Physio Movie Annotation

User Manual

Presentation

This software can be used to open a video file and see it frame by frame, allowing you to draw lines on each frame to take some relative measurements. It can be used in a variety of contexts, when you need to compare different elements with each other (mouth aperture vs lips stretching, vocal folds length vs spacing, etc …)

All those measures and annotations made on the frames of the movie can then be exported in a CSV file to later be exploited in other softwares, eg: R, matlab, excel

Installation & Technical Prerequisites

Unzip the archive in the directory of your choice, and ensure you respect the folder hierarchy contained in the archive. Try not to unzip the archive in a folder with non ascii characters or space in its path.

The path to the software should avoid any non standard characters, spaces, commas, etc, to ensure the best stability possible.

To install the software, you need a Python 3 installed on your computer, and the soft should download and install all the libraries it needs on its first execution.

For you information, this software has been tested on a Windows 10 computer using Python **3.13.2 64 bit** and the following libraries:

Library	Version
PyQt5	5.15.11
numpy	2.2.26
opencv-python	4.12.0.88
pyqtgraph	0.13.7
moviepy	2.2.1
ffmpeg	1.4
PyYAML	6.0.3

If you encounter any problem during the execution or installation of the software, try to use those versions to ensure a working version.

The software should work on Unix and MacOS, but has not been tested in those environments.

How to launch & add movies

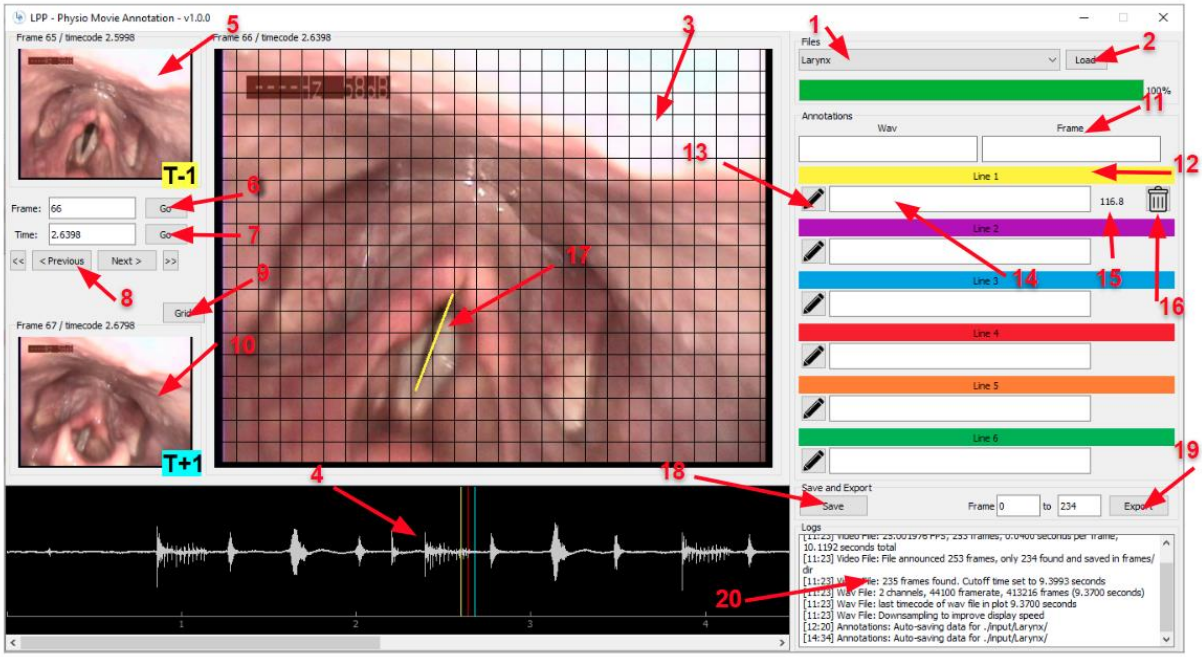
To launch the software, you just have to execute **main.py**, situated at the root of the application folder, with Python 3. You can either do it by setting Python 3 as the default program for .py files, by using the **physio_movie_annot_windows.bat** or **physio_movie_annot_macos.command** file.

