RESEARCH PROJECTS

DS-I Africa — Data Science for Health Discovery and Innovation in Africa

NIH | National Institutes of Health

DICE* | **Grant Number:** 1U01ES036147-01
Leveraging Data Science Applications to Improve Children's Environmental Health in Sub-Saharan Africa
Focus Areas: Children's Health, PM2.5 Exposure
Capacity Building: Health Data Science Capacity
University of Cape Coast – Ghana
Contact PI: Adeladza Amegah

CHD AI* | **Grant Number:** 1U01HL172179-01
Artificial Intelligence assisted echocardiography to facilitate optimal image extraction for congenital heart defects diagnosis in Sub-Saharan Africa
Focus Areas: Congenital Heart Defects, Echocardiography
Capacity Building: Echocardiography Scans
Health Research Foundation - Cameroon
Contact PI: Aminkeng Leke

DS-I Malaria* | **Grant Number:** 1U01EB035483-01
Automated Mobile Microscopy for Malaria Diagnosis and surveillance in Uganda
Focus Areas: Malaria, Microscopy
Makerere University College of Health Sciences – Uganda
Contact PI: Rose Nakasi

BCX-Africa* | **Grant Number:** 1U01HL172180-01
BCX-Africa: Utilizing data science to evaluate the applicability of blood cell traits polygenic risk scores for disease prediction in Africa
Focus Areas: Blood Cell Traits, Disease Prediction
Capacity Building: Scientific Training
Uganda Virus Research Institute – Uganda
Contact PI: Segun Fatumo

DS-IAFRICA-TB* | **Grant Number:** 1U01TW012534-01
Tuberculosis in households with infectious cases in Kampala city: Harnessing health data science for new insights on TB transmission and treatment response
Focus Areas: Tuberculosis
Capacity Building: Machine Learning Algorithms
Makerere University College of Health Sciences – Uganda
Contact PI: David Kateete

DDD-Africa* | **Grant Number:** 1U01HD114537-01
Advancing discovery for developmental disorders - expanded analysis of the DDD-Africa resource
Focus Areas: Development Disorders
Capacity Building: Genomic Efforts for Global Health
WITS Health Consortium (PTY), LTD – South Africa
Contact PI: Zané Lombard

INSITE* | **Grant Number:** 1U01TW012626-01
INnovative data Science to Impact the TB Epidemic
Focus Areas: Tuberculosis
Capacity Building: Data Infrastructure, Data Harmonisation Platform
University of Cape Town – South Africa
Contact PI: Emma Kalk

ILERA* | **Grant Number:** 1U01HL172182-01
Integrated modeLs for Early Risk-prediction in Africa (ILERA) study
Focus Areas: Cardio Metabolic Disease, Risk Prediction Models
Capacity Building: Public Health Intervention
WITS Health Consortium (PTY), LTD – South Africa
Contact PI: Ananyo Choudhury

GCAP*
Genome-wide characterization of complex variants and their phenotypic effects in African populations
Grant Number: 1U01HG013442-01
Focus Areas: Genetic Variants
Covenant University - Nigeria
Contact PI: Jelili Oyelade

GDRS - Ghana* | **Grant Number:** 7U01TW012531-02
Geo-enabled detect and respond system for antimalarial resistance in Ghana: GDRS - Ghana
Focus Areas: Molecular Surveillance, Malaria
Institute of Human Virology - Nigeria
Contact PI: Alash'le Abimiku

CHEAQI-MNCH* | **Grant Number:** 1U01ES036146-01
CHaracterizing Effects of Air Quality In Maternal, Newborn and Child Health: The CHEAQI-MNCH Research Project
Focus Areas: Air Pollution, Maternal & Neonatal Health
Centre/Sexual HLTH/HIV Aid Res/Zimbabwe
Zimbabwe
Contact PI: Tatenda Makanga

DSpace* | **Grant Number:** 1U01HD114479-01
DSpace: Utilizing Data Science to Predict and Improve Health Outcomes in Pediatric HIV
Focus Areas: HIV, Tuberculosis
Capacity Building: Electronic Health Records, Multi-Omics Data
University of Botswana – Botswana
Contact PI: Gaone Retshabile

