**Telephonic call emotion analysis**

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**audio\_emotion\_analysis**

The objective of this project is to predict the emotion present in any audio file/signal.

**Requirements:**

1. Anaconda - This installs python along with most popular python libraries including sklearn. If not already installed, install it from <https://www.continuum.io/downloads> .
2. python\_speech\_features
3. pyaudio

The requirements 2 and 3 can be installed by typing:

pip install -r requirements.txt

**Installation:**

Once the requirements are installed, just type python setup.py install

**Preparing dataset:**

* Put all the unlabelled audio files in a folder named calls, or any other folder and update the name of folder inlabel\_dataset.py.
* Run the script label\_dataset.py.
  + It will scan all the audio files, create a set of 30 sec audio chunks.
  + It will play each chunk and then ask for a label (positive/neutral/negative).
  + Enter 1 for negative, 2 for neutral and 3 for positive.
  + Continue until all the chunks are labelled.
  + A new dataset will be prepared in a new folder named data, with each audio file of the name in the format<label>\_<counter>.wav.

**Scripts description:**

**feature\_extractor.py**

Extracts the features from any audio file or signal and returns a feature vector.

**emotion\_analysis.py**

This is the backbone of the project. It contains modules that

* extracts features using the feature\_extractor.py
* trains the model
* tests the model
* evaluates the model on new dataset

**Evaluating a new dataset:**

* Put all the new audio files in a folder named test\_calls, or any other folder and update the name of the folder inmain\_script.py.
* Execute the script main\_script.py or type

python main\_script.py

* The script will load an existing model or train a new model on the dataset prepared, extract features for each of the new calls, feed it to the trained model.

**Results**

* For each file, following three things are evaluated:
  + Overall emotion
  + Emotion transition from first half to second half
  + Emotion present in each 20 sec chunk of the file
* These results for each audio file are written to a .csv file, on which further analysis can be done.