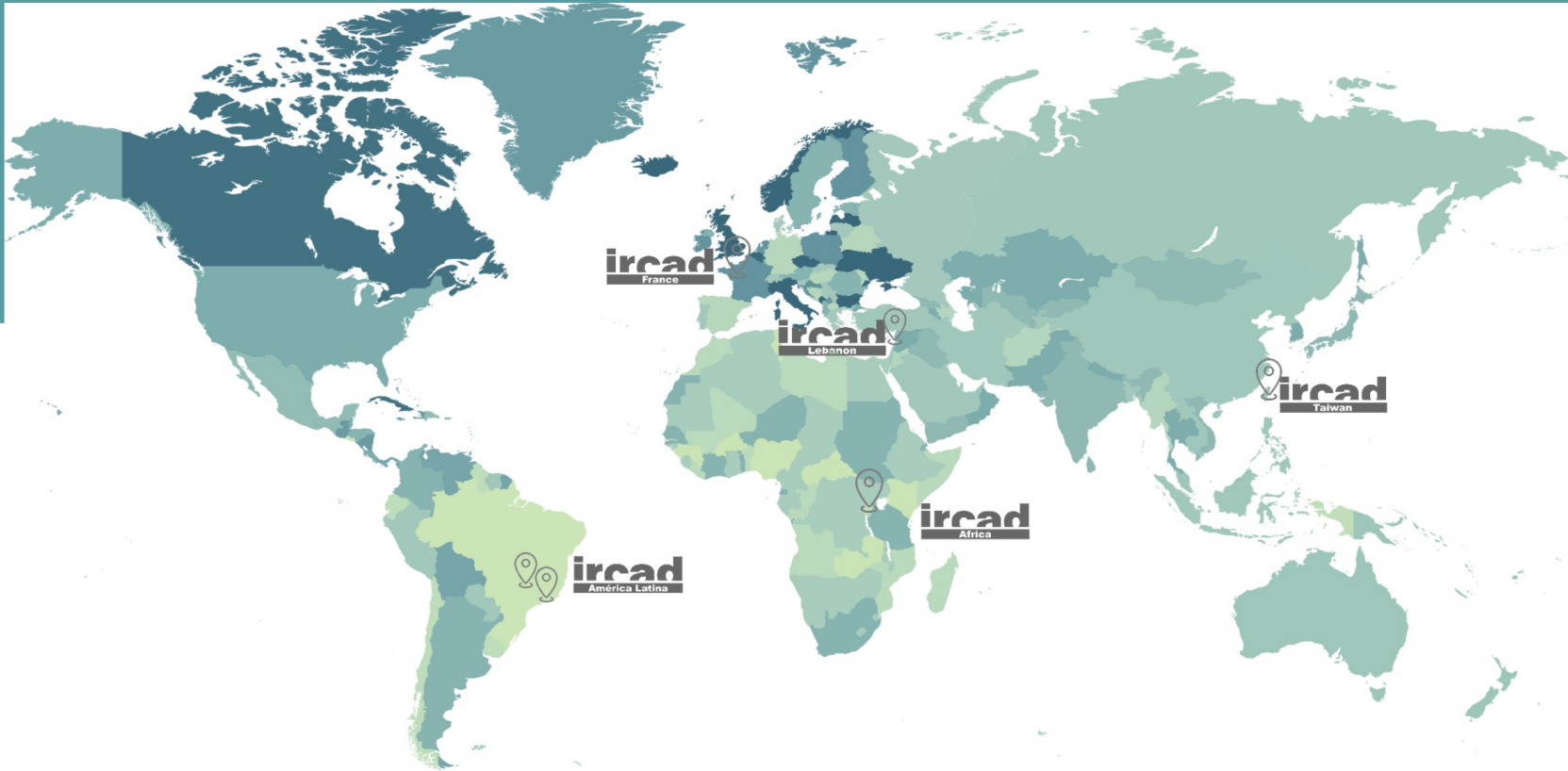
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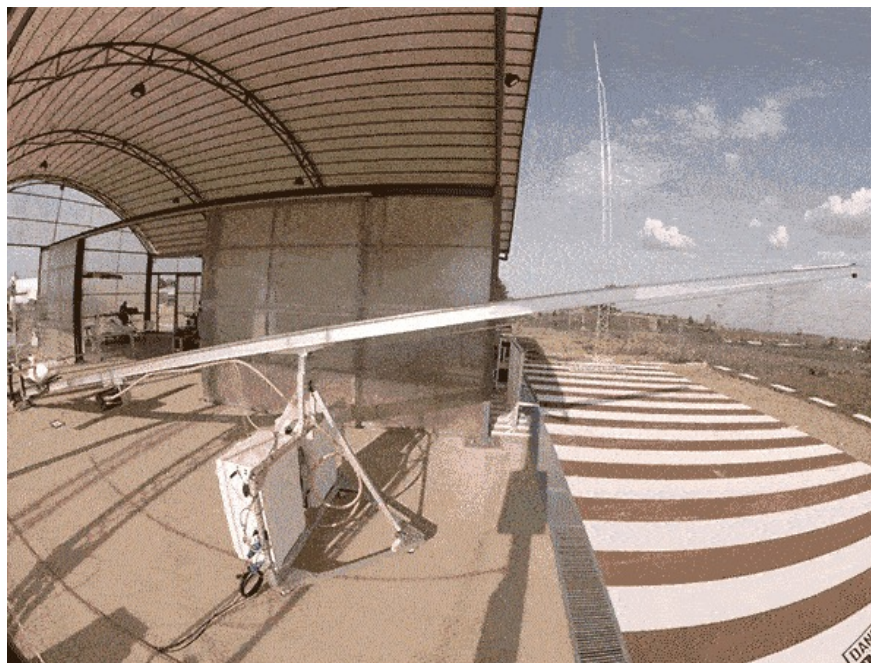
A BUILDING MADE OF
LOCAL MATERIALS

