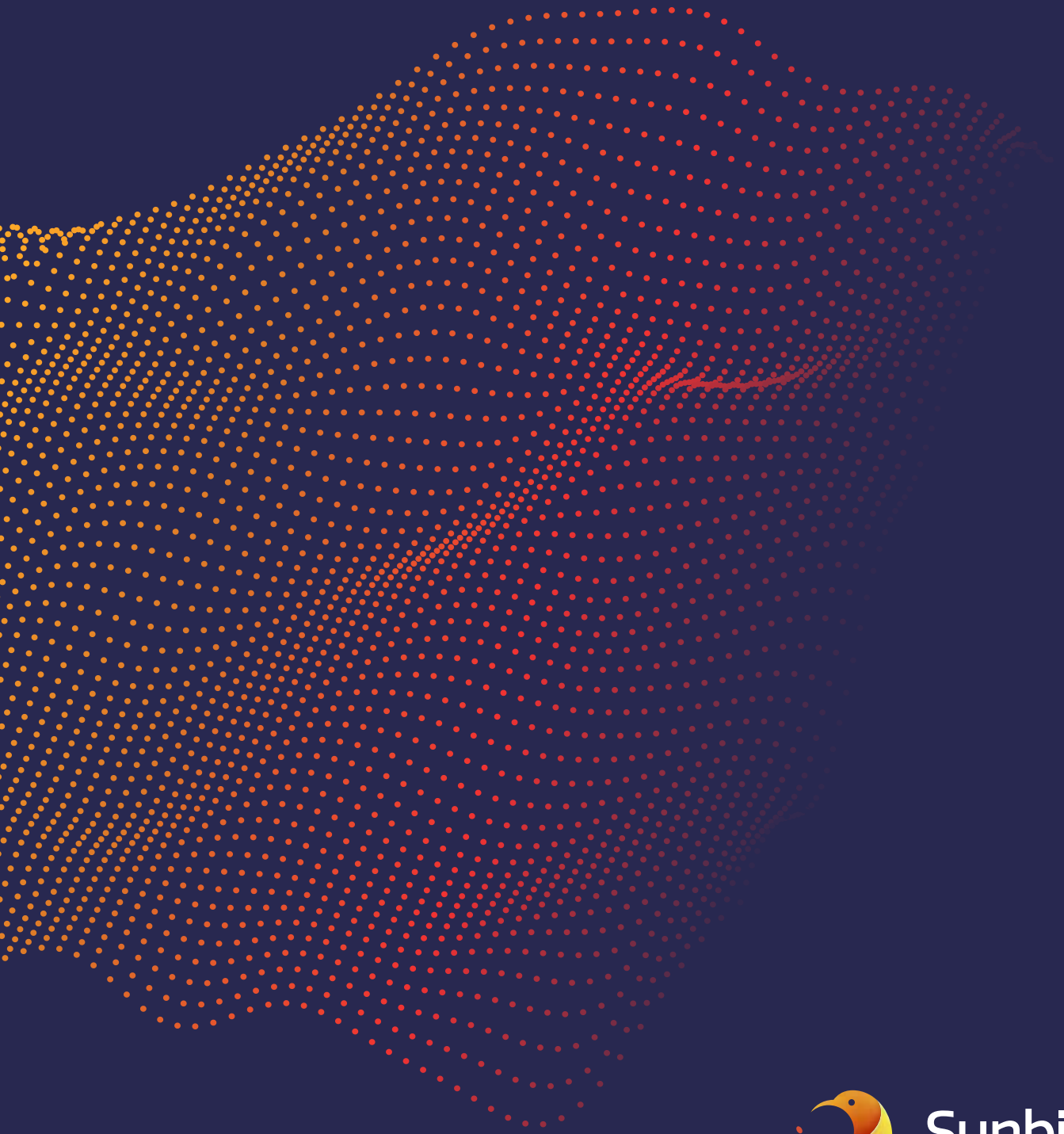
2020

ANNUAL REPORT



Sunbird AI

FOREWORD

Recognizing the growing role of AI and data technologies in providing solutions to a range of critical societal challenges, Sunbird AI was founded in 2019. Sunbird AI exists to provide leadership in AI for social good in Africa acknowledging the importance of developing technology and data solutions closer to the communities intended to use them. We demonstrate leadership by example, developing and deploying open AI systems that can be replicated or expanded by others. Sunbird AI also aspires to contribute to the development of Africa's AI capacity as well as being a neutral source of advice for African institutions on the practical possibilities, benefits and risks of AI technology.

