Quick start guide for the graphical user interface of SPUDNIG

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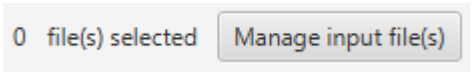
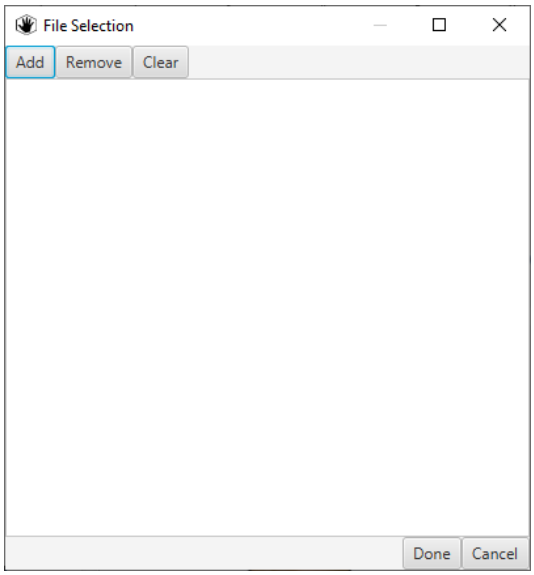
Introduction
In this quick start guide, you will be guided through the graphical user interface of SPUDNIG to get started quickly.

Before you start, there are a few things to take into consideration. Firstly, make sure that there are no spaces in the video file path, i.e. not in the folder nor in the video name itself. One of the required Python modules does not allow spaces in the video file path. Secondly, when you want to compare the velocity plots of the videos, it is important that the videos have the same frames per second rate. If they do not have a matching fps rate, rescaling is necessary to make a valid comparison. Finally, make sure to use Java 8 and Python 3 when running SPUDNIG
Available here:

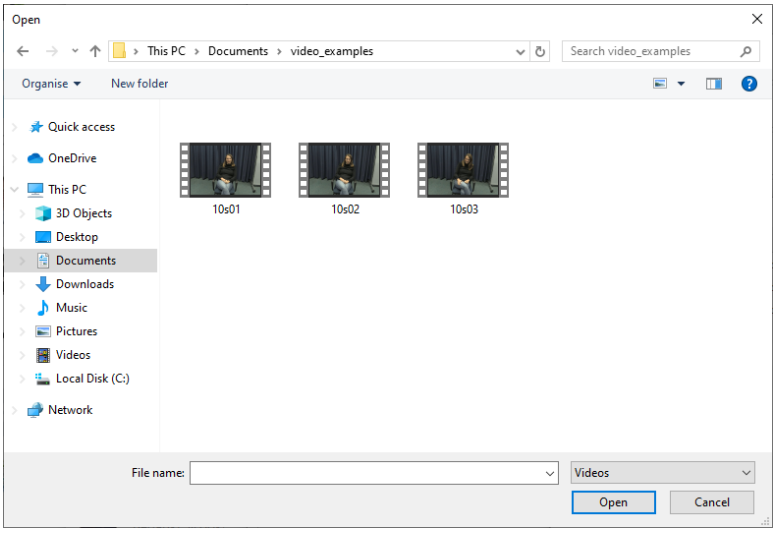
- Java: https://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html
- Python: https://www.python.org/downloads/

File selection
To start with the analysis, you will first need to select the video files that you want to be analyzed. This is done by clicking the "Manage input files" button. A window will open where you can add and remove video files.