In the Air With Zipline's Medical Delivery Drones

Commercial operations in Rwanda prove the company can deliver emergency blood packs in minutes, rather than hours
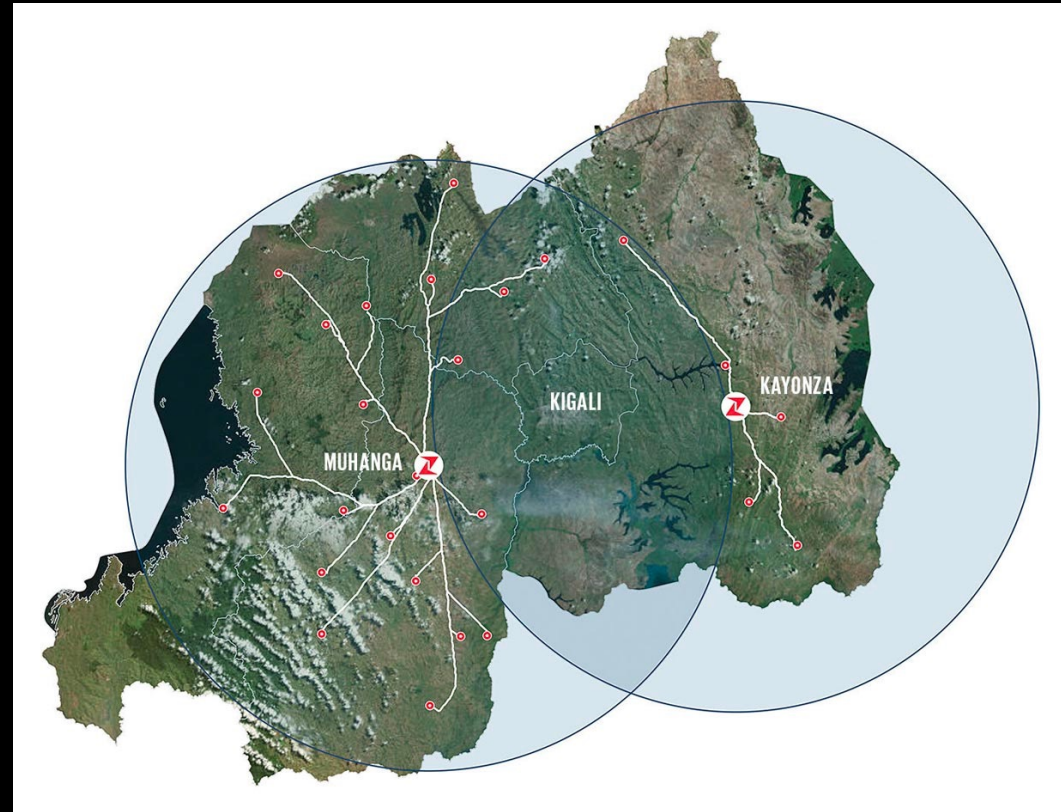
By **Evan Ackerman and Michael Koziol**

TECH EXPEDITION

East Africa's Big Bet On Drones

Gif: IEEE Spectrum

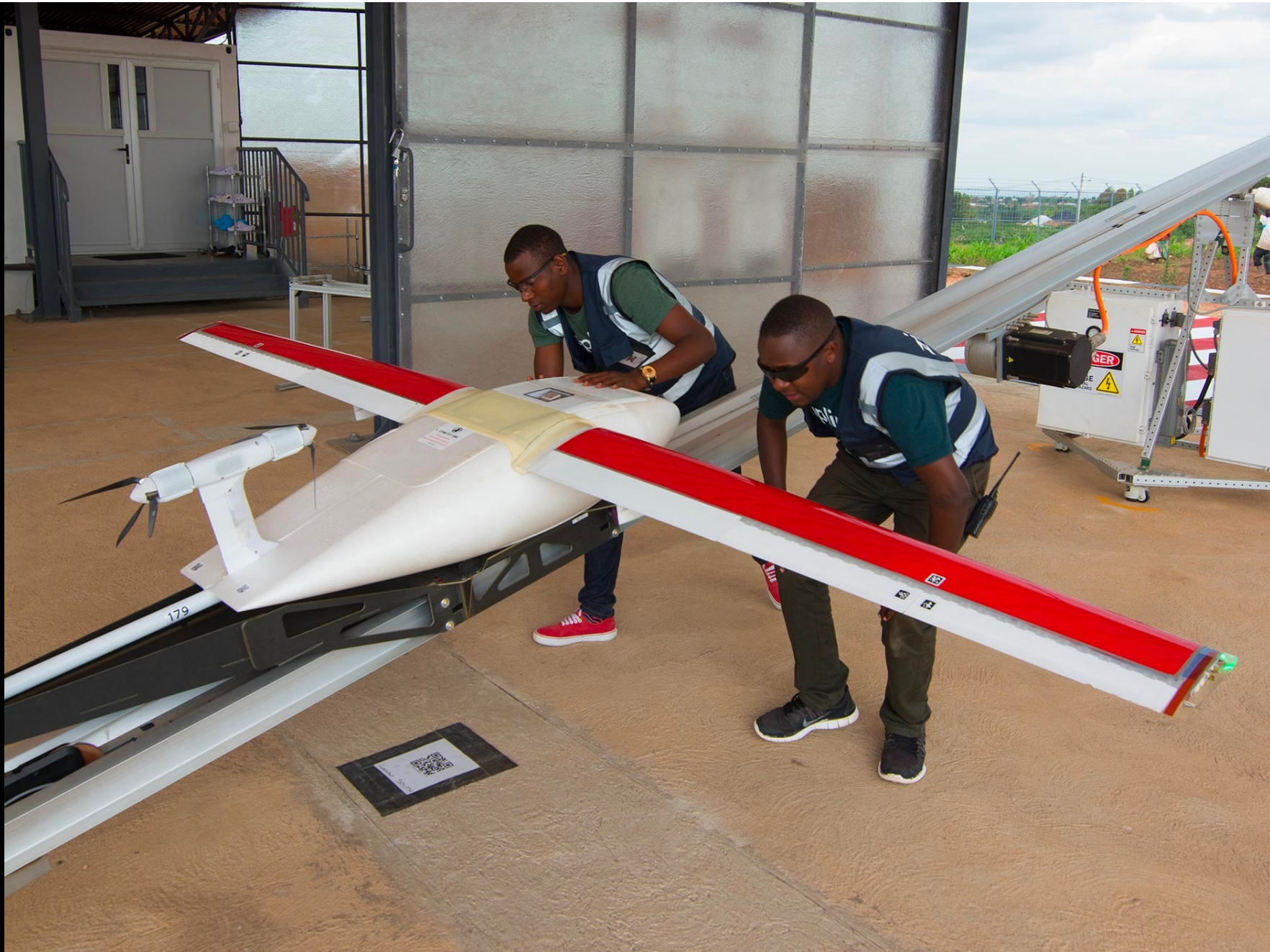https://spectrum.ieee.org/robotics/drones/in-the-air-with-ziplines-medical-delivery-drones