This report provides a summary of our activities, achievements and experiences in 2020, our first full year of operations. In the extremely difficult times of Covid pandemic, 2020 has been a challenging year in many aspects, more so for a new non-profit organisation like Sunbird AI. Sunbird AI response has been to swiftly adapt our work plans for the year and contribute AI solutions to support the national efforts for Covid response.

As an organisation in AI, it was only befitting that Sunbird AI contributed solutions to tackle various challenges brought about by Covid and support the various response efforts at individual or institutional level. We initiated two projects on AI for Covid and worked with partners to support the national and city Covid response teams. Our first project was on social media analysis, aimed at measurement of interventions and response to Covid in Uganda as well as public perceptions. We are proud to report that our solution helped to provide a rapid measurement tool for gathering public feedback and thereby informing changes in the response, policy and approach. Our second project was on radio data analysis. The analysis tracks whether Covid awareness messages and information are relayed on radio stations and how frequently. This is important because the broadcasting of information to the public about Covid is a priority, in order to keep us healthy and safe.

Internally, this year has seen the growth of the Sunbird AI team to 09 members including Software Engineers, Operations Manager, Administrative Assistant, Policy Expert, and Directors. In 2021 Sunbird AI looks forward to fully operationalizing the Board of Directors to further strengthen the organisation's governance structure. We are also initiating new AI for social impact projects for the year 2021. We look forward to expanding our partnerships, growing our internal team and processes, and building on our success in the year 2021.

TEAM

Lydia

Lydia Sanyu Naggayi is a Software Developer with a background in web development using Python and Ruby. Driven by her interest in the growth and numerous applications of AI, she joined Sunbird AI to venture into creating useful applications in AI. At Sunbird, she does Data Engineering and Data Analysis tasks as part of the pipeline for various AI projects. She holds a Bachelor's degree in Computer Science from the University of Science and Technology Houari Boumediene in Algiers, Algeria.

Isaac

Isaac Owomugisha is a software developer who has worked on various projects encompassing a variety of technologies ranging from mobile applications to web applications. At Sunbird AI, Isaac builds data pipelines, deploys applications, does data analysis, and is learning about AI.

Jacklyn

Jacklyn Makaaru Arinaitwe is a researcher and policy expert. She has over 12 years' experience in supporting policy research and analysis, and policy development. She supports AI policy engagement with Government agencies on a part-time basis.

Peace

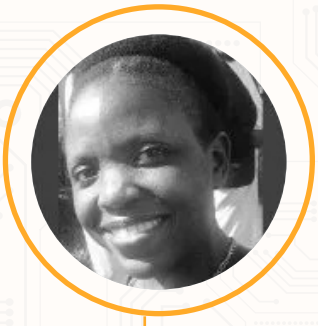
Peace Buhwamatsiko Tumuheki is an Operations Manager at Sunbird. She possesses extensive experience and expertise in strategic planning and management, financial management, and project administration and management as well as monitoring and evaluation of learning processes and outcomes.

Engineer

Engineer Bainomugisha combines his vast experience in Computer Science Education and Social for Impact Research in Africa spanning over 15 years. He has pioneered and led several social impact research projects including, AirQo, a Google-supported initiative that leverages IoT and AI technologies for environmental air pollution monitoring and analysis in African cities to foster resilient and healthy urban communities. Through his work, Engineer advocates for harnessing computational intelligence and tools to benefit humanity. He is a one of the Directors at Sunbird AI. Engineer is also an Associate Professor and Chair of the Department of Computer Science at Makerere University. .

Ernest

Ernest Mwebaze has had a dual career in academia and in industry. He possesses over 10 years of teaching experience in computer science and machine learning. While at Makerere University he co-founded the Makerere University Artificial Intelligence research lab leading it to prominence in the field of practical implementation and deployment of artificial intelligence solutions. In industry he has worked at the Google AI research lab in Ghana and the UN Pulse lab in Kampala where he focused on practical applications of artificial intelligence to tackle developmental challenges in agriculture, utility estimation and different focus areas of the SDGs. He is passionate about using artificial intelligence to improve society particularly in developing parts of the world. He is currently a founding director of Sunbird AI.



Lilian

Lilian Teddy Nabukeera is an Administrative Assistant at Sunbird AI and she is well versed in administrative works, financial management and public relations. She also has a background of mass media communication and entrepreneurship. Through working with the Makerere University AI Research team and Sunbird AI, she has attained additional knowledge and skills. She believes that each day comes with new opportunities, lessons and challenges but always willing to work with each accordingly.

John

John Quinn has been working in artificial intelligence for nearly twenty years, and within Africa since joining Makerere University as a lecturer in 2007. As well as being one of the Directors of Sunbird AI, he is also a Senior Software Engineer at Google Ghana, where he currently leads a team that processes satellite imagery across the continent to add buildings and roads to Google Maps. He was previously the technical lead of Pulse Lab Kampala, where he worked on language technology for analysing community radio as the basis of a UN early warning system, among other projects.