To add movies to the software for analysis, you need to create a new folder (one folder per movie !) as a **subfolder** of the **input** directory. The name you give your folder will be the name used by the program to allow you to choose which movie to work on.

In this newly created folder, place your video file. Please ensure that your folder name and file name are **ascii compatible**, and do not use any space, commas or other characters in the names. Limit yourselves to A-Z, _ and - , with no accents. The software may work with utf8 characters in the filename but it is absolutely not guaranteed.

If you created a new folder to add a movie, it will not appear in the software until you close it and launch it again. The available movies are only checked once at the launch of the program.

Interface summary



Here is a screenshot of the software, each element is used as follows:

1. Movie selection : Use this dropdown to choose which movie you want to load. This list is populated at launch with the folders you have created in **input**.
2. Load button: Use this button to load the movie you have selected in the dropdown. If it is the first time you load this particular movie, the loading time can be **quite long**. The software will extract in the background the audio file and every frame of the movie into separate files.
3. Main display: Will display the frame you are currently viewing. It is in this viewport that you can draw the lines you want to take measures (cf 13). The grid can be deactivated (cf 9)
4. Audio signal: A visualisation of the audio signal that was extracted from the movie you loaded. On this signal, you will see 3 vertical bars : the red one represents the frame you are currently viewing, the yellow one the frame just before (cf 5), the blue the frame just after (cf 10).
5. Frame before: Will show you the frame juste before the one you are viewing (T minus 1)
6. Frame selector: You can enter a frame number here and press go, and you will automatically go to the corresponding frame in the main display (cf 3)
7. Time selector: You can enter a timecode and press go, and you will automatically go to the frame corresponding to the timecode **nearest** the one you entered
8. Navigation buttons: Four buttons allowing you to navigate:
    - << will send you to the frame number 0
    - Previous will send you to the frame just before the one you are currently viewing
    - Next will send you to the frame just after the one you are currently viewing
    - >> will send you to the last frame of you movie
9. Grid toggle: Allow to display or hide the grid in the main display (cf 3)
10. Frame after: Will show you the frame juste after the one you are viewing (T plus 1)
11. Frame annotations: Will allow you to enter an annotation for the frame you are currently displaying. There are two fields called “Wav” and “Frame”, allowing you to add comment relation to the frame or wave timecode you are currently viewing, but they can be used to comment whatever you want. Those annotations are frame by frame, and will be exported as 2 columns when you do an export (cf 16)
12. Line name: Will display the name of the line with a background in the color that will be used to draw the line. You can change the name of the line by right-clicking its name. Those name are global to every frame of the currently loaded movie.
13. Draw line button: Click this button to enter draw mode for the corresponding line. When in draw mode, click two times in the display area (cf 3) to draw a line between those two points.
14. Line annotation: You can use this field to add a comment about this particular line for this particular frame.
15. Line length: The length (in pixels) of the line. See How to use the measures for more information
16. Delete line: Click this button to delete this line for this particular frame.
17. Line: You can see in the main display (cf 3) all the lines you draw for this particular frame.
18. Save button: Will save the comments you wrote, lines you drew etc to files in the folder of your movie. There is an automatic save that happens every 5 minutes, but you are greatly encouraged to regularly use this button to save your progress

19. Export options: You can enter a frame number to start and a frame number to end and export all you results in a CSV file you can then use in excel
20. Log window: In this window you can read all the logs generated by the software to see what is happening.