Zipline Medical Delivery Drones

O+ UNITS

Local Entrepreneurs

https://www.ryonic.io/products/pipeline-inspection-crawlers/rmis-m8/
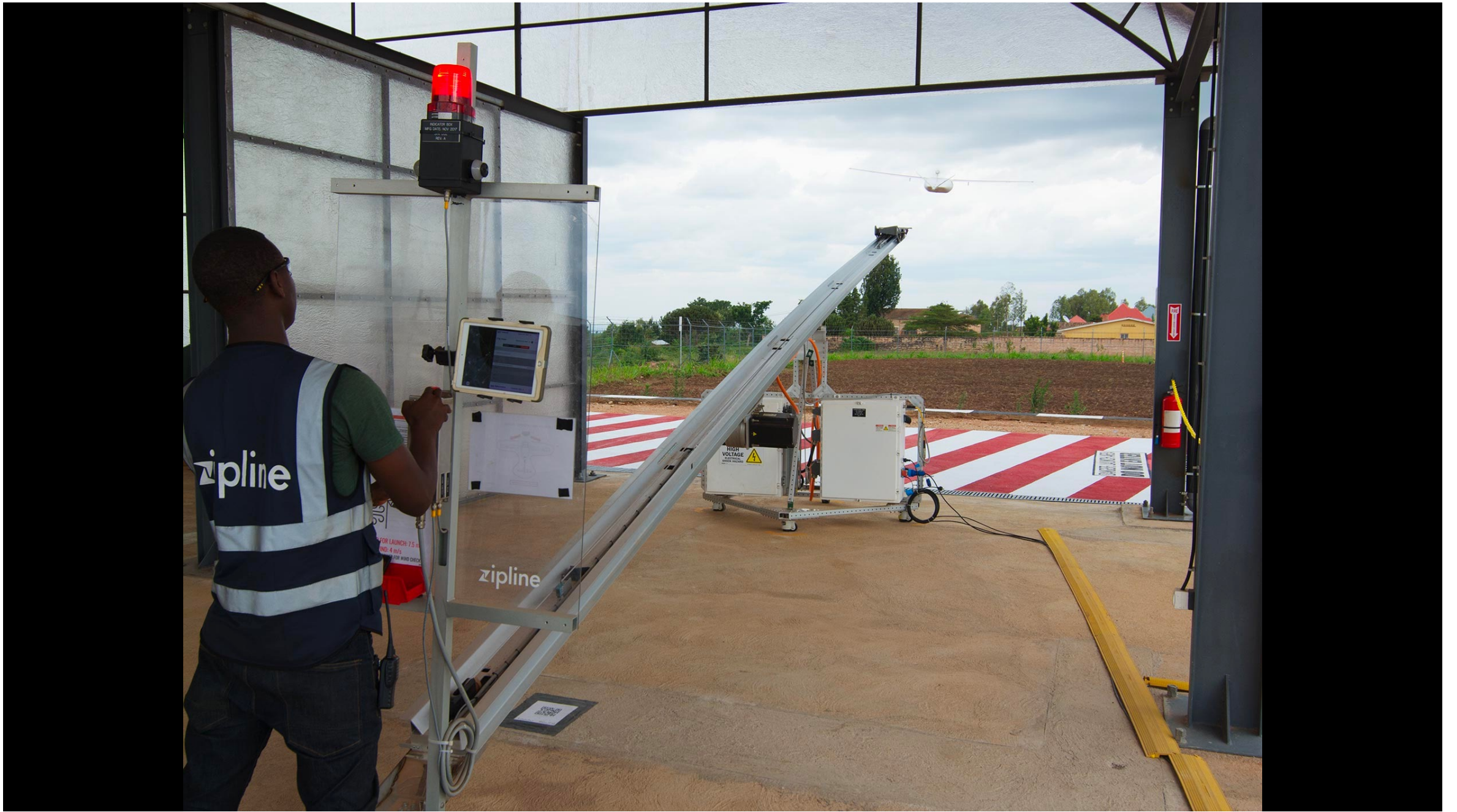
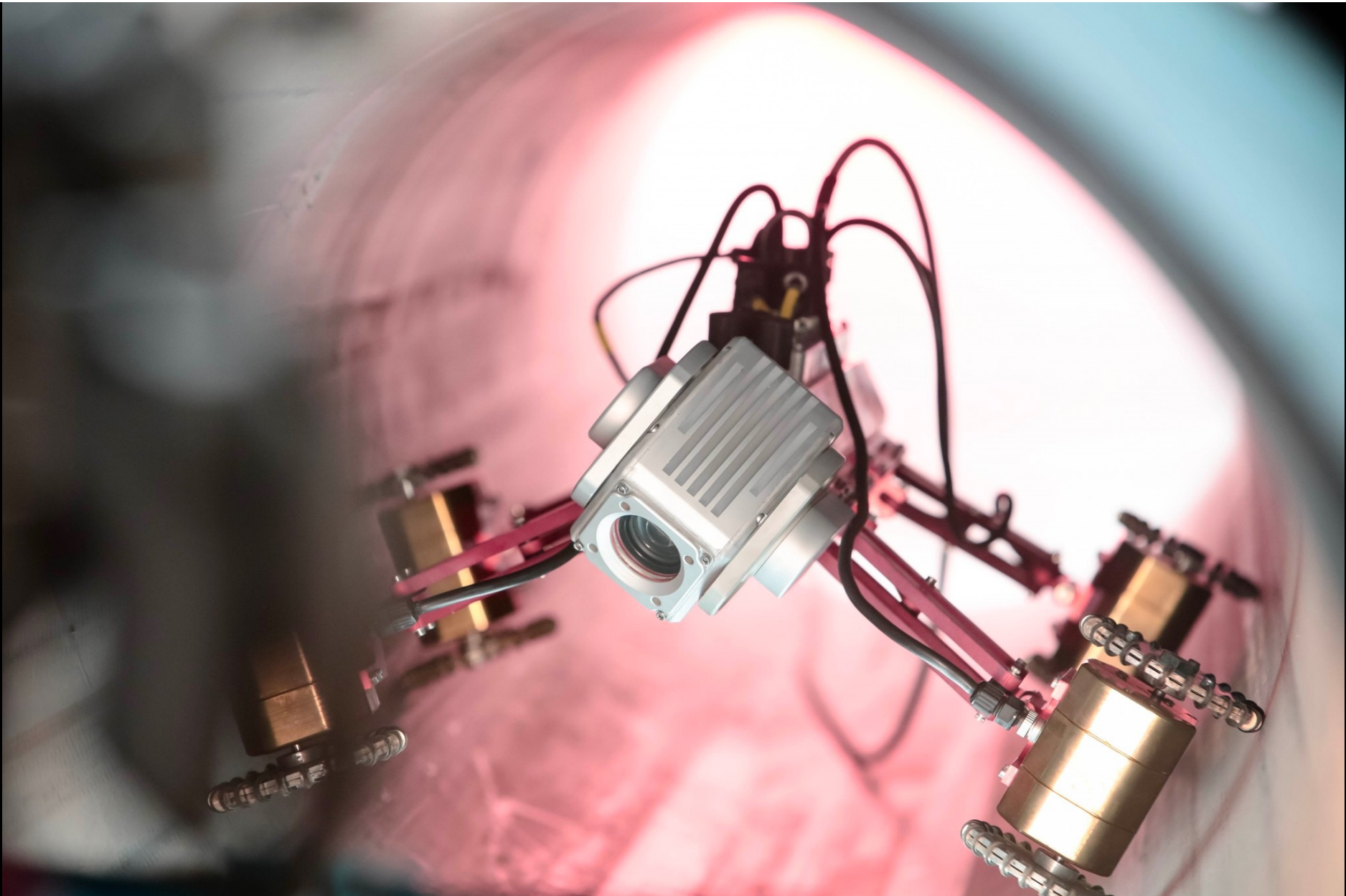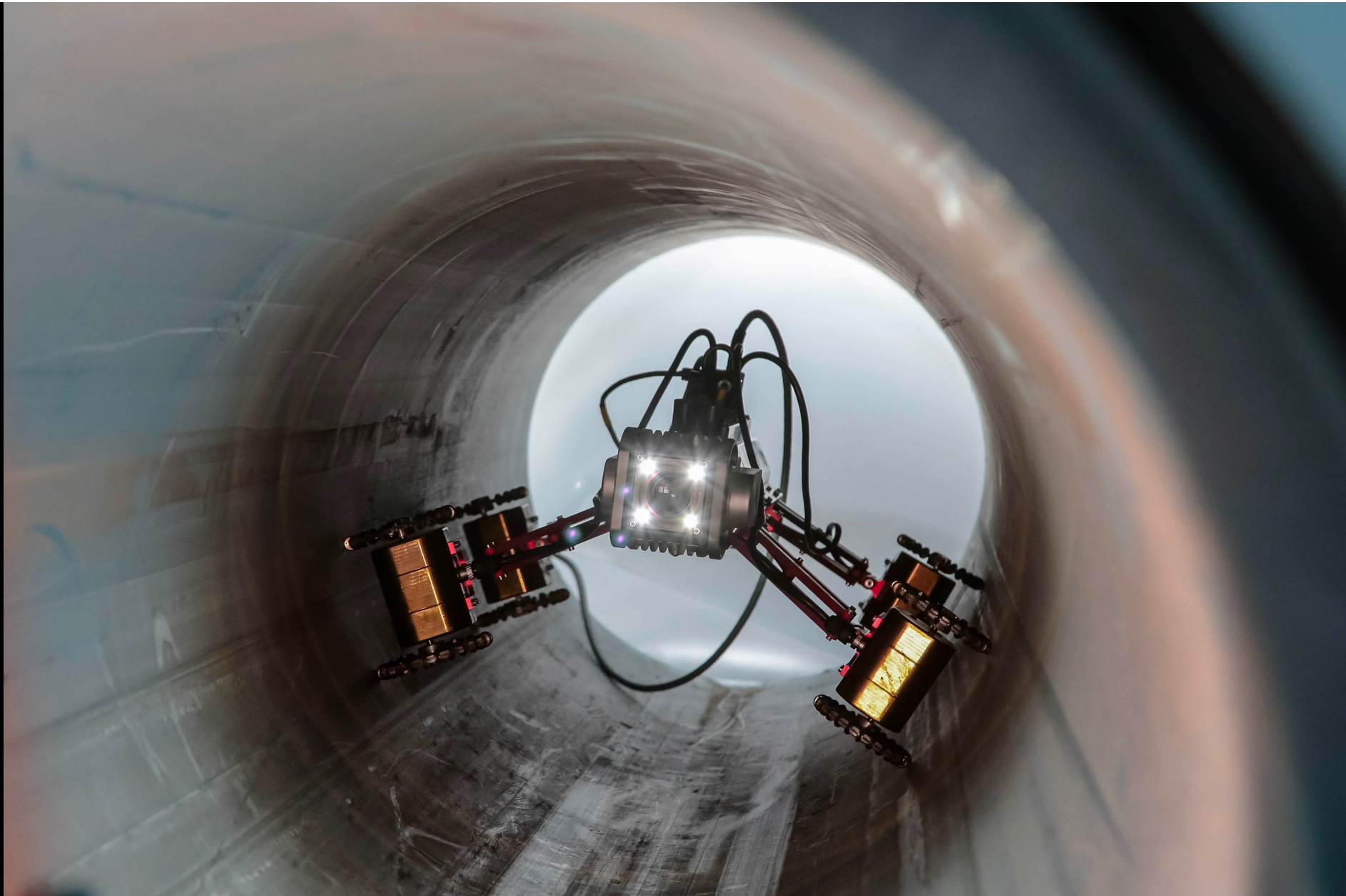https://www.ryonic.io/products/pipeline-inspection-crawlers/rmis-m8/