Ben

Benjamin Akera is a Software Engineer at Sunbird. He focuses on machine learning and applying methods from research into production in order to build scalable adaptable solutions. He holds a Bachelor's degree in Software Engineering from Makerere University. He is also a Machine Learning Engineer with the R&D team at Sama, where he works on computer vision methods for automated data annotation for ambitious AI applications. Before that, he worked in the intersection of AI for climate change mitigation and Humanitarian applications of machine learning at Mila - Quebec AI Institute under the supervision of Prof. Yoshua Bengio as well as with the Makerere University AI lab on machine learning solutions in agriculture and malaria diagnosis in Uganda.

Vision

A better society through adoption of artificial intelligence products

Mission

To translate artificial intelligence research and data technologies into usable products for social good

Sunbird AI Core Principles

At Sunbird AI, we want to provide leadership in artificial intelligence for social good throughout Africa. In particular, we aim for leadership by example: we develop open systems that can be replicated or expanded by others. For this to happen, we are committed to open source and open research, so that others can build on what we are doing.

Sunbird AI has a practical focus, and systems development work is in response to a specific need from some partner organisation. Our projects start life in discussion with local partner organisations, where we assess if technology can be used practically, ethically and usefully to solve a problem. Not all of our projects involve building systems for end users, though. We are also interested in creating the resources (e.g. software or datasets) which enable others to create practical AI systems.

We also aim to be a neutral source of advice for African institutions on the practical possibilities, benefits and risks of AI technology. For example, the ethics of artificial intelligence are a complex and rapidly evolving field, where it is necessary to evaluate biases, privacy concerns and factors in data technology: as well as maintaining ethical standards on our own projects, we wish to help other organisations to do so.

We are also committed to building African technical capacity, in order to have a team who understand both the social context and also the technological opportunities.

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PROJECTS

Assisting Uganda's COVID-19 Response

Challenge

The year 2020 was defined by a pandemic that affected almost every aspect of our lives. With this pandemic came a surge of new data, information, and even vocabulary. New systems and policies were put in place all over the world that changed the way we worked, studied and lived, and these "standard operating procedures" (SOPs) have had a great effect on the lives of Ugandans.

We worked with the national Covid-19 Task Force to understand these effects. In particular:

- How did these new systems and policies affect people in Uganda?
- How did they react when they were put in place?

Solution

To answer these questions, we worked on a social media analysis project to gauge the public's reaction to COVID-19 measures in Uganda.

Facebook and Twitter hosted a lot of the public conversation surrounding the pandemic. The Ministry of Health also regularly communicated updates and guidelines using social media channels, for example on suspending mass gatherings, closure of schools, and lockdowns. This made social media a rich source of data to understand the public's perception of the pandemic.

We created data feeds for posts from the Ugandan public and the Ministry of Health and affiliated accounts, then developed natural language processing and statistical methods for extracting relevant information. All analysis was implemented with anonymity in mind: usernames and real names were removed from the text in order to focus on only the semantics of the messages.

The results were conveyed to our partners in the Ministry of Health and the Kampala Capital City Authority by means of **briefing presentations** and an open source **social media dashboard**.

"Our engagement and collaboration with Sunbird AI has provided us with the ability to glean insights from our social media platforms, receive timely feedback on government COVID-19 interventions and understand the public perceptions. Sunbird AI's social media analysis has informed our communication strategic decisions and demonstrated how Ugandan social media data can be used to understand the perceptions and efficacy of COVID-19 policy interventions"

Carolyn Kamasaka
Digital Health Specialist
Uganda Ministry of Health

"KCCA has been working with Sunbird AI on rapid analysis of Ugandan social media data to get a feel of the public perceptions on the COVID in Kampala. Sunbird AI's analysis provided insights into our interventions that otherwise would have been very difficult to derive and understand. The analysis was accurate, well packaged, easy to relate with and produced in a timely manner."

Agnes Biribonwa
Head of Communications
Kampala Capital City Authority

Facebook COVID-19 Analysis

The initial challenge we had with this analysis was the restricted access to the Facebook API, which we solved by using CrowdTangle, a content discovery and social monitoring platform used by newspapers, television stations, digital media outlets, investigative journalists, entertainment companies, sports teams, and nonprofits all over the world.

Using the CrowdTangle API, we collected Facebook posts from major pages and groups in Uganda incuding the Ministry of Health and Kampala Capital City Authority (KCCA).