Leveraging artificial intelligence/machine learning-based technology to overcome specialized training and technology barriers for the diagnosis and prognostication of colorectal cancer in Africa | **Grant Number:** 1U01CA287852-01
Focus Areas: Colorectal Cancer
Capacity Building: Diagnostic Tools, Health Infrastructure, Open Source Software
Aga Khan University – Kenya
Contact PI: Mansoor Saleh
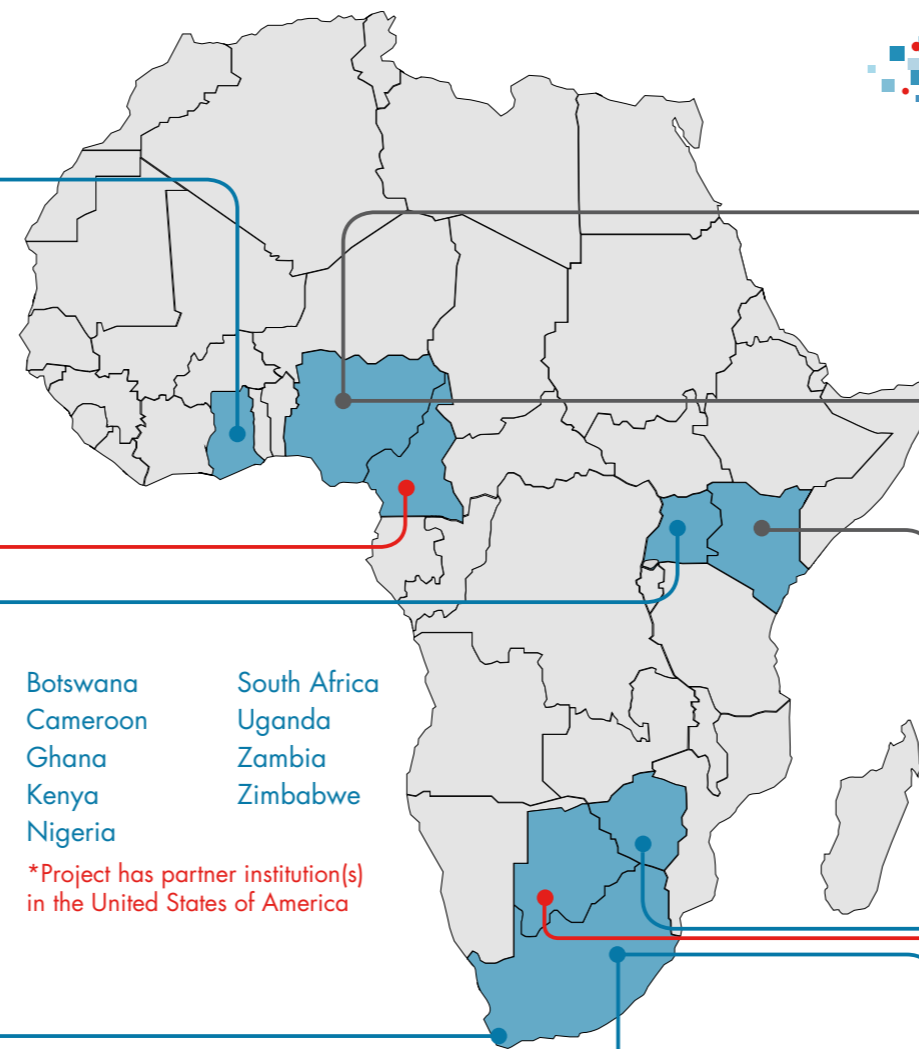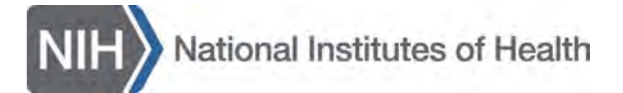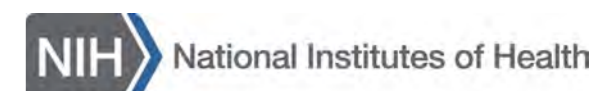
Botswana
Cameroon
Ghana
Kenya
Nigeria
South Africa
Uganda
Zambia
Zimbabwe

*Project has partner institution(s) in the United States of America

RESEARCH HUBS

DS-I Africa | Data Science for Health Discovery and Innovation in Africa
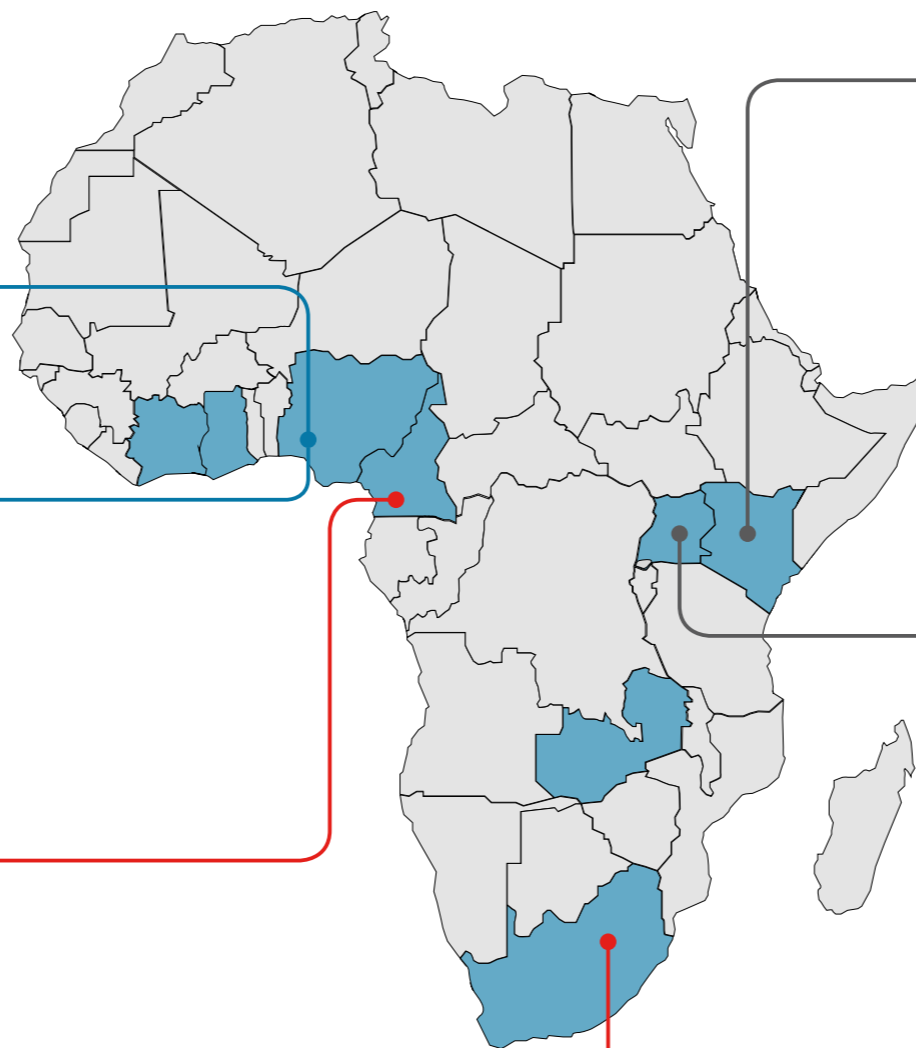
NIH | National Institutes of Health