Meet the team

Analytics starts with people. We're the little lines that connect the dots.

Emmanuel Chebukati
Infrastructure & Security

Emmanuel is a cloud and security engineer specializing in systems audit, application security and secure cloud deployment. He has over 5 years experience working on technology projects across the East African region in both the public and private sector. Carnegie Mellon University Alumnus (MsC IT, 2018).

Rahab Wangari
Data Scientist

Rahab is a results-driven data analyst with 3 years of experience in software engineering, business intelligence and data mining. She has a professional background in the banking sector, academic institutions and consulting. She is proficient in machine learning, OBIEE, data driven model and software development with attention to details and quality. She seeks to help organizations make decisions using data.

Victoria Munguti
ICT Strategist

An expert in IT Entrepreneurship with experience working as an ICT business strategist, Victoria strives to provide strategic ICT advice to influence decisions regarding business initiatives. She is skilled in market planning for high tech products and innovation, strategic use of digital information and rolling out organizations initiatives.

Sylvia Makario
Admin & Marketing

Sylvia is an IT business engineer and data analytics expert applying training and knowledge in geospatial engineering & space technology to data analytics. She plies her trade especially in emerging technologies and their interoperability to economic development in the private and public domains. Her key energy drivers are strategy, innovation and looking at the bigger picture in achieving the end goals with her team.

Benson Murimi
DevOps Engineer

Benson is an experienced software engineer with a demonstrated history of working in the computer software industry. He is skilled in Cloud Computing, Big Data, Azure, AWS, GCP, Java, Python, R, Oracle, Mat lab, NoSQL, MySQL, JavaScript and PHP. He is a strong engineering professional with a Master's degree focused in data science and software engineering from Carnegie Mellon University.

Yvonne Wambui
Data Scientist

Yvonne is a data scientist specializing in natural language processing, time series and deep learning. Her mission is to use these technical skills to understand human behavior through data. This, she believes, will improve services offered to people by making them personalized. Carnegie Mellon University Alumna (Msc IT, 2018).

Hepta Analytics

Beyond Information

Hepta Analytics is home to Africa's best data engineers with experience in different domains with key interest in making your business grow to the next level. We discover the invisible patterns in your data to help you make informed decisions.

www.heptanalytics.com/

Najua

Say Hello to your new Multilingual assistant.

Instant translation powered by AI

[Get Started] [Try our Model]

About Najua

Najua is product by Hepta Analytics whose main role is to bridge the informational gap and provide informational facilities such as such bots to various institutions in Africa.

Making the web available in local African languages

The challenge?

Building a sufficiently large training dataset

interConnectpoint
Connecting Everything. Anywhere

Africa   +250-789967313 | +256-772044744 | +256-392554597   iconnect@iconnectpoint.com

Home   About us   Blog   Contact

LET'S TALK

AGRI-INDUSTRY PROCESS AUTOMATION

We deliver detection capabilities beyond the scope of human noses and eyes as well as analysis that drives inputs to the manufacturing processes. For the first time in tea history, we are leveraging the Industrial Internet of Things (IoT) to improve quality, control, and revenues in the African tea value-chain.