Exporting results

When you export, it will generate a CSV file. You can then open this file in excel to see the data in a spreadsheet format.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Frame number	Timecode	Frame	Wav	Line 1	Line 1_com	Line 2	Line 2_com	Line 3	Line 3_com	Line 4	Line 4_com	Line 5	Line 5_com	Line 6	Line 6_com
2	0	0.0000			0.0		0.0		0.0		0.0		0.0		0.0	
3	1	0.0400			0.0		0.0		0.0		0.0		0.0		0.0	
4	2	0.0800			0.0		0.0		0.0		0.0		0.0		0.0	
5	3	0.1200			0.0		0.0		0.0		0.0		0.0		0.0	
6	4	0.1600			0.0		0.0		0.0		0.0		0.0		0.0	
7	5	0.2000			0.0		0.0		0.0		0.0		0.0		0.0	
8	6	0.2400			0.0		0.0		0.0		0.0		0.0		0.0	
9	7	0.2800			0.0		0.0		0.0		0.0		0.0		0.0	
10	8	0.3200			0.0		0.0		0.0		0.0		0.0		0.0	
11	9	0.3600			0.0		0.0		0.0		0.0		0.0		0.0	
12	10	0.4000			0.0		0.0		0.0		0.0		0.0		0.0	
13	11	0.4400			0.0		0.0		0.0		0.0		0.0		0.0	
14	12	0.4800			0.0		0.0		0.0		0.0		0.0		0.0	
15	13	0.5200			0.0		0.0		0.0		0.0		0.0		0.0	
16	14	0.5600			0.0		0.0		0.0		0.0		0.0		0.0	
17	15	0.6000			0.0		0.0		0.0		0.0		0.0		0.0	

You will get one line per frame, with, for each frame:

1. The frame number
2. The timecode
3. Your “frame” annotation (cf interface 11)
4. Your “wav” annotation (cf interface 11)
5. The line 1 length
6. The line 1 annotation you entered
7. The line 2 length
8. Etc …

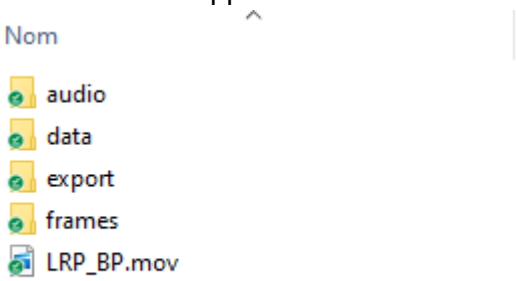
How to use the measures

The measures you get when drawing lines are expressed in pixels. It is an abstract measure: It is impossible, without any reference, to get a real world measure in cms or mms. What this software does is allow you to compare different things on the same frame or in nearby frames. Keep in mind that if the subject of your movie or your camera moves while you record it, it will not be possible to compare measures made on a frame where your subject was 50 cm from the camera and measures on a frame where he was 60 cm away from the camera.

The main purpose of this software is to allow you to compare different elements with one another. For example how much the mouth is open compared to how stretched the lips are.

Folder structure

Every folder you created for a movie will have the following structure after your first load of the movie in the application:



You will find your video file at the root of the folder and 4 subfolders

- audio : contains a wav file extracted from your video file
- data: contains yaml files with the comments and lines you draw for this movie
- export: all the csv files you created via the export buttons will be in this folder
- frames: contains all the images of the frames that were extracted from your video

Advanced tinkering

Advanced users only !
You can edit the colors of the lines for one movie by changing some files. While the software is not running, you can go to the **data** folder of the folder of the movie you want to change. In this folder, you can edit the **colors.yaml** file with a texteditor. There you will find 6 blocks (one for each line) that looks like this:

```
0: !!python/tuple
- 254
- 242
- 0
```

You can edit those 3 values as you wish. Each must be between 0 and 255, and represent the RGB value. First one is R (red), second one is G (green) and last one is B (blue). Save the file, launch the software, load the movie, the lines should be in their new colors.

About

This software was developed by Roland Trouville, Research Engineer at the Laboratoire de Phonetique et Phonologie of the CNRS, Paris, France.

You can cite the software as follows :

Trouville, Roland (2022). Physio Movie Annotation v1.1.0 [Computer program] Retrieved on 15/10/2025 from https://rtrouville.laboratoirephonetiquephonologie.fr/PMA/