Cameroon
Cote d'Ivoire
Ghana
Kenya
Nigeria
Rwanda
South Africa
Uganda

*Project has partner institution(s) in the United States of America

CAMRA* | Grant Number: 5U54TW012056-03

Combatting AntiMicrobial Resistance in Africa Using Data Science

Data Types: Demographic, Clinical/Phenotype Climate/Genomic

Platform: eLwazi, NCBI

Capacity Building: Training on Bacterial Sequencing & Bioinformatics

Focus Areas: Antimicrobial Resistance in Invasive Bacteria

Redeemer's University
Nigeria

Contact PI: Christian Happi

INFORM Africa* | Grant Number: 5U54TW012041-03

Role of Data Streams In Informing Infection Dynamics in Africa

Data Types: Demographic, Surveillance, Clinical/Phenotype, Environmental, Climate, Genomic, Image

Platform: Dropbox

Capacity Building: Research Ethics, Research/Bioinformatics Methods, Science Communication

Focus Areas: HIV, COVID-19, Population-Scale Data Streams

Institute of Human Virology – Nigeria

Contact PI: Alash'le Abimiku

D-SINE* | Grant Number: 5U54TW012087-03

Harnessing Data Science to Promote Equity in Injury and Surgery for Africa

Data Types: Demographic, Surveillance, Clinical/Phenotype, Genomic, Context of Injury

Platform: HPC

Capacity Building:

Focus Areas: Injury, Trauma, Surgery, Health Equity

University of Buea – Cameroon

Contact PI: Mefire Chichom

UZIMA-DS* | Grant Number: 5U54TW012089-03

UtiliZing health Information for Meaningful impact in East Africa through Data Science

Data Types: Demographic, Surveillance, Clinical/Phenotype, Environmental, Geospatial

Platform: Azure

Capacity Building: Azure Training, Data Journalism, Scientific Writing, Research Management Foundations

Focus Areas: Maternal/Newborn/Child Mental Health

Aga Khan University - Kenya

Contact PI: Amina Abubakar

MUDSReH* | Grant Number: 5U54TW012043-03

MUST Data Science Research Hub

Data Types: Demographic, Surveillance, Clinical, Environmental, Image, Geospatial

Platform: Google Cloud Platform

Capacity Building: Implementation Science, Responsible Conduct of Research, Scientific Manuscript Writing, Grant Writing

Focus Areas: DCPA, Breast Cancer

Mbarara University of Science and Technology
Uganda

Contact PI: Celestino Obua

MADIVA* | Grant Number: 5U54TW012077-03

MADIVA (Multimorbidity in Africa: Digital innovation, visualisation and application)

Data Types: Demographic, Surveillance, Clinical/Phenotype, Genomic

Platform: WITS Cluster

Capacity Building: Scientific Writing, Grant Proposal Writing, Research Governance, Qualitative Data Analysis, Community and Stakeholder Engagement, Ethical and Regulatory Issues

Focus Areas: Multimorbidity, Polygenic Risk Scores

WITS Health Consortium (PTY), LTD
South Africa

Contact PI: Scott Hazelhurst

HE2AT* | Grant Number: 5U54TW012083-03

Developing data science solutions to mitigate the health impacts of climate change in Africa: the HE2AT Center

Data Types: Demographic, Surveillance, Clinical/Phenotype, Environmental, Climate, Geospatial

Platform: UCT HPC

Capacity Building: Data Management, Meta-data Principles, Climate/Health Data Analysis, Data Visualisation, Data Sharing
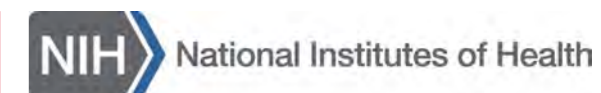
Focus Areas: Climate Change

WITS Health Consortium (PTY), LTD -
South Africa

Contact PI: Matthew Chersich

RESEARCH EDUCATION PROJECTS

DS-I Africa | Data Science for Health Discovery and Innovation in Africa

NIH National Institutes of Health

Ghana
Kenya
Mali

Nigeria
Rwanda

*Project has partner institution(s) in the United States of America

DATICAN* | Grant Number: 1UE5EB035490-01

Data Science and Medical Image Analysis Training for Improved Health Care Delivery in Nigeria
Capacity Building: Hackathons, Image Processing, Current Research in Data Science
Focus Areas: Medical Imaging, Data Science
Lagos State University Teaching Hospital – Nigeria