READ MORE

With focus on delivering innovative solutions leveraging the Industrial Internet of Things (IIoT) in Africa, we are a leading R&D provider of people and M2M technologies.

Our experience lies in Agri-industry process automation, Connecting urban and remote locations, and leading Smart City solution design, development and project implementations in Africa.
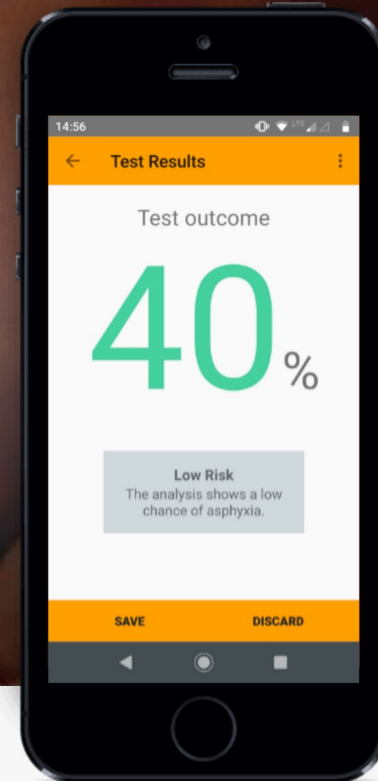

OUR TEAM

BENJAMIN NABAANA

Chief Technology Officer

SARAH MUWANGUZI

Chief Integration Officer

MICHEAL NAYEBARE

Chief Software Architect

ABRAHAM NATUKUNDA

Managing Director

https://iconnectpoint.com/

((Ubenwa

WHAT IS UBENWA?

Ubenwa is a mobile app that analyses the cry sounds of a newborn to detect early signs of perinatal asphyxia - a leading cause of neonatal disability and death. The app uses machine learning to identify the changing acoustic patterns in the cries of newborns who are at risk of brain damage due to asphyxia. It alerts care-givers of infants at risk, allowing them to apply necessary treatment and/or make an early referral to tertiary care facilities. See our short video below to learn more.

Ubenwa - Saving newborn lives at birth with machine learning

Charles Onu
Founder and AI Research lead

Photos from the Ubenwa clinical study in Nigeria. Click here for more photos.

uLima

START

GET APP

ABOUT US

ULIMA IS A MOBILE PLATFORM DESIGNED SPECIFICALLY FOR FARMERS, AGRO-DEALERS, AND THE BROADER AGRICULTURAL COMMUNITY.

http://ulima.co/

iCow

About   Services   Farmers   Ecosystem   Blog   Covid-19   iCow Global

We aim to secure Africas food production

iCow

How we do it

COVID-19 Mifugo Xtension

Our Impact

https://www.icow.co.ke/about

iCow

About   Services   Farmers   Ecosystem   Blog   Covid-19   iCow Global

We celebrate small holder farmers!

How we do it

COVID-19 Mifugo Xtension

Our Impact

From iCow 285

09:25 AM

iCow update: Napier grass is best 2-3 feet after which it looses nutritional value and stops supporting milk production. Keep it short and sweet.

Thank you for using iCow

From iCow 285

03:25 PM

iCow Update: After every milking dip teats in mastrite and keep cow standing for 30 min. Do this by feeding her after milking not before milking

Thank you for using iCow

From iCow 285

05:25 PM

iCow update: Napier grass is best 2- 3 feet after which it looses nutritional value and stops supporting milk production. Keep it short and sweet.

Thank you for using iCow

https://www.icow.co.ke/

iCow

About   Services   Farmers   Ecosystem   Blog   Covid-19   iCow Global

Population 1.1 billion

200 million Youth

54 Countries

700 million farmers

60% access to mobile phones!

HUGE OPPORTUNITIES!

How we do it

COVID-19 Mifugo Xtension

Our Impact

https://www.icow.co.ke/

CreativityLab

Home   Curriculum ⌄   Programs ⌄   STEM Learning kits ⌄   Kids inventions ⌄   STEM Events ⌄   STEM TV

Robotics

With our Robotics programs, your child will enjoy exciting projects that use 21st century skills.

Robotics for Kids

👥 Age group		7 - 13 Years old
🌐 Language		English
🎓 Level		Primary education

http://creativity.rw/robotics
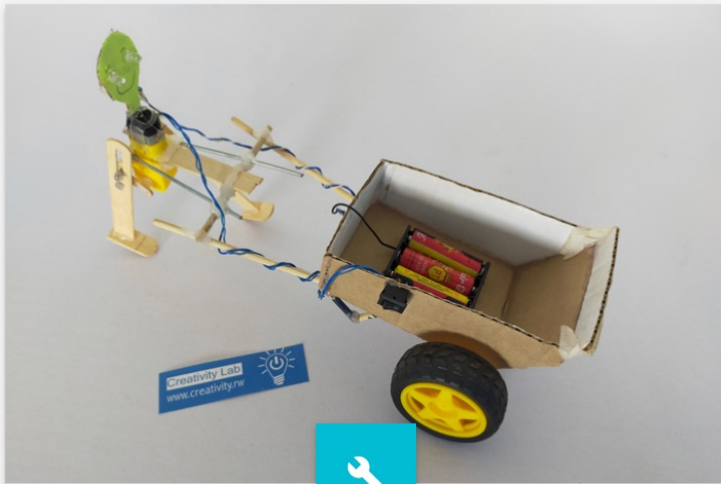
DIY basic robots

After this lesson, child will be able to:

- Define what a robot is
- Describe the main components of a robot
- Explain how engineers apply robotics to solve real-world problems
- Apply practical math, mechanical construction and critical thinking to make a simple robot
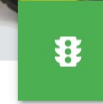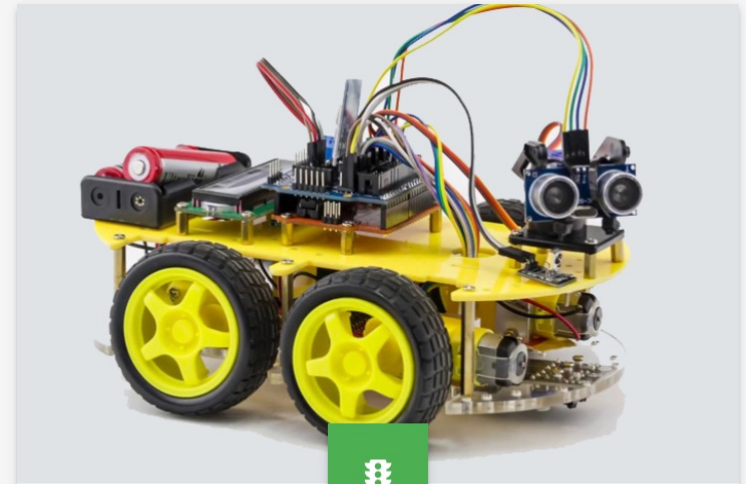
Age 9 - 13   🔒 Locked

Fischertechnik TXT Advanced

After this lesson, child will be able to:

- Describe common robot applications
- Identify the different parts of robot
- Do robots assembly and programming
- Use sensors to estimate a robot's condition and environment
- Make Soccer robot, Detection robot, Mobile robot, Camera man robot,...