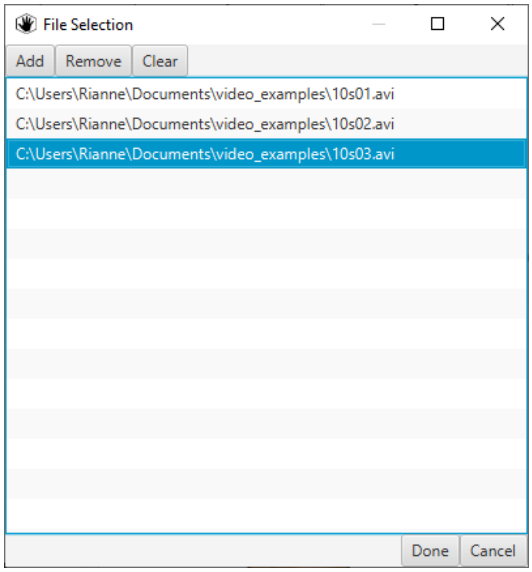


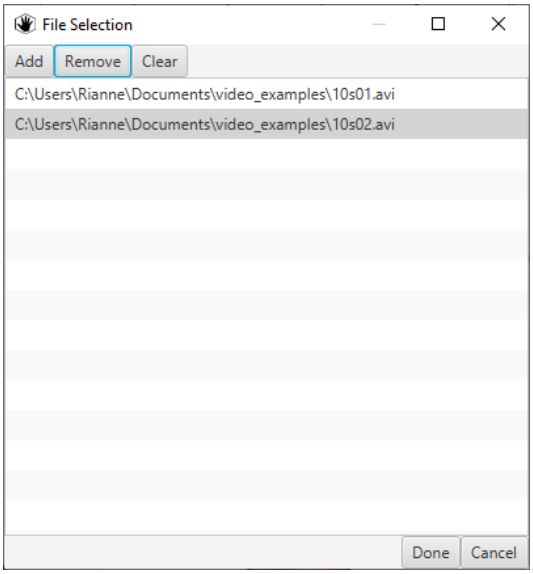


In this window the "add" button will open another window, where you can select video files from your computer. Keep in mind that spaces are not allowed in the name of the video file and in the folder. Since OpenPose works best with AVI files, the program filters the files such that only AVI files are visible and able to be selected.



You can select multiple files at once and add these to the file selection window. To remove a file, or multiple, select these and click on the “Remove” button. To delete all the files that have been selected you can click on the “Clear” button.

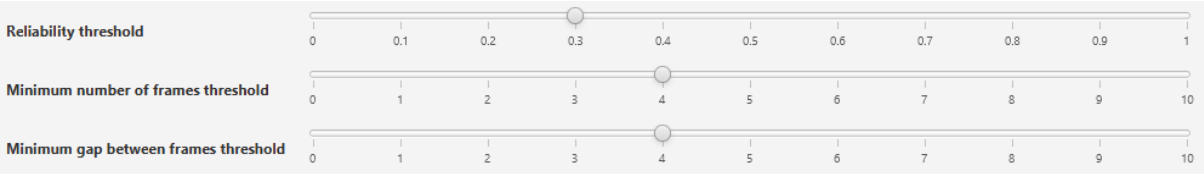




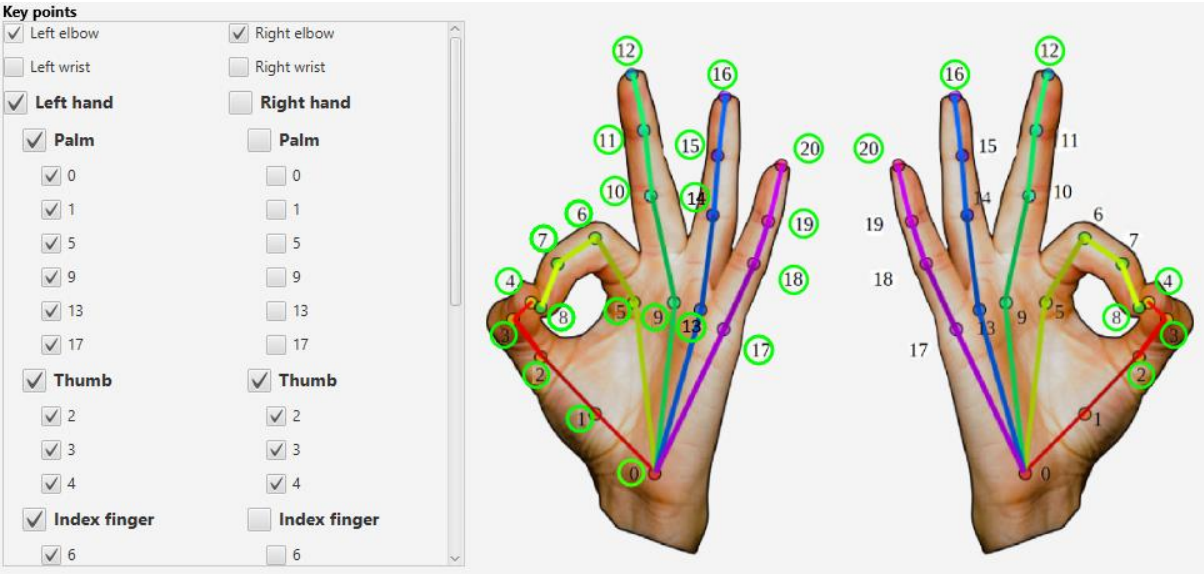
When you have selected all the files that need to be analyzed you can click the “Done” button. The file selection window will close and to the left of the “Manage input files” you can see how many files are selected.

Setup of parameters

A few parameters need to be set up before the analysis can start. There are three parameters that can be set via sliders. The first slider is the reliability threshold, it goes from 0 to 1.0 with increments of 0.1, default at 0.3. The second slider is for the minimum number of frames threshold. This slider goes from 0 to 10 with increments of 1, default is at 4. The third and final slider is for the minimum gap between frames threshold. This slider also goes from 0 to 10 with increments of 1, default at 4.