Contact PI: Benjamin Aribisala

GRASP* | Grant Number: 1UE5HL172183-01

Growing Data-science Research in Africa to Stimulate Progress
Capacity Building: Data Science
Focus Areas: Brain Health
College of Medicine, University of Ibadan
Nigeria

Contact PI: Mayowa Owolabi

West Africa Center of Excellence for Data Science Research Education* | Grant Number: 1UE5TW012526-01

Capacity Building: Processing Large & Complex Datasets, Datathon Training
Focus Areas: Data Science Training
University of Sciences, Tech & Tech of Bamako – Mali

Contact PI: Seydou Doumbia

SYNAPSE* | Grant Number: 1UE5HL172181-01

SYNthetic Healthcare DAta Platform for Data Science Training
Capacity Building: Synthetic Healthcare Data, MDClone
Focus Areas: Synthetic Data
National University of Rwanda – Rwanda

Contact PI: David Tumusiime

ENEZA* | Grant Number: 1UE5TW012539-01

Eneza Data Science: Enhancing Data Science Capability and Tools for Health in East Africa
Capacity Building: Open Science Skills & Tools
Focus Areas: Clinical Practice, Health Research & Policy
International Centre of Insect Physiology
Kenya

Contact PI: Daniel Masiga

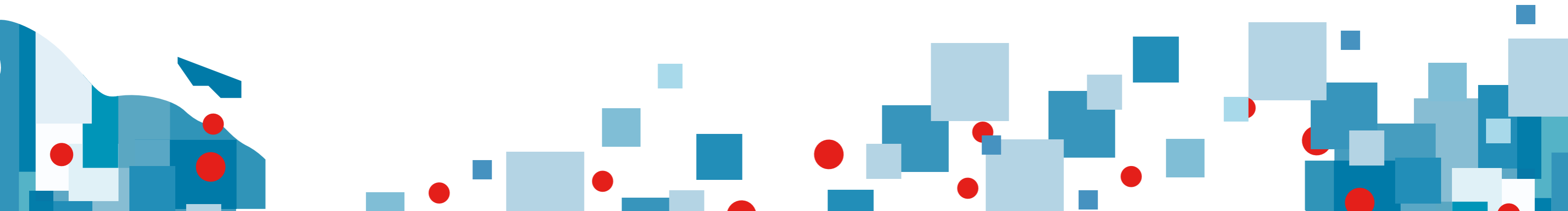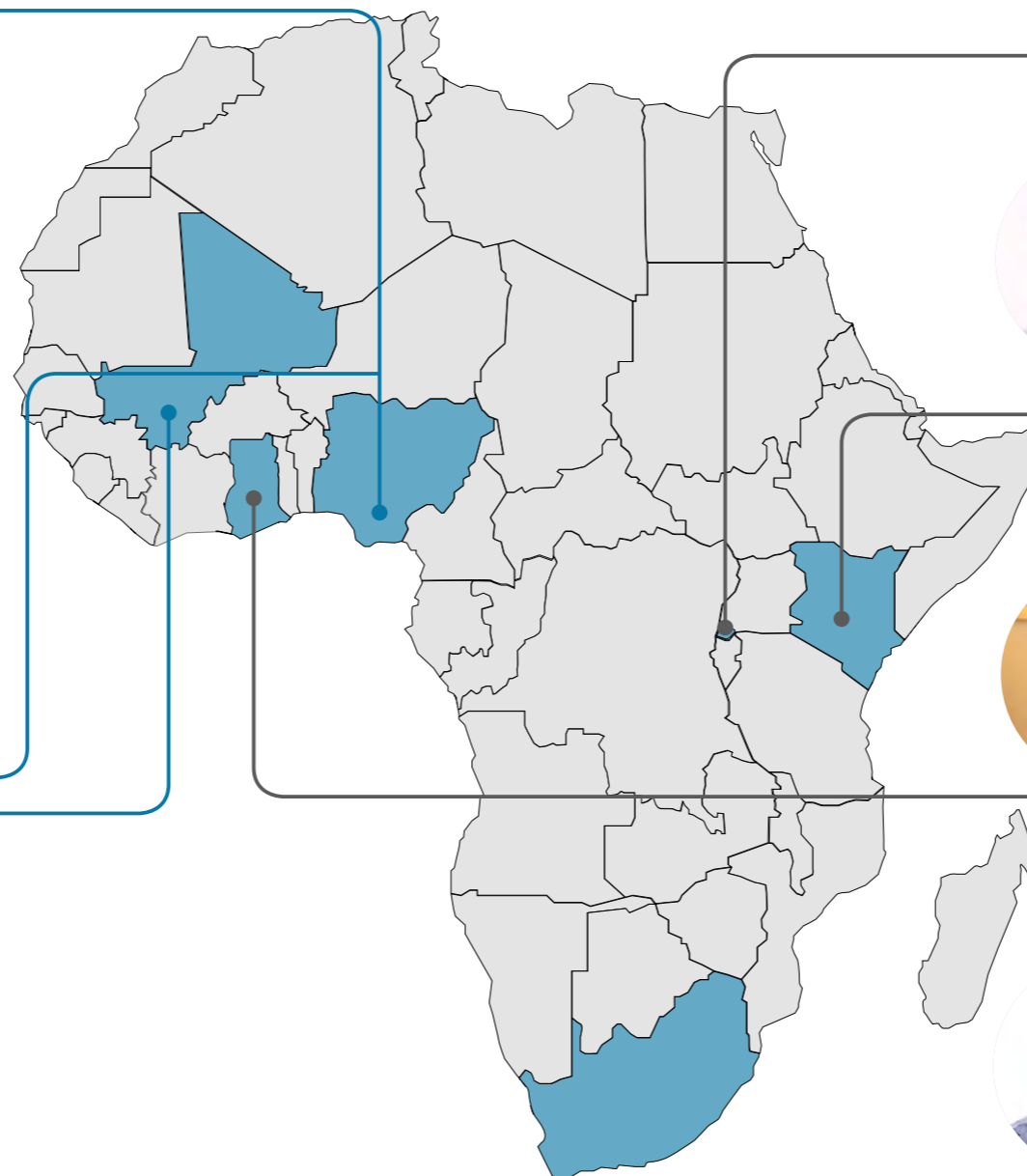## DS-ZOOFOOD* | Grant Number: 1UE5TW012566-01