Analysis

- Categorising posts into COVID-related and Non-COVID-related, first manually and then later automatically using SunBERT, a text classifier we developed to classify COVID/ Non-COVID posts.
- Comparison graphs on the frequency of COVID vs Non-COVID posts.
- Graphs and statistics on the posts with the most reactions (reactions include 'like', 'comment', 'share', 'love', 'wow', 'haha', 'care', 'thankful', 'sad', and 'angry').
- Analysis of peaks in interactions, to show which official posts by KCCA and MoH were giving the greatest reactions, and what those reactions were.

Twitter COVID-19 Analysis

The first step of the Twitter data analysis was the extraction of tweets using the API provided by Twitter. By mid-year year, Twitter released a new version of the Standard Search API that included new features, in particular functionality that made getting replies much easier and reliable. Later we used location filtering to extract all tweets geolocated to Uganda.

The data pipeline for Twitter data includes cron jobs that fetch data from the API on a weekly basis from the relevant Ministry of Health accounts. This data is then stored in a MongoDB database that is hosted on an Amazon AWS EC2 instance. We anonymised tweets by removing names and user handles.

Analysis

Similar to the Facebook analysis, we then classify tweets as Covid or non-Covid. From the tweets relevant to Covid, we then pull out categories of discussion, in order to brief MoH and KCCA about topics of interest.

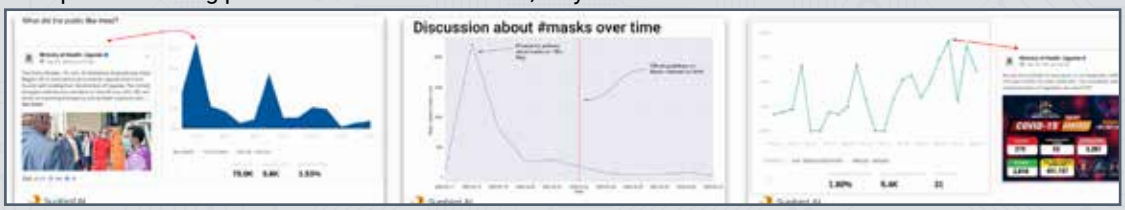
As well as general analysis of public perception, the Ministry of Health was also interested in analysis of social media engagers that they worked with to disseminate health messages.

Initially, this analysis was presented in the form of slides but we, later on, created a dashboard interface that presents both the Twitter and Facebook analyses in a dynamic form.

Social Media Dashboard

The Facebook and Twitter analysis results were initially shared through documents and spreadsheets, which was cumbersome and time consuming. We decided to make this whole process more dynamic by building an interactive dashboard that allows users to view information, statistics and graphs of the social media data we collect.

Examples of briefing presentations about #masks, July 2020:

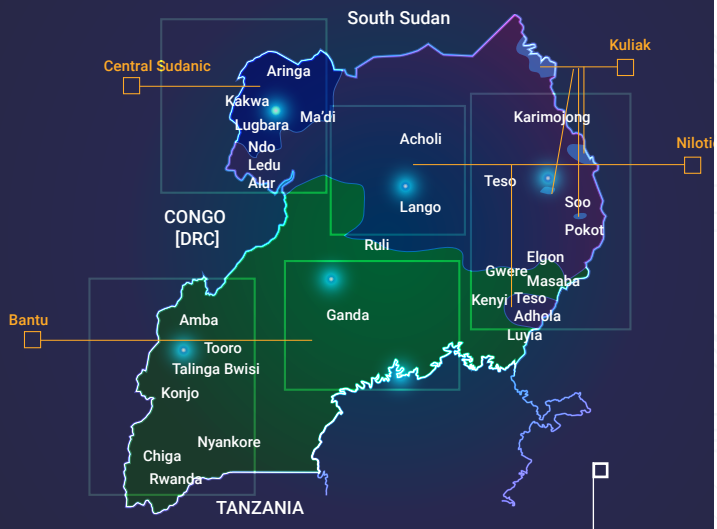


African Language Technology

One of the ways that artificial intelligence shapes society is through language technology. Neural networks that can process language are the basis for being able to search the web, translate between languages, provide recommendations and carry out large scale analysis of text.

Almost all current effort on AI language technology is focused on English and a handful of other languages. Africa is a very linguistically diverse continent, with at least 1500 languages (compared to around 200 in Europe), for most of which no AI language technology has ever been developed. Another issue with the way this technology has evolved is that existing large models are generally trained with text trawled from the Internet, and have shown a tendency to reflect the harmful biases and divisiveness common in online speech. Starting with our work in 2020 on social media monitoring, we're interested in showing what's possible with language AI technology in African languages, and how it can be done responsibly and inclusively.

