AI / MachineLearning For SDGs

Pathway to **POSITIVE PEOPLE AND PLANET**

Quick Glance On SDG

Launched on September 25, 2015

A collection of 17 goals known as The Sustainable Development Goals (SDG) or Global Goals

Universal call-to-action to :
end poverty
protect the planet
ensure all people enjoy peace and prosperity

All Goals Are Interconnected

THERE ARE NO JOB ON A DEAD PLANET

Judy Bonds

The Sustainable Development Goals (SDGs) are a set of 17 indivisible, integrated and deeply interconnected

CORONA

CLIMATE

CONFLICT

Riders For Health

The Project : Operations Research Society of South Africa (ORSSA) x DataKind x Lesotho Government

Country : Lesotho, Africa

Challenge : A lack of access to appropriate, affordable, and reliable motorised transport prevents at least 47 millions of people 7 million people across five African countries, many of whom live in rural and remote regions. from accessing healthcare services.

Objective : Ensure medical couriers' take the fastest and safest routes possible. Optimizing the Riders' routes means patients receive timely care and treatment. Reducing delays is amongst the most significant actions frontline health workers can take to reduce preventable deaths.

Scope : Route optimisation software to transport logistics in low-resource settings (such as a lack of reliable or affordable private or public transport, long distances from communities to health centers, challenging terrain, low fuel availability, and poor connectivity and data systems).

image credit : Datakind

3 GOOD HEALTH AND WELL-BEING

Predicting poverty using satellite imagery

The Project : Aquaya x DataKind
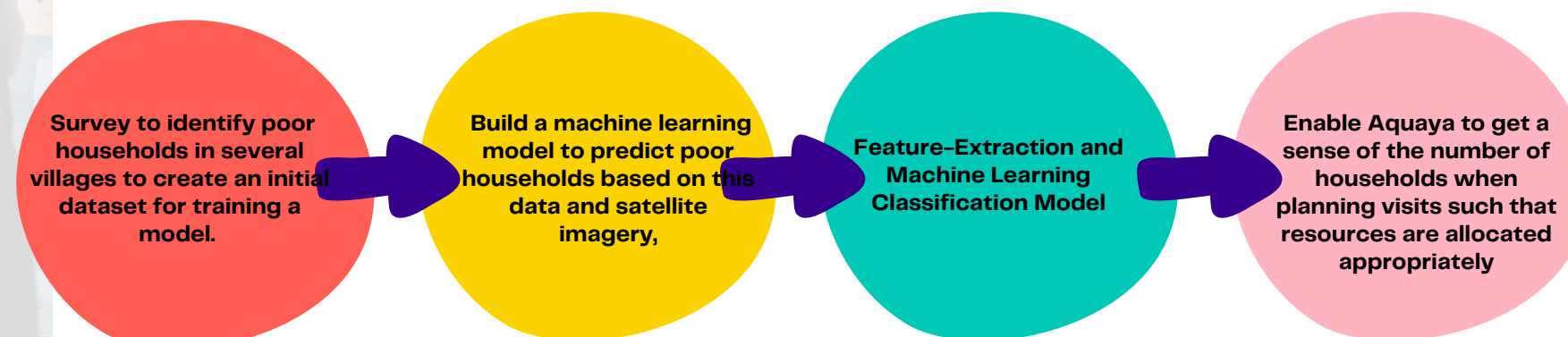
Country : Ghana

Challenge : To develop water, sanitation, and hygiene (WASH) subsidies for low-income households, But existing methods to identify poor households usually require intensive fieldwork such as household surveys or community consultation; thus difficult to deploy at larger scale.

Endgame : improving Aquaya's ability to quickly identify eligible households to water and sanitation subsidies in new, un-surveyed villages or regions.

Scope : Feature-extraction and ML classification model using satellite imagery to predict household-level poverty in approximately 100 villages in rural Ghana based on roof characteristics

image credit : Aquaya x Datakind.org

Survey to identify poor households in several villages to create an initial dataset for training a model. → Build a machine learning model to predict poor households based on this data and satellite imagery, → Feature-Extraction and Machine Learning Classification Model → Enable Aquaya to get a sense of the number of households when planning visits such that resources are allocated appropriately

Example of AI for SDG |

Water Resources Management

The Project : Cetaqua X Microsoft

Country : Marcia Region, Spain

Challenge : According to a special report published by the European Court of Auditors in December 2018, three-quarters of Spain faces desertification. Marcia region have experienced a severe drought

Objective : Creating predictive models that contribute to the sustainability of water resource management – something that will become more critical in Spain, as each year passes.

Scope : Integrating Microsoft Azure machine learning tools with geospatial data analytics and machine vision techniques to develop predictive models of the contributions and demands of water in the agricultural sector of the Murcia region.