Application of Data Science to Build Research Capacity in Zoonoses and Food-Borne Infections in West Africa
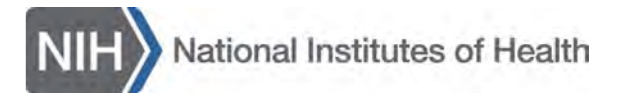**Capacity Building:** Bioinformatics, Phylodynamics, Disease Modelling
Focus Areas: Zooness, Food-Borne Infections
College of Health Sciences, University of Ghana – Ghana

Contact PI: Eric Sampane-Donkor

RESEARCH TRAINING HUBS

DS-I Africa
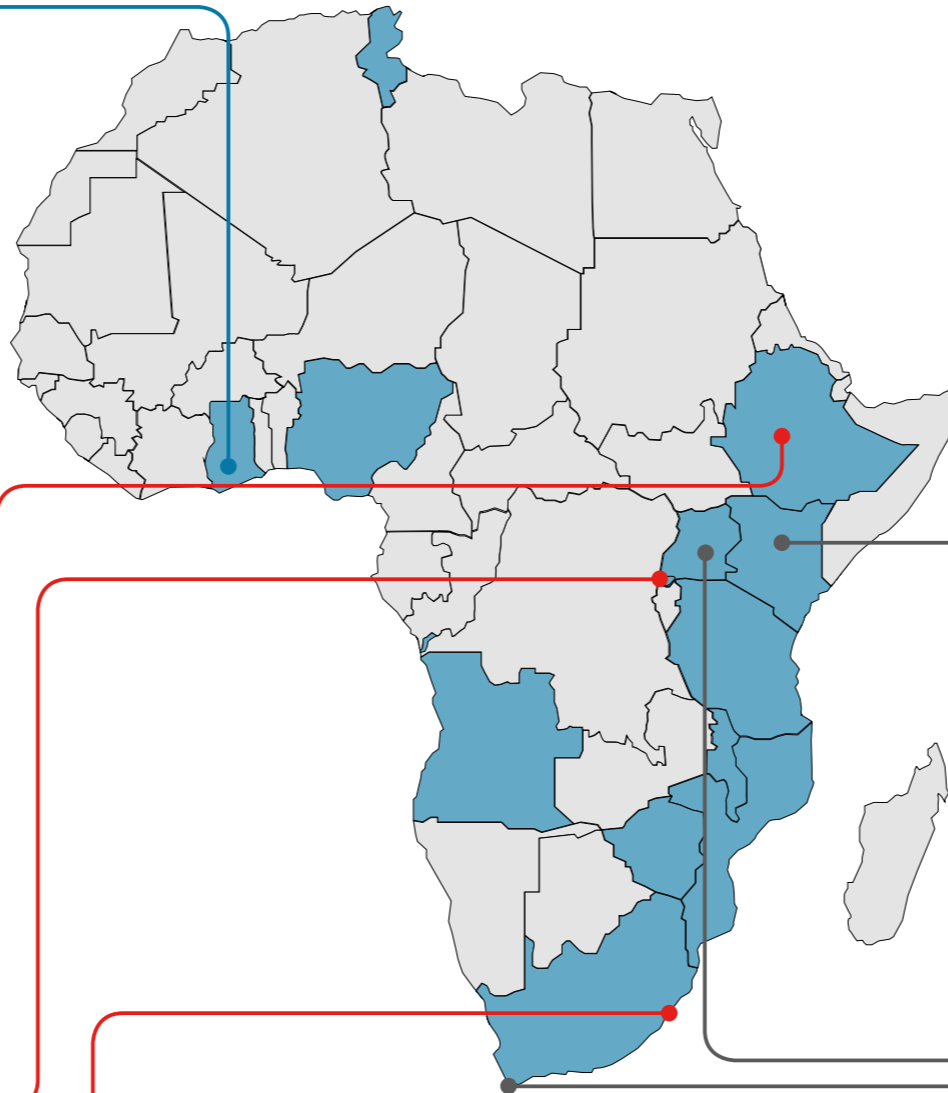Data Science for Health Discovery and Innovation in Africa