Map of Uganda showing regions of language interest.



Parallel text language dataset

Machine translation is one of the main natural language processing (NLP) tasks. Unfortunately many African languages have not benefited from the advances of NLP because of limited digital language resources. Uganda is home to 43 languages and dialects, typically more often spoken than written. The main idea of this project was to collect parallel text sentences for the five most common languages in Uganda, sufficient to enable a start on the machine translation task for Ugandan languages. Our approach was to build on existing efforts in this regard and make this the principal dataset for Ugandan language resources.

This project was structured as a collaboration between Sunbird AI and the Makerere AI lab. Makerere AI lab has as its strengths, a solid track record of doing applied AI research and interfacing with the eventual clients of the research particularly government agencies in Uganda and direct beneficiaries like small holder farmers. Makerere AI lab is also located in Makerere University the leading university in Uganda and has access to a pool of good graduate and undergraduate research students.

Situating a solution in the right context is key for uptake. Sunbird AI and the Makerere AI lab are situated in the African context to build contextualized AI solutions to the challenges in this context. Improving language resources for low resource languages in Uganda is an area Sunbird AI and the Makerere AI lab have been in and have already gone some way in collecting text and audio data for Luganda [Nandutu and Mwebaze, 2020, Akera et al., 2019], the major local language in Uganda. This proposal will enable extension of this work to other key languages in Uganda.

We set out to collect a multilingual parallel text language corpus of 10,000 English sentences and their corresponding translations in five under-resourced languages in Uganda.

Project outputs

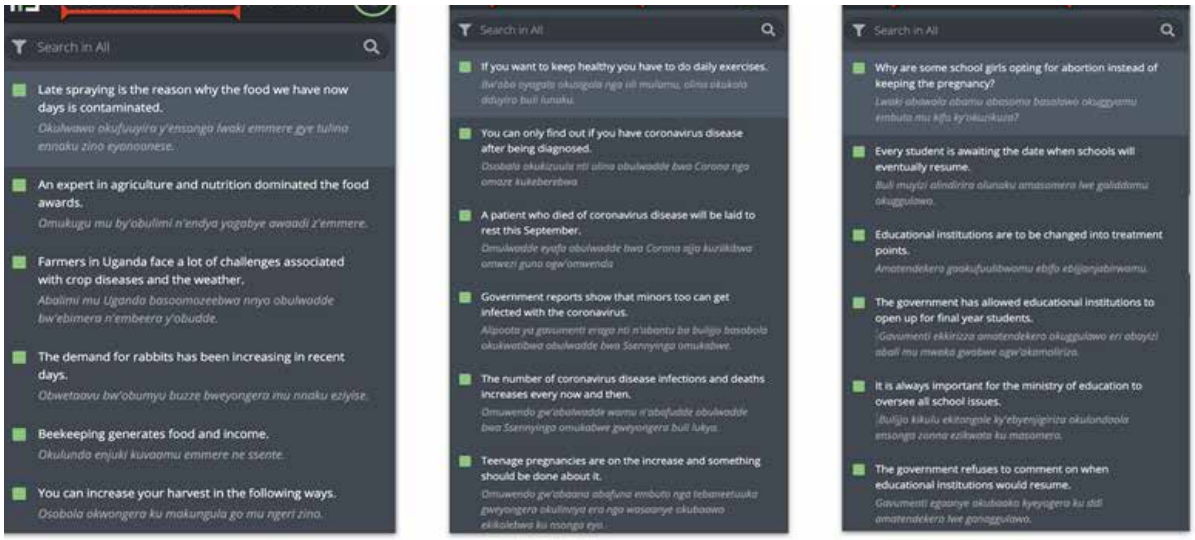
This project started in October 2020 and was completed in Jan 2021. We collected 60,000 language phrases/sentences. This data will mainly improve the machine translation tasks related to local languages in Uganda. There have been several attempts in the literature to collect different language resources in some of these languages. Unfortunately there is no publicly available consistent dataset of these languages particularly corresponding parallel phrases of these languages that could be used for a machine translation task or language identification task.

The collection of this data had surprising twists and turns due to the prevailing Covid-19 pandemic. For example we initially had hoped to use university students as the first line of translators but with the universities closing due to covid, a new category of translators emerged; the primary and secondary school teachers throughout the country, particularly in the areas where the languages of focus are spoken stepped in to do the translations. The online system initially designed for use with the translators (Pontoon) also became unusable for people working from home due to the expense associated with being connected to the system while doing translations. A temporary system of using excel sheets that can be sent by mail downloaded, worked on and sent back was thus used as a stop-gap measure. In more dire areas of the countries, translators without laptops were forced to print the excel sheets, work on them then scan them for transmission to the translation validators.

