

Data Requirements

Data is central to what we do and is the foundation of our machine learning. Therefore, it is critical that data is in the correct format for us to work with.

Data

To train our AI models for automatic speech recognition and call classification we require two types of data:

- **Audio:** Each call recording file must refer to a single, medical call between a caller (person on scene) and a call-taker (medical professional, dispatcher etc.).
- **Metadata:** The metadata must connect each audio file to a single incident of which outcome is known.

Criteria of an OHCA emergency call

Throughout the medical research community, there are various definitions of an OHCA emergency call, which may be a source of fluctuation in reported detection accuracies. A concise definition of OHCA emergency calls which we use at Corti is provided below. All calls that do not fit these requirements are disregarded in the study.

- An OHCA is defined as an incident where the pre-hospital or hospital journal clearly states the diagnosis.
- Corti does not consider audio calls for which the time to recognizing an OHCA is less than 30 seconds. Thus, there must be time for a clear dissemination of a condition.
- If the Emergency Medical Dispatcher (EMD) dispatches the appropriate response within the duration of the call, it is perceived as a **recognized OHCA**.
- If the EMD does not dispatch the appropriate response or dispatches the appropriate response after the duration of the call, it is perceived as an **unrecognized OHCA**.

Audio format

All audio data should be delivered in the following format:

- PCM or WAV or other lossless formats
- Encoding: At least 16-bit
- Sample-rate: Must be at least 8000 Hz
- Channels: Mono or Stereo

Audio formats with compression or lossy encodings (e.g. MP3, GSM) result in lower accuracy in the classification.

We are happy to assist in confirming your audio data is in the proper format. In case your audio does not live up to the requirements, please reach out to us as soon as possible.

Metadata format

The metadata should be delivered in a CSV format. The CSV should be structured such that each row refers to a single call, We do not allow cases where there are multiple calls referring to the same incident. . E.g. in cases where there are multiple callers for the same incident, we require the partner to decide on which one to include.

For each call that you give us access to, we must know:

filename (string)

Name of the audio file that the metadata relates to.

This field is necessary for us to know what file is described by this metadata.

incident_ID (string)

Unique identifier that relates to a single incident event.

This field is necessary for us to link the recording to your system.

cardiac_arrest (bool)

Was the incident a cardiac arrest (True) or not (False).

This field is necessary for us to train our AI.

response_type (string)

This can either refer to the type of ambulance sent or the typecode of the response.

This field allows us to understand what calls are of a higher priority and emergency.

dispatch_time (float)

Time (in seconds) after which the ambulance was sent.

E.g. 57.0 indicates that an ambulance was dispatched 57 seconds after the EMD picked up the phone.

We do not allow the number to be negative or more than 24 hours

dispatcher_recognition (string):

Which label did the dispatcher recognize.

This field should match one of the provided label types.

dead_on_arrival (bool)

This field is needed for us to create a dead-on-arrival model and for us to improve the cardiac arrest detection

This field is optional

overdose (bool)

This field is needed for us to create an overdose model

This field is optional

stroke (bool)

This field is needed for us to create a stroke model This field is optional

CSV Example

We require the metadata to be delivered to us in a CSV that looks as the following:

```
filename;incident_id;cardiac_arrest;response_type;dispatch_
time;dispatcher_recognition;dead_on_arrival;overdose;stroke
file_1.wav;4356602;False;B2;57;;True;;
file_2.wav;4356603;True;B1;103;;;
file_3.wav;4356604;True;A1;37;cardiac_arrest;;;
```

Extra data

In addition, it will help our work greatly if we can get access to the following:

- Explanation of how the matching was done, i.e. how the data delivery table was filled in
- Incident report: the entire history associated with each call
- Cardiac arrest quality assurance information for each call
- Historical cardiac arrest prevalence

Finally, it will always be helpful for us to receive an overview of other data sources you have access to that you would be able to share with us, as this can help us greatly when building the models. This can be data sources such as cardiac databases, journals, etc.