NIH National Institutes of Health

Angola
Ethiopia
Ghana
Kenya
Malawi
Mozambique
Nigeria

Rwanda
South Africa
Tanzania
Tunisia
Uganda
Zimbabwe

*Project has partner institution(s) in the United States of America

DS-CHANGE* | **Grant Number:** 5U2RTW012129-03

Data Science for Child Health Now in Ghana
Degree Programmes: Master's/Doctorate Biomedical Data Science and public health
Short Term Training: Informatics, Biostatistics/Mathematics, Epidemiology, Computer Science
Mode: Face-to-facea
Kwame Nkrumah University of Science and Technology
Ghana

Contact PI: Christy McKinney

APHREA-DST* | **Grant Number:** 5U2RTW012123-03

Advancing Public Health Research in Eastern Africa through Data Science Training
Degree Programmes: Master's in Public Health Data Science
Short Term Training: Public Health Data Science
Mode: Face-to-face/online/hybrid
Addis Ababa University/ Nairobi University - Ethiopia

Contact PI: Kiros Berhane

DST-HIRWA*

Grant Number: 5U2RTW012122-03
Research Training in Data Science for Health in Rwanda
Degree Programmes: Master's & Doctorate
Short Term Training: Synthetic Data
Mode: Face-to-face/online/hybrid
University of Rwanda - Rwanda

Contact PI: Victor Davila-Roman

DSSD* | **Grant Number:** 5U2RTW012121-03

NYU-Moi Data Science for Social Determinants Training Program
Degree Programmes:
Master's and Doctorate Data Science tracks
Short Term Training:
Mode: Face-to-face/online/hybrid
Moi University - Kenya

Contact PI: Rumi Chunara

MakDARTA*

Grant Number: 5U2RTW012116-03
Makerere University Data Science Research Training to Strengthen Evidence-Based Health Innovation, Intervention and Policy
Degree Programmes: Master's and Doctorate
Short Term Training: Ethics in Big Data
Mode: Face-to-face/online/hybrid
Makerere University - Uganda

Contact PI: David Kateete

WASHA Takwimu*

Grant Number: 5U2RTW012140-03
Research Training on Harnessing Data Science for Global Health Priorities in Africa
Degree Programmes: Master's in Health Data Science
Short Term Training: Health systems and food security, climate change and planetary health, grant-writing
Mode: Face-to-face/online/hybrid
University of KwaZulu-Natal - South Africa

Contact PI: Wafaie Fawzi

COBIP*

Grant Number: 5U2RTW012131-03
Computational Omics and Biomedical Informatics Program
Degree Programmes: Master's and Doctorate in Computational Health Informatics
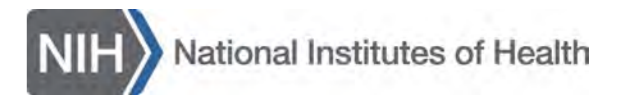**Short Term Training:** Online graduate courses in Biomedical Informatics at OHSU
Mode: Face-to-face/online
University of Cape Town - South Africa

Contact PI: Tinashe Mutsvangwa

ETHICAL, LEGAL & SOCIAL IMPLICATIONS PROJECTS

BridgELSI* | Grant Number: 5U01MH127693-03

Bridging Gaps in the ELSI of Data Science Health Research in Nigeria

Aims: BridgELSI will evaluate current legal instruments, guidelines and frameworks, their implementation, and use these to develop new and innovative governance frameworks to support data science health research in Nigeria.

Center for Bioethics and Research
Nigeria

Contact PI: Temidayo Ogundiran

REDSSA*

Grant Number: 5U01MH127704-03

Research for Ethical Data Science in Southern Africa

Aims: REDSSA has the overall aims of producing new knowledge in regard to the ethical, legal and social implications (ELSI) of conducting data science research, to develop evidencebased, context specific guidance for the conduct and governance of data science initiatives such as DS-I Africa, and to strengthen the culture of responsible data science in Southern Africa

Stellenbosch University
South Africa

Contact PI: Keymanthri Moodley

DS-I Africa - Law*

Grant Number: 5U01MH127690-03

Aims: DS-I Africa Law has a broad jurisdictional scope, involving 12 African nations. Five themes are investigated:
1. modes of informed consent
2. the nature and content of individual and community rights in genomic data
3. the use of persons' geospatial data for public health surveillance
4. cross-border sharing of data
5. the use of data as basis for AI.