One particular task we are interested in is how to select a subset of all the English phrases that would provide the most actionable information for a translation task in these five languages. In our most recent work during this Covid-19 pandemic some of the needs for translation have become clearer, for example, the need to translate messages in English related to Covid-19 into local languages. Some of the words and phrases used are not necessarily commonplace phrases in other languages e.g. social distancing, wearing a mask and sanitization. As such a portion of the phrases chosen for translation in this project were related to Covid-19.

Similarly we also derived other English phrases from different other categories including social media particularly Twitter and Facebook. To maintain the privacy of this data, we only used this data to motivate English phrases that will be used in the translation. A clear use case related here is building language models specific to analyzing social media data. In our most recent work a clear use case has been how to build a classifier to classify social media posts as related to Covid-19 or not. This data would be instrumental in furthering this task.

The team did 50,000 sentence translations between October 2020 and Jan 2021



Some translations in Luganda for key categories, agriculture, health and education. The platform used for data collection is based on an open source Mozilla language technology pipeline, Pontoon that can be deployed locally for specific translation tasks.

Potential use cases of this data

The key use of this data is to train machine translation systems for Uganda languages. Language translation tends to be a key task of most other NLP tasks. More specific applied use cases include.

1. Topic based translation, which could focus on agricultural content to farmers, education content to learners particularly in this era of the pandemic where the government of Uganda intends to trial teaching and learning via public radio broadcasts.

2. Understanding Ugandan newspaper headlines. This is one of the standard tasks of machine translation and applying it to Uganda news papers means we can reach a wider audience with key information.

3. Rectifying code switch text. Code switch text is becoming prevalent in informal conversations. Having the resources to convert this to \textsl{normal} text may be useful for people who may lose the meaning due to code switching.

4. Automated text generation. While this task is relatively controversial in this era of fake news, one can see uses in chat bots for example that provide helpful services e.g. chat bots for mental health and agricultural advice.

5. Base dataset for the other language projects. This dataset could provide the base from which other language resources are developed for example corresponding speech data for text-to-speech applications. Or captions generation for persons with visual/hearing impairments.

Our goal is to open source this data and allow for different enthusiasts to pursue these different use cases.

Deep learning has made natural language processing more effective than ever before, and one of the current state of the art methods is Bidirectional Encoder Representations from Transformers (BERT). BERT models are widely available for English, but are not well adapted to specific cases such as analysing African social media.

We trained a customised BERT model, initially as part of the COVID-19 analysis, to perform two tasks: (1) Analyze posts from social media as promotional, editorial or organic; and (2) To identify tweets as either COVID-19 related or not. Both tasks show the ability of machine learning to be used to analyze large data and support decision making. We open sourced the dataset and source code of our model called SunBERT so that other people can utilize these techniques to their needs.

Datasets

We use data from Twitter and Facebook. The dataset contains tweets and posts from both social networks collected through CrowdTangle — a tool from Facebook to help follow, analyze, and report what's happening across social media.

Models

BERT is a deep learning model published by researchers at Google AI. It presents state of the art performance in different natural language processing tasks including question answering, text classification, and language modelling. The key technical innovation is that BERT applies a bidirectional training of the transformer - a popular attention-based model to language processing.

Use Cases

We have shown the application of SunBERT to three use cases, COVID-19 classification, news classification and language adaptation for machine learning research and development. However, SunBERT can be extended to perform other tasks which include question answering, masked language modelling, and next sentence prediction. Our code and datasets can be used as a starting point for any of these tasks, with minor modification to the model architecture.

Challenges and Future Directions

Building scalable machine learning models brings about a few challenges, especially in the low resource setting of Uganda. These include:

Data: Deep learning requires enough quality data. These models work best when a lot of labelled data is presented. Many novel tasks have little to no data available, so this has to be addressed by collecting and curating the necessary data.

Computational Cost: Deep learning and machine learning in general requires adequate processing power, especially in training these large scale models on large data. To ensure better efficiency, Graphics Processing Units (GPUs) and high end Central Processing Units (CPUs) are necessary.

Interpretability: Machine learning models usually do not explain their predictions. This is a barrier to adoption of machine learning, especially for decision making. This is important because it can aid in trust. Humans may be reluctant to rely on machine learning models for certain tasks e.g. medical diagnosis unless we know "how they work."

