ema2wav

1 ema2wav - converter

ema2wav is a converter tool that makes EMA data available for the display in PRAAT. THis means, it converts the EMA data into multi-channel wave files, in which the first channel represents the audio data and the other channels represent the data you select. For installation instructions see the GitHub page.

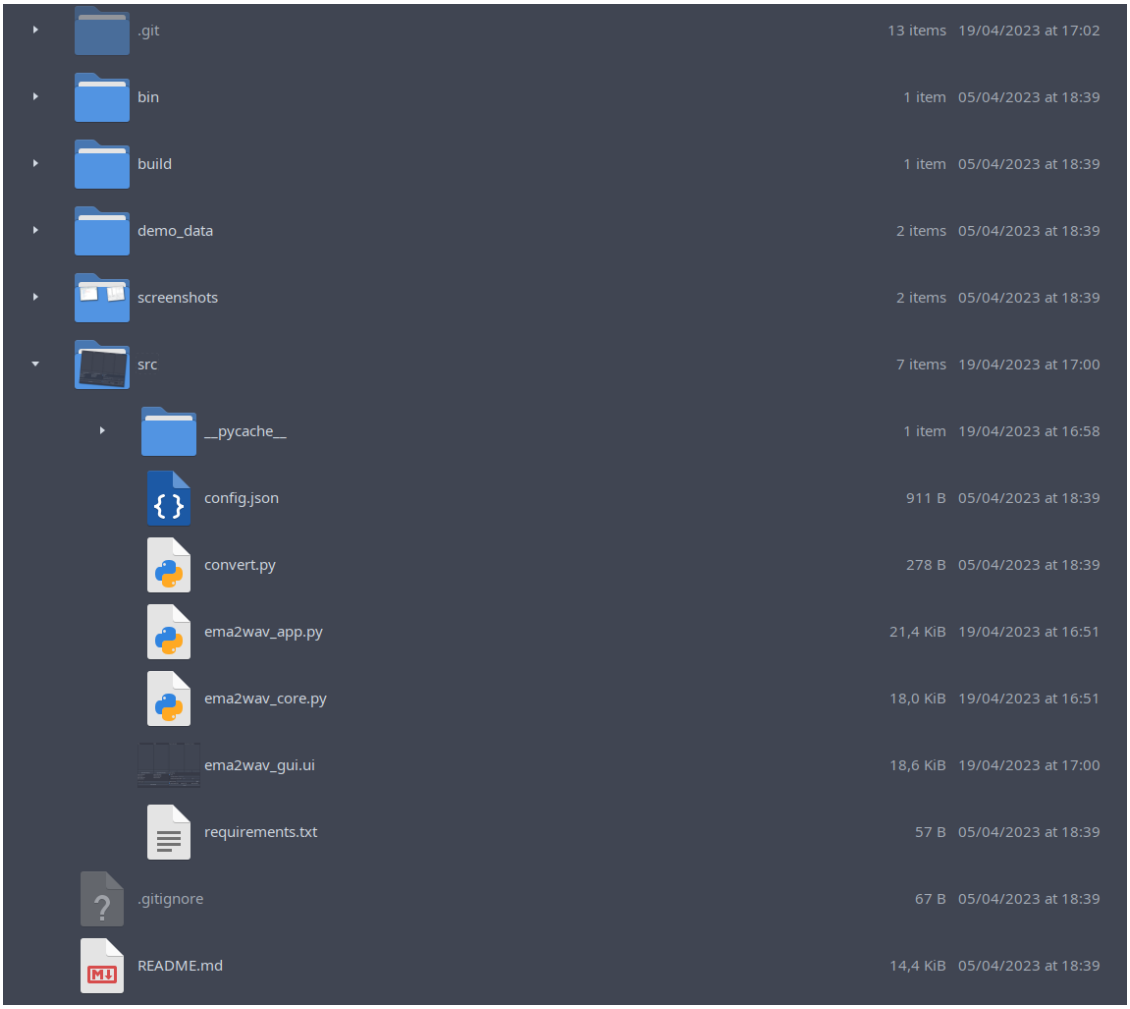
There exists a compiled app for Mac users. Windows and Linux users have to use the script version. Download the repository somewhere on your computer. If you use conda, you can create a new environment and activate it:

[ ]:
```
conda create --name e2w python=3.10
conda activate e2w
```

In the next step, navigate in your console to the ema2wav directory. For me, this is:

[ ]:
```
cd ~/Documents/GitHub/ema2wav-main/
```

You should see the following files:



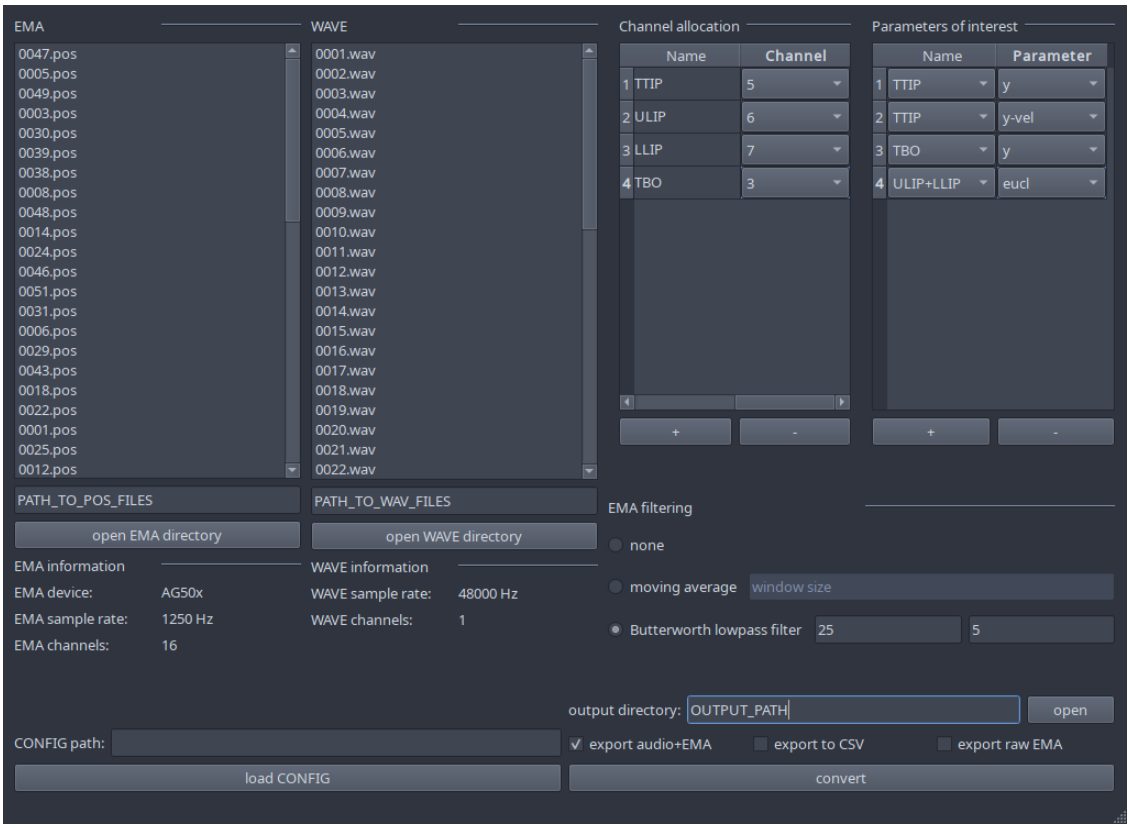
Before you can use the converter, you have to install the required packages. While in the ema2wav folder, enter the following command to install these packages:

[ ]:
```
pip install -r src/requirements.txt
```

The package should now be installed. In order to start the program, enter:

[ ]:
```
python ema2wav_app.py
```

This command will start the program with the Graphical User Interface.



2 convert EMA data with ema2wav

Once the program is running, you can use the data from the google drive to test it. First, select the folder with containing the .pos files by clicking on "open EMA directory". You will not see any files, this is just for the selection of the folder. The same holds for the .wav files, that you can open by clicking on "open WAVE directory". You should see all .pos/.wav files that are located in the respective folder. In the next step, you have to enter the channel allocation. In the files from the google drives, this is:

Channel 1: left ear Channel 2: right ear Channel 3: tongue body Channel 4: tongue mid Channel 5: tongue tip Channel 6: upper lip Channel 7: lower lip

You can enter the channels by clicking on the "+" symbol in the "Channel allocation" area. Channel can be removed by selecting the respective channel and clicking on "-". You have to enter the channel name (this can be anything, e.g., TT or TTIP for tongue tip). It is important to note that you should not enter a "_" in the channel name, otherwise the program will crash. Then you have to select which channel number should be associated with this name.