University of KwaZulu-Natal
South Africa

Contact PI: Donrich Thaldar

PUBGEM-Africa*
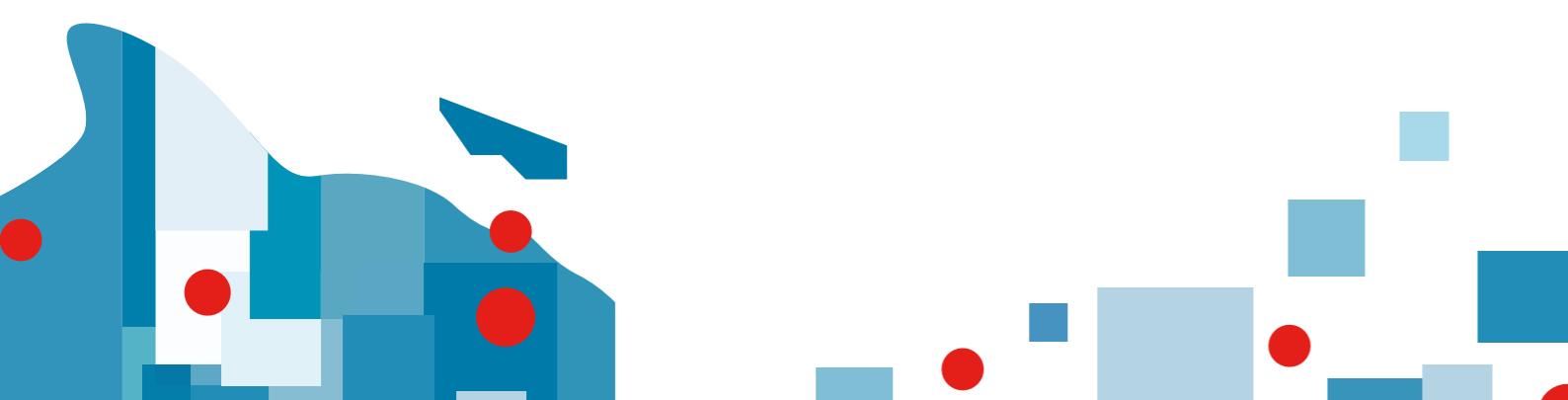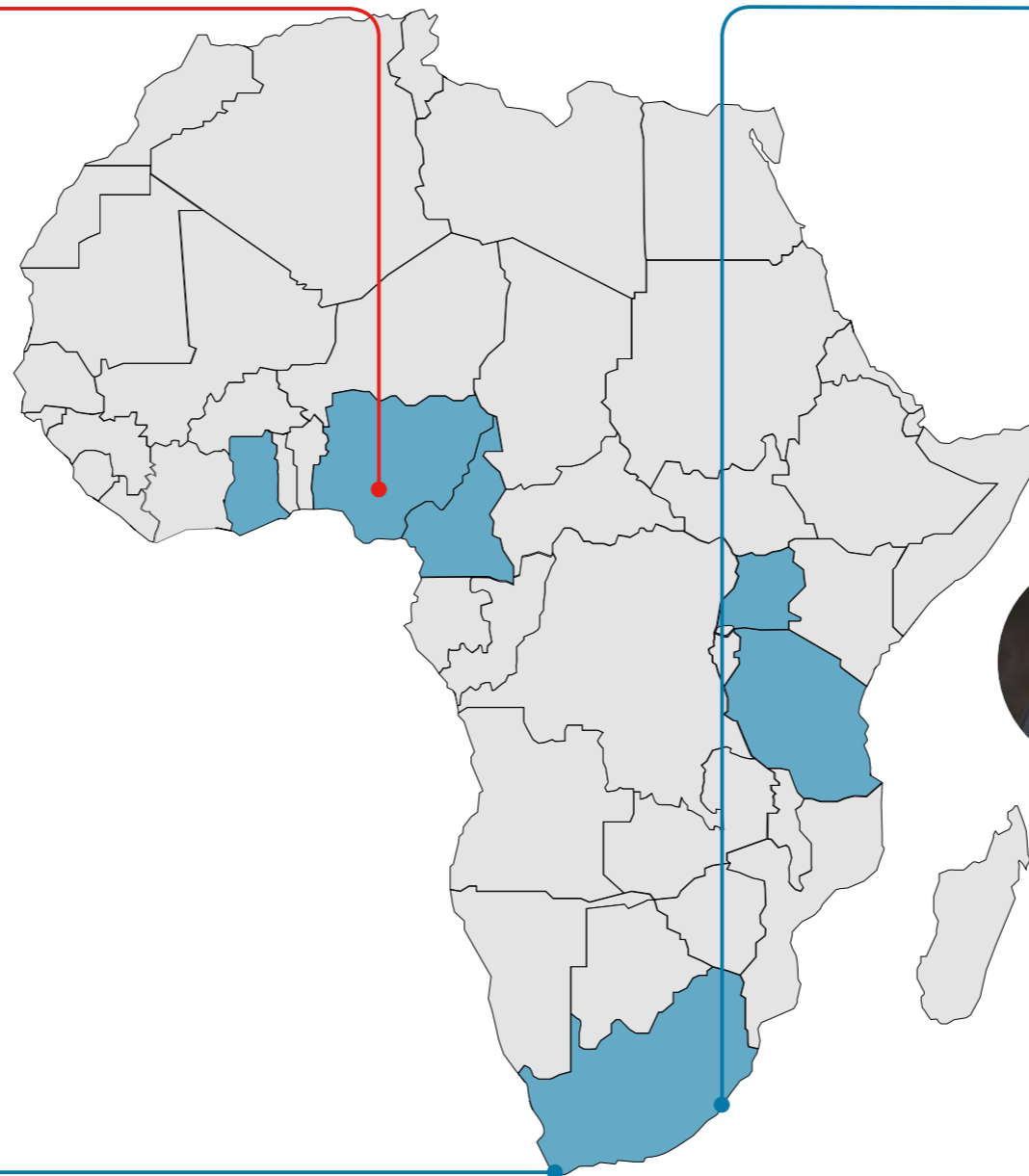
Grant Number: 5U01MH127692-03