Radio Data Analysis

Ever been seated there listening to the radio and then you hear an advert about how COVID-19 spreads and how to stay safe? At Sunbird AI, that's music to our ears. Our most recent project has been monitoring and analyzing Ministry of Health adverts on the spread of COVID-19 and related safety measures. The analysis is to track whether COVID-19 adverts are played on radio stations and how frequently they are played. This is important because the broadcasting of information to the public about COVID-19 is a priority, in order to keep us healthy and safe. This project was implemented in a number of steps:

Getting Radio Data

To collect data from radio, we went through a digital data collection process as described here:

- Compilation of a file with streaming URLs for a number of radio stations whose streaming URLs were easily accessible

- Writing a Python script to get to each of those streaming URLs and record the data for an hour at a time

- Writing a cron job to run this script every top of the hour, for most of the hours of the day

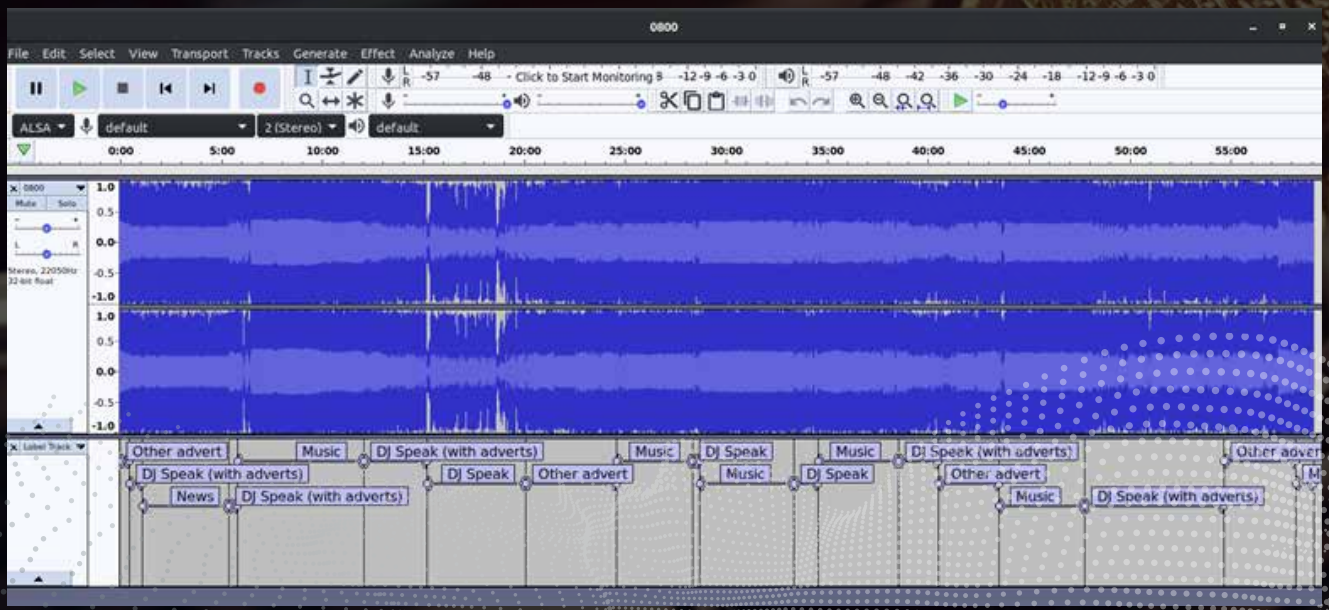
Storing the Data

By now you could be wondering about the huge amount of storage space that all this data would take up with time. In order to save storage space, a data retention policy is required. A data retention policy within an organization is a set of guidelines that describes which data will be archived, how long it will be kept, what happens to the data at the end of the retention period, and other factors concerning the retention of the data. In our case here, we store the radio recordings on our server only for the current day. At the end of each day, the recordings are backed up to cloud storage and then deleted from the server.

Data Collected:

Before fingerprinting the recordings, we had to find a way to test the accuracy of that method. If the results of fingerprinting say that there are two instances of the advert in a certain recording, we had to know for sure how true that was. This meant that we would have to have some form of labeled data, labeled by we the human beings, in order to prove the computer right. We chose out samples of our huge pile of data and annotated them using Audacity, an audio software. Below is a glimpse into what the data annotation process looks like:

Sample of annotated data for an hour of radio:



0.000000	43.000000	Music/DJ Speak
43.000000	54.000000	Other advert
54.000000	152.000000	News
152.000000	164.000000	Other advert
164.000000	969.000000	Music
969.000000	1013.000000	DJ Speak
1013.000000	1252.000000	Music
1252.000000	1568.000000	DJ Speak
1568.000000	1735.000000	Music
1735.000000	1802.000000	DJ Speak
1802.000000	1912.000000	Other advert
1912.000000	2194.000000	Music
2194.000000	2263.000000	DJ Speak
2263.000000	2277.000000	Other advert
2277.000000	2895.000000	DJ Speak/News
2895.000000	2951.000000	MoH advert(how virus spreads)
2951.000000	3071.000000	Other advert
3528.498731	3546.000000	DJ Speak

As the image shows, there are a lot of different things that go on in just an hour of radio, but what we are looking out for are the Ministry of Health COVID-19 adverts that run for just about a minute. Now that we know that the advert features in this particular hour, we can run the fingerprinting and see if it comes up with the same result.