11 SUSTAINABLE CITIES AND COMMUNITIES

15 LIFE ON LAND

Finding Whale

The Project : t National Oceanic and Atmospheric Association (Noaa) X Aquaya Google AI for social good

Country : Pacific Islands

Challenge : Locating humpbacks visually across vast oceans is difficult, but their distinctive singing can travel hundreds of miles underwater. At National Oceanic and Atmospheric Association (Noaa) fisheries in the Pacific islands, acoustic recorders are used to monitor marine mammal populations at remote and hard-to-access islands, says Ann Allen, Noaa research oceanographer. "In 14 years, we've accumulated around 190,000 hours of acoustic recordings. It would take an exorbitant amount of time for an individual to manually identify whale vocalisations."

Objective : putting measures such as marine protected areas in place to protect them.

Scope : AI is helping researchers in the Pacific islands recognise whale song from acoustic recordings
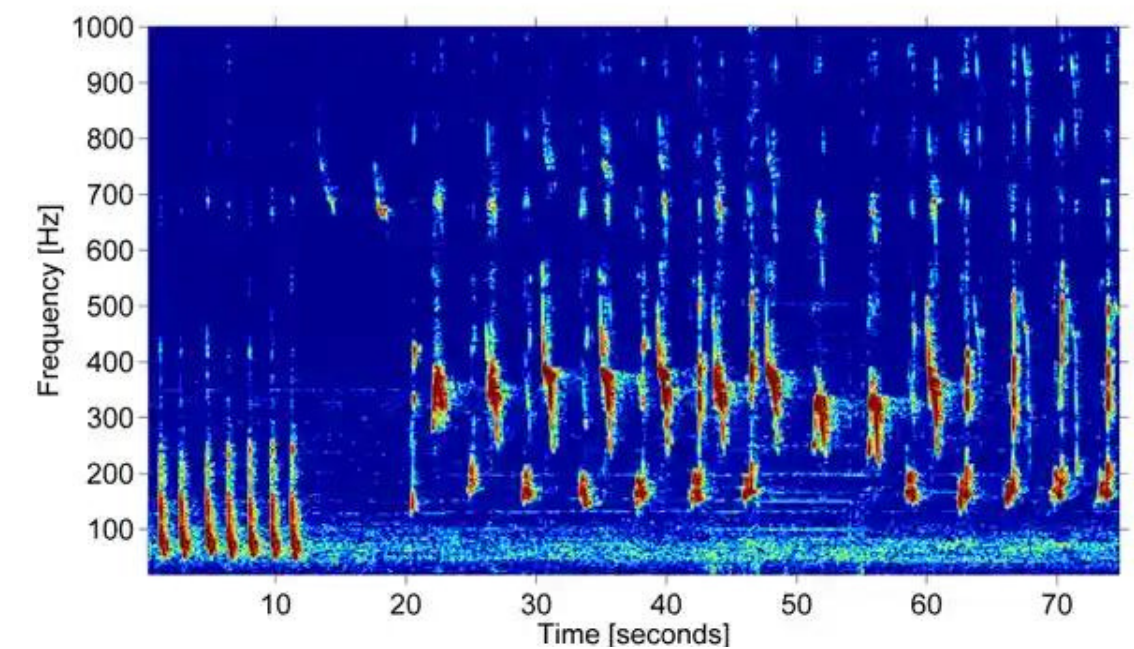
image credit : NOAA

CONFLICT

AN ALGORITHM FOR PEACE?

DIGITAL SUPPORT TOOLS FOR MEDIATION

Public radio broadcasts sentiment analysis (Uganda)

Big Data Analysis to understand conflict background

AN CONFLICT RESOLUTION TOOLS

Whom are you going to trust ?

How is the introduction of these tools impacting mediation as a social and political process?

What Can We Do ?

AI does not replace, AI supplements

What should you do ?

- AI is not solution for everything

- Forget about algorithms and models—Learn how to solve problems first. Start with the problems & how AI can help you address /build solutions for that problem.

- AI / ML is one of the tool that can accelerate the sustainable and responsible progress

AI models are only as good as their data pipeline

What should you do ?

- Focus on the data ––> make sure your datasets are representative and zero bias

- Clean, annotate, and sculpt the data

- Understand who gets included & excluded in the current datasets

- Find out how you can improve the data collections, data processings and data accuracy

SDG Related Data

SDG Progress datasets

https://ai4good.org/what-we-do/sdg-data-catalog/

Gender Data Portal – World Bank

https://genderdata.worldbank.org

Github Social Impact

https://github.com/collections/social-impact

Thank you

Contact

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