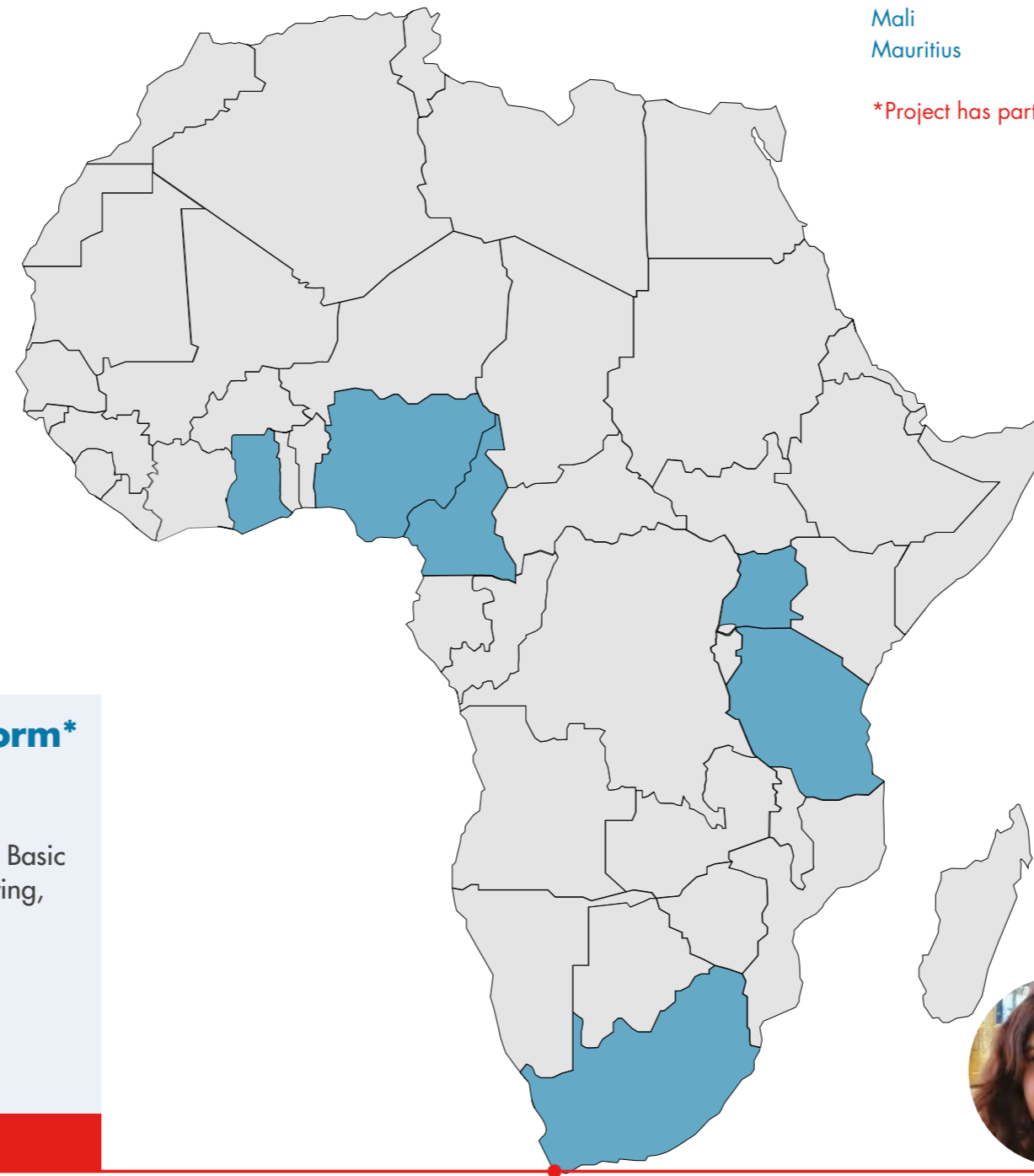Public Understanding of Big data in Genomics Medicine in Africa

Aims:
1) to investigate models of public engagement and preparedness for big data use in health; 2) to explore the roles and responsibilities of different stakeholder groups (data providers, data producers, data users, funders, and research ethics committees) regarding intellectual property, patents, and commercial use of genomics big data in health;
3) to investigate public perceptions of big data in health and attitude towards governance of data; 4) to develop data governance frameworks for big data-driven innovation and health in Africa.

University of Cape Town
South Africa

Contact PI: Ambroise Wonkam

ELWAZI - ODSP - CC

DS-I Africa | Data Science for Health Discovery and Innovation in Africa

NIH | National Institutes of Health

Mali
Mauritius

South Africa
Uganda

Sudan

*Project has partner institution(s) in the United States of America

eLwazi Open Data Science Platform*
Grant Number: 5U2CEB032224-03

Short Term Training: eLwazi Tools & Resources, Basic Bioinformatics, Data Science Skills, Cloud Computing, Developing Data Science Curriculum
Infastructure: Terra, Gen3, Dockstores
University of Cape Town
South Africa

Contact PI: Nicola Mulder

DS-I Africa Coordinating Center*
Grant Number: 5U2CEB032224-03

Working Groups: Training & Education, Data Management, Data Governance, Partnerships & Outreach
Number of Projects: 38
Members: 300+
University of Cape Town
South Africa

Contact PI: Michelle Skelton