Note that you do not have to enter all the channels; enter onyl the channels you are interested in. For example, the sensors for the left and the right ear are not necessary, because they are needed for the AG501's built-in head correction procedure only.

Then you have to enter the channels you want to extract. Parameters can be added/deleted by clicking on "+" and "-". You have to select the channel name first and then the parameter you want to extract. There are several options: Positions in the x (horizontal),y (vertical) and z (lateral)

dimension, as well as the velocity (e.g., x-vel, y-vel), acceleration (x-acc, y-acc) and the tangential velocity (tvel). If you want to extract the euclidean distance between two sensors, you have to select both sensors (e.g., ULIP+LLIP) and then "eucl".

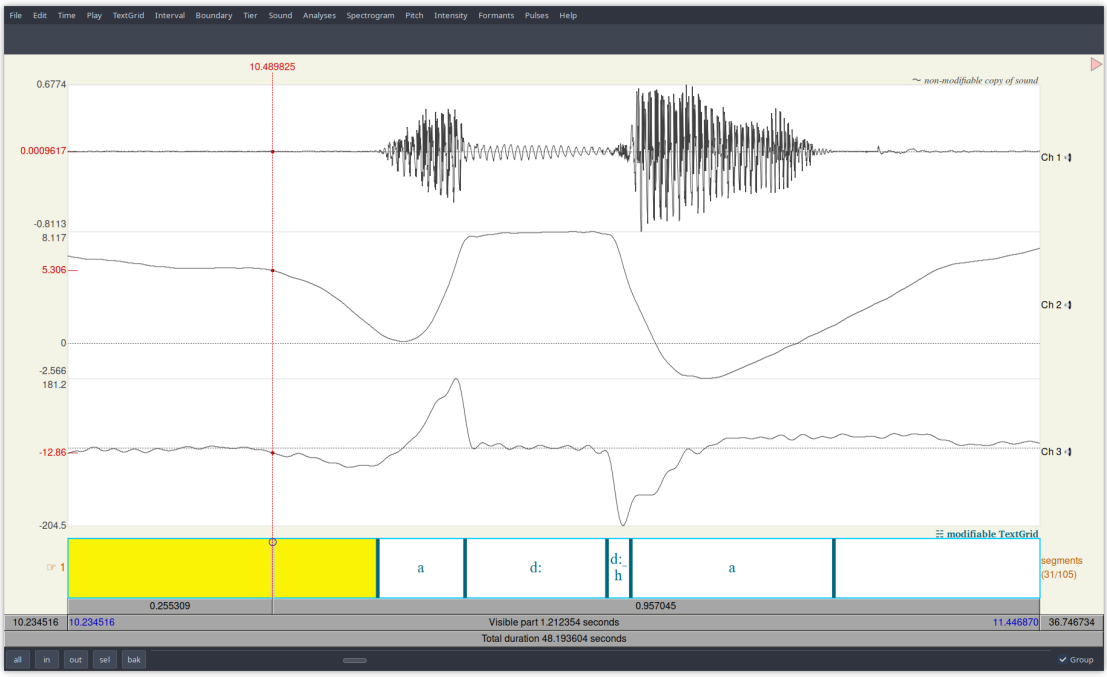
If this is done, select an output folder at output directory. Click on convert to create the multi-channel wave files.

You will see 1) a config file and 2) a folder called "emawav" in the output directory. The config file is not of greate interest for now. In the folder are the converted wav files.

If you open these files in PRAAT, you should change the editor window a little bit. This means:

1) deactive the spectrogram (Spectrogram > untick "Show spectrogram"; it is maybe necessary to turn of Formants, Intensity and Pitch, depending on your settings)
2) Scale the waveforms by clicking on Sound > Sound scaling ... and then selecting "by window and channel" as Scaling strategy.

In the channels below the first one, you see the EMA data and the respective scaling. These are e.g. mm for the position data.



In some cases it playback may be a bit annoying, because PRAAT is a tool for audio data. You can exclude the EMA channels from the playback by cllicking on Sound > Mute channels..., selecting (ranges). Enter then the channels you want to mute, e.g., 2:5.

If you have TextGrids, you can not only annotate EMA trajectories, but also making measurements and so on, like in your typical PRAAT workflow.

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