Age 7 - 13   🔒 Locked

DIY programmable robots

After this lesson, child will be able to:

- Discover different categories of robots and how they interact with their surroundings
- Illustrate a robot's form based upon a specific set of function
- Program and operate a robot to address a challenge

Age 10 - 13   🔒 Locked

http://creativity.rw/robotics

Why does this matter?

"Africa is home to the youngest and fastest-growing population on Earth. I am 33 years old, and that makes me older than most of the continent's inhabitants (the median age in Africa is 19; in the European Union, 43)."
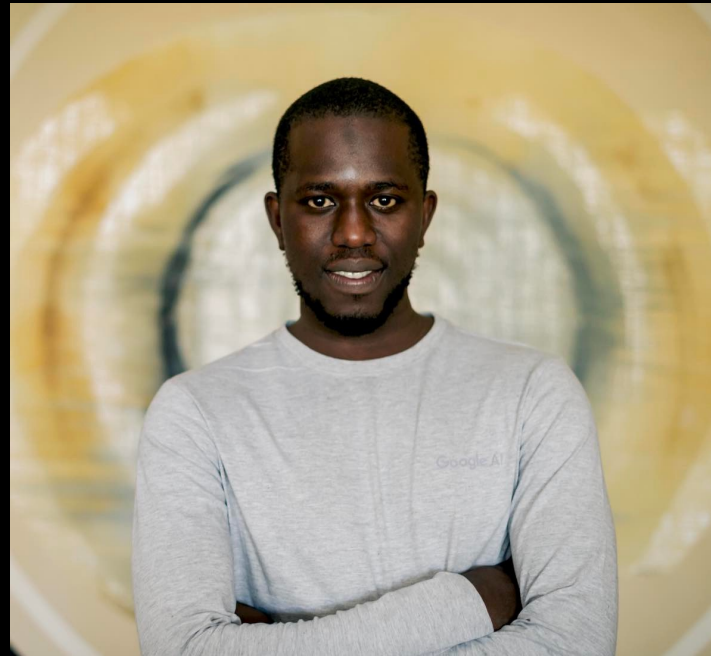
Moustapha Cissé

Offset the Impact of Premature Deindustrialization

Technology

The AI Invasion is Coming to Africa (and It's a Good Thing)

Before Africa can reap the benefits of artificial intelligence, African governments, investors, and NGOs must train workers for complex tasks, and reform laws and education to meet the demands of tomorrow's economy.

SHARE   COMMENT   PRINT   ORDER REPRINTS

By Lexi Novitske | Feb. 12, 2018

For many countries, the prospects of artificial intelligence (AI) are thrilling. They conjure up the kinds of innovations we see in science fiction. In Africa, however, the dawn of AI carries with it a fear of falling further behind more-developed economies, rather than the eager anticipation of new technology—the World Economic Forum predicts a net loss of five million jobs to AI worldwide by 2020.

But Africa need not dread the age of robotics and automation. Across the continent, from Ghana to Zimbabwe, this technology has the potential to bring myriad positive changes in sectors such as health care and finance, bridging the gap between physical infrastructure inadequacies and consumer demands, while freeing up more time for skilled labor and increased labor productivity. For Africans to reap these benefits, African governments, investors, and NGOs must prepare for the fourth industrial revolution's transformation of the modern workplace by training workers for complex tasks, and reforming laws and education to meet the demands of tomorrow.

Leveraging AI to Africa's advantage

But despite the pervasive narrative that AI spells doom for Africa's development, thoughtful planning can leverage it as a tool to help grow the country's economies. Economic development depends on increasing worker productivity. For too long, African markets have been stagnant in that capacity, but AI is well poised to change that. In countries like Nigeria and Kenya, where capital is scarce but ideas are abundant, process automation can enable businesses to run on leaner models. Moreover, rather than displacing employees, machines can empower low-skilled workers and equip them to take on more-complex responsibilities. This, in turn, can help meet an urgent need for countries lacking widespread access to education and skills training.

ARTIFICIAL INTELLIGENCE
& GLOBAL GOVERNANCE

Africa's Governance Challenges and the Role of AI

Africa is currently experiencing a demographic boom that is largely young and urban. Unlike Germany with a median age of 47.1, the US at 38.1, or China at 37.7, the median age in Africa is 19.5. In addition,   this demographic of African youth is expected to double to 225 million by 2055. By 2100, Africa will be home to three of the largest cities in the world: Lagos, Nigeria is projected to be home to 88 million inhabitants, followed by Kinshasa, Democratic Republic of Congo, at 83 million and Dar Es Salaam, Tanzania, at 73 million inhabitants. Meeting the rising expectations of growth on the continent will require innovative approaches to address governance challenges faced by African countries. At the same time, the 2018 Ibrahim Index of African Governance notes that although governance on the continent is improving, it is not keeping pace with the expectations of the mainly young and urban population.

AI in Africa for Sustainable Economic Development

2020 ACM International Conference on Artificial Intelligence in Finance (ICAIF) Workshop

14th of October 2020 (8am -12:30pm ET)

Artificial intelligence (AI), facilitated by easier data collection and improved computing resources, is shaping the dynamics of many sectors that are closely linked with achieving the Sustainable Development Goals. Many African countries have tremendous opportunities to use AI in a number of key sectors including finance, agriculture, health, infrastructure and food security. However, the lack of expertise and capacity, as well as impacts of the current Covid19 pandemic, pose significant challenges. Despite the extensive promises of AI to transform economies and expedite development, the challenges and adverse impacts need to be studied thoroughly.

https://sites.google.com/view/aia2020/home

AI has the potential to solve some of the most pressing challenges that impact Sub-Saharan Africa and drive growth and development in core sectors:

- Agriculture

- Healthcare

- Public services

- Financial services

https://www.mamopanel.org/resources/reports-and-briefings/byte-byte-policy-innovation-transforming-africas-f/

"Artificial Intelligence for Africa: An Opportunity for Growth, Development, and Democratisation", University of Pretoria

https://www.up.ac.za/media/shared/7/ZP_Files/ai-for-africa.zp165664.pdf

IMPACT

Using Satellite Images and Artificial Intelligence to Improve Agricultural Resilience

https://africabusinesscommunities.com/agribusiness/news/kenya-government-partners-with-microsoft-to-accelerate-use-of-tech-in-agriculture/

Market Watch   May 8, 2019

Kenya: Microsoft Brings FarmBeats, AI, Edge Computing, Drones to Africa

By **Microsoft Care GH**

Share   f   🐦   🟢   in   ✉

Microsoft is expanding the pilot program of FarmBeats to Africa, starting in Kenya, reports Microsoft Cares GH. The program in Nairobi will reportedly be focused on addressing the specific challenges of farming in Africa with the intent of expanding to other African countries.