Fingerprinting

First, what does fingerprinting even mean? Audio fingerprinting is the process of digitally condensing an audio signal, generated by extracting acoustic relevant characteristics of a piece of audio content. The short version of this is that it finds a way of identifying a piece of audio. For our project, we ran a fingerprinting script using a Python tool called dejavu, with the aim of identifying the instances of the COVID-19 adverts played within the radio recordings.

Conclusion

After this process, what we get is the ability to choose any radio recording and find out the number of times the COVID-19 adverts are played. This can be extended according to what is required at a given time, for example checking how frequently the adverts play on an entire day on a particular radio station, or checking how they are dispersed throughout the day. That way, we achieve the goal of tracking the broadcasting of crucial COVID-19 information to the public, to make sure that safety information becomes common knowledge.

Collaborations and partnerships

Sunbird AI values strong collaborations to be able to deliver AI solutions that meet social needs.

At part of AI for Covid interventions we collaborated with the Ministry of Health (MoH) and Kampala Capital City Authority (KCCA) to provide rapid evidence and measurement of COVID response and interventions. Our engagement is characterised by regular interactions aimed at receiving feedback on the data products to gauge utility and tailor them to the user needs. In the case, Sunbird AI provided bi-weekly updates to the response teams of MoH and KCCA. Sunbird AI has preliminary engagements with International Rescue Committee (IRC)/U-learn on Covid-19 rumour monitoring in refugee camps.

Makerere AI Lab

Sunbird AI is committed to the growth of local AI practical skills through engagement with Universities. We have partnered with Makerere AI lab to develop dataset language pairs of local languages that forms a basis for development of language technology for Ugandan languages: Luganda, Runyankole, Acholi, Lugbara and Itesot. Such products could include translation resources for Covid-19 messaging, which we have explored with the Ministry of Health in Uganda.

UN Global Pulse

Sunbird AI has worked with Pulse Lab Kampala on (1) public radio mining for Covid-19 messages as a product for the communication department of Ministry of Health, (2) training of statistics officials in African countries on the use of telecoms CDR data for development purposes with a focus on the biases and risks that need to be considered when using this type of data, and (3) setting up a local chapter of Data Science Africa.

Data Science Africa

Sunbird AI continues to support the growth of African AI ecosystem through partnerships with Data Science Africa. Particularly Sunbird AI team has delivered talks and facilitated hands on tutorials during the DSA events, the recent one being virtually in November 2020.

Strategic Partner

Hewlett Foundation

GLOBAL PULSE | Makerere AI Lab | KCCA KAMPALA CAPITAL CITY AUTHORITY For a better City | INTERNATIONAL RESCUE COMMITTEE | MINISTRY OF HEALTH

POLICY ENGAGEMENTS

Policy Engagement is about connecting with policy makers, key decision makers, policy users, policy beneficiaries, and policy practitioners to influence the process of policy making and implementation. Policy engagement takes different forms: inquiries, consultations, collaboration, and technical support, among others. At Sunbird AI, our approach to policy engagement is through collaboration and technical support to key decision makers to utilize evidence and data in policy making. We support Government agencies through appropriate AI tools to digest huge amounts of data in making decisions. Our work with the Ministry of Health and KCCA are some of the policy engagements we did over the past year.

Sunbird AI policy approach is two-pronged:

i

AI Policy: Sunbird AI supports the Ministry of Science and Technology to develop relevant AI policies for Uganda. In 2020, Sunbird AI did not achieve milestones toward developing AI policy, but we will continue to pursue this going forward.

ii

AI for Policy: Sunbird AI's policy engagement here is to support Government agencies to generate evidence and data to support evidence-based policy making. Our approach to policy engagement is:

1. We seek to first understand and profile the needs of the agency given their mandate.
2. We work with the agency to develop an engagement plan based on the nature of the policy problem to be tackled.
3. We work with the agency to customize AI tools that are suitable to generate evidence required to address the policy problem.
4. We work with the agency to review the 'use effects' of our AI tools to further refine them and keep them relevant.


Sunbird recognizes the growing role of AI and data technologies in providing solutions to a range of critical societal challenges

Sunbird AI

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