The Future?

Learning Tracks

| Data Science & ML	Deep Learning	Research

With a strong commitment to quality learning, we carefully select resources from well recognised professionals, to aid teaching and learning throughout the cohort.

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- Stanford Univesity's CS231n class
- Jeremy Howard's fast.ai tutorials
- Udacity's Introduction to Deep Learning with Pytorch

"Enthusiasm is huge.
Last year, the Deep Learning Indaba gatherings across Africa hosted 300 students from 23 African countries, and had to turn down more applicants than it could accept."
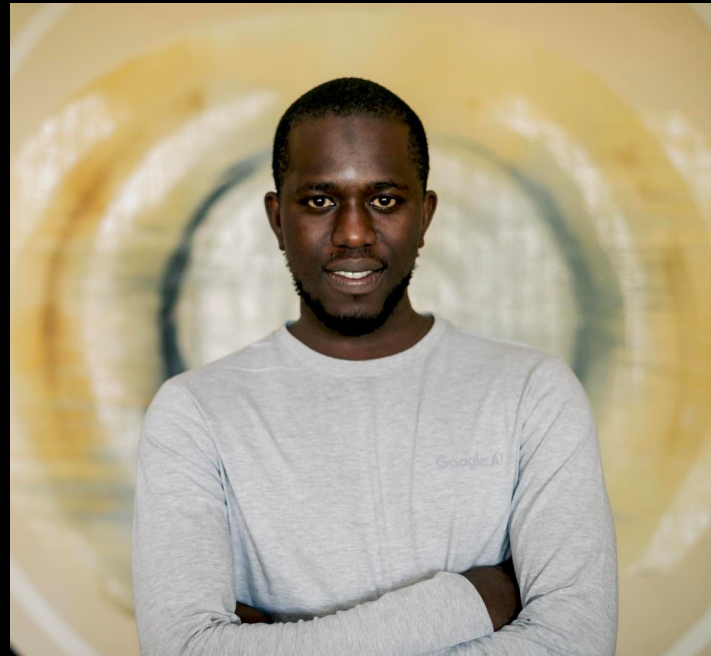
Moustapha Cissé

To find out more

Robotics and Artificial Intelligence in Africa

By David Vernon

Artificial intelligence (AI) provides many opportunities for social and economic empowerment in developing countries. However, when one thinks of Africa, robotics does not spring immediately to mind as the most relevant application of AI, considering that the continent typically has high unemployment and fast-growing populations. Nevertheless, some countries in Africa have embraced robotics on the basis that it has an important role to play in their economic development. In this article, we explore this role and the ways in which Africa can best exploit the opportunities afforded by intelligent automation and robotics. It also highlights strategies to offset the threats posed by global factors, such as premature deindustrialization.

The Growing Impact of AI in Africa

There is an increasing awareness of the positive impact that AI will have on developing countries, including sub-Saharan Africa, in sectors such as agriculture, health care, and public and financial services [1]. AI has the potential to drive economic growth, development, and democratization, thereby reducing poverty, increasing education, supporting health-care delivery, increasing food production, expanding the capacity of the existing road infrastructure by increasing traffic flows, improving public services, and bettering the

quality of life for people with disabilities [2]. AI can empower workers at all skill levels to be more competitive [3], [4]. Specifically, it can be used to augment and enhance human skills—not to replace or displace humans—and to do so at all levels, enabling average and low-skill workers to fit better in high-performance environments and take on more complex responsibilities.

Africa's biggest economic challenge is to equip large sections of its economy with average workers who are primed to perform tasks far better than most employees are currently managing to do. In South Africa, approximately 31% of employers cannot fill their vacancies [4]. AI will make technology easier to adopt and harness [1], [4]. In the health-care sector, AI helps address the shortage of doctors through telemedicine and access to medical supplies through drone deliveries [5]. In agriculture, AI (including machine learning, remote sensing, and data analytics) has the potential to improve productivity and efficiency at all stages of the value chain, enabling small-holder farmers to increase their income through higher crop yields and greater price control, detect and precisely treat pests and diseases, monitor soil conditions and target fertilizer applications, create virtual cooperatives to aggregate crop yields, broker better prices, and exploit economies of scale. Internet of Things (IoT) platforms may offer cost-effective ways to achieve those benefits [6]. For example, Microsoft is applying its Farmbeats platform [7] in developing countries by lowering the cost associated with densely deploying sensors, exploiting sparsely distributed sensors and aerial imagery to generate precision maps, and replacing expensive drones with smartphones attached to hand-carried, low-cost, tethered helium balloons [8].

Premature Deindustrialization

On the downside, factory and call-center work will slow as tasks are replaced by AI-enabled automation, including robots, which will add pressure to unemployment rates that are already high in developing countries, including those in Africa [5]. This will be exacerbated by growing populations, reducing opportunities still further. Africa's population is large and expanding fast: most of its people are young and urban with a median age of 19.5 years, compared to Germany (47.1), the United States (38.1), and China (37.7), and the youth population is set to reach 225 million by 2055 [5]. Kenya, Nigeria, and South Africa, for example, are projected to have approximately 5.5%, 8.5%, and 12.5%, respectively, of their workforce displaced by automation [9]. A report by the Oxford Martin School at the University of Oxford, United Kingdom, and Citigroup, New York, summarizes the situation in Africa in stark terms [10]:

In most of sub-Saharan Africa, the manufacturing share of output has persistently declined over the past 25 years. The share of jobs in manufacturing is even smaller: just over 6% of all jobs. This figure barely changed over the course of the three decades

Page Discussion

Read Edit View history

Artificial Intelligence, Robotics, and Machine Learning in Africa

General Articles on AI in Africa

The AI Invasion is Coming to Africa (and It's a Good Thing) ⧉
Look to Africa to advance artificial intelligence ⧉ Nature 562, 461 (2018)
Artificial Intelligence Hits African Companies ⧉
AI & Global Governance: AI in Africa is a Double-Edged Sword ⧉
The future of AI: Why Google is betting big on Africa ⧉
Artificial Intelligence – how can it benefit Africa? ⧉
Google AI in Ghana ⧉

Robotics in Africa

Robots in Africa. What does this mean for the continent ? ⧉
African countries are importing robots and young people's jobs are at risk ⧉
Research Institute against Digestive Cancer (IRCAD) ⧉
IRCAD in the press ⧉
Pan-African Robotics Competition ⧉
Robotics for Kids ⧉
MIT-Africa Robotics Boot Camp ⧉
Humanoid robot Sophia addresses Africa technology summit in Rwanda ⧉
Robofest 2019 ⧉
All-girls robotics team from Ghana wins World Robofest Championship in the U.S. ⧉

Economic Policy and Impact

Robots and industrialization in developing countries - summary ⧉
Robots and industrialization in developing countries - report ⧉
The Rise of the Robot Reserve Army: Automation and the Future of Economic Development, Work, and Wages in Developing Countries ⧉
Artificial intelligence for Africa: an opportunity for growth, development, and democratization ⧉
Policy innovation for transforming Africa's food system with digital technologies ⧉
Digitalisation and the future of African manufacturing: Briefing paper ⧉
Digitalisation and the future of African manufacturing. ⧉
Technology at Work v2.0 The Future Is Not What It Used to Be ⧉
Premature Deindustrialization ⧉

Robotics and AI Education in Africa

ICRA 2015 - Robotics in Education in Africa ⧉
African Institute for Mathematical Sciences (AIMS) Master's in Machine Intelligence (AIMMI) ⧉

Drones in Africa

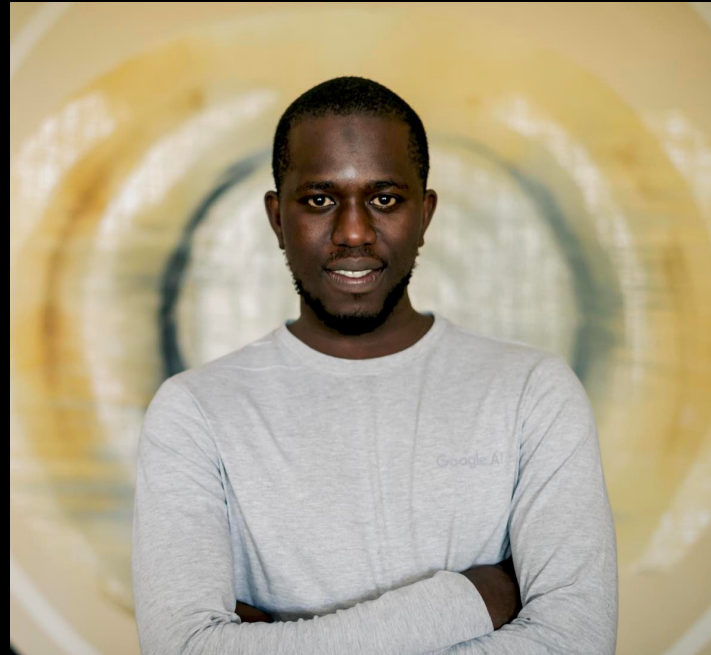Drones on the Horizon: Transforming Africa's Agriculture ⧉

International Conference on
Robot Ethics and Standards
ICRES 2020

Taipei, Taiwan, 28-29 Sept. 2020

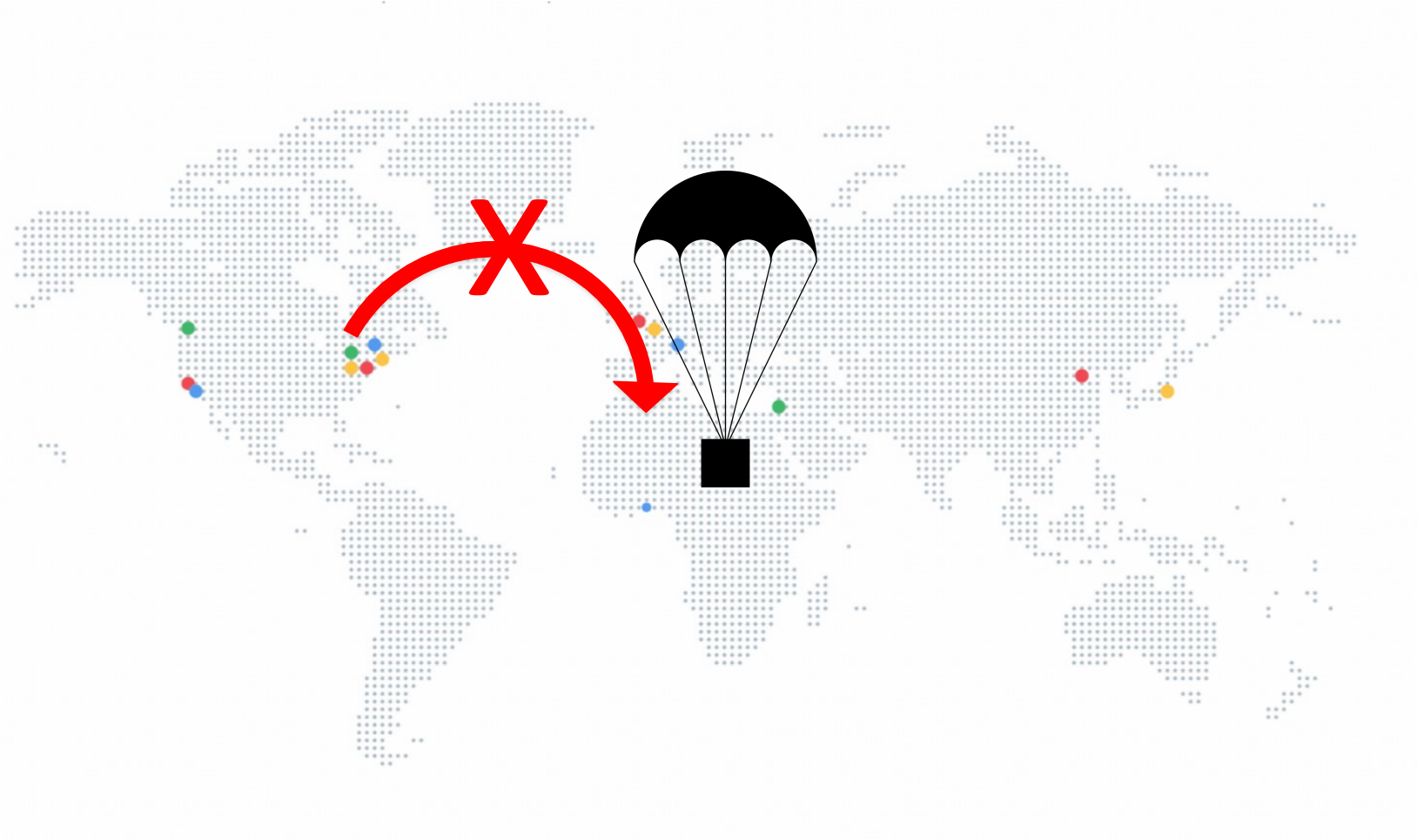Africa Embraces AI, Robotics, and Machine Learning

One more thought ...

"Fewer African AI researchers and engineers means fewer opportunities to use AI to improve the lives of Africans."

Moustapha Cissé

Head of the Google AI Center in Accra, Ghana

"We need African solutions to African problems"

Michel Bézy

The difference between Invention and Innovation is Adoption

Jeremy Rose

Adoption hinges on socio-cultural factors

Jeremy Rose

Learning Tracks

Data Science & ML   **Deep Learning**   **Research**

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http://www.aisaturdayslagos.com/index.html

International Conference on
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ICRES 2020

Taipei, Taiwan, 28-29 Sept. 2020

Africa Embraces AI, Robotics, and Machine Learning

Thank You!