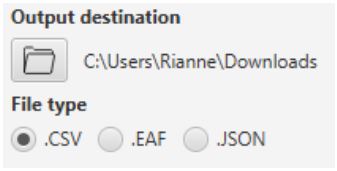


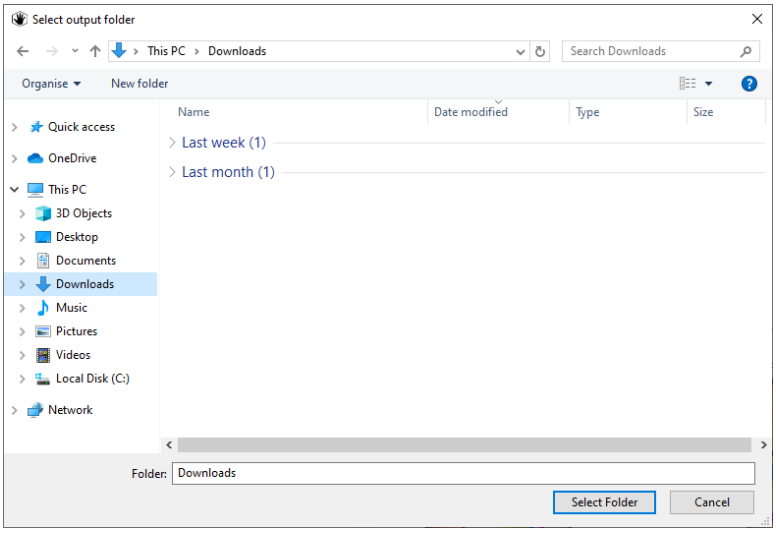
The last parameter to be set is for the key points that you want to use for the analysis. There are 21 key points per hand, another 4 key points, 2 for the elbows and 2 for the wrists. You can select individual key points, as well as whole fingers, and even whole hands. When you select a key point, the selected key point will be circled on the picture of the hands on the right side of the GUI.



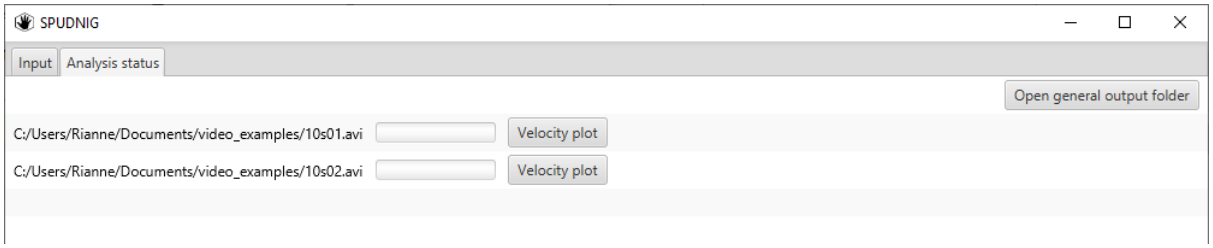
Output

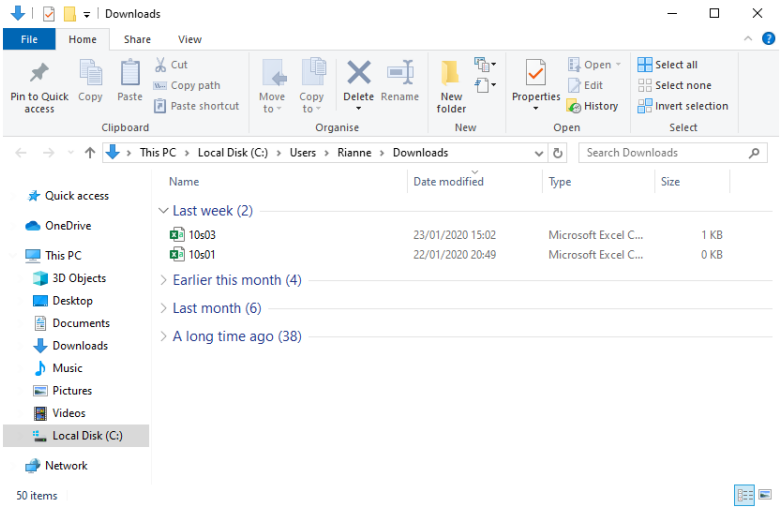
One of the final steps is to select a folder in which the output will be stored. This can be done by clicking the button with the folder icon. Consequently, you can select which kind of output you would like. There are three options: CSV, EAF, and JSON. The default is CSV.





Clicking the “Analyze” button will start the analysis of the videos and will take you to the next tab, where you can see the progress per video via progress bars. Clicking on the “Open general output folder” button, located at the top right, will open the folder where the output is stored.





You can create a velocity plot of the video by clicking the “Velocity plot” button. This will open a window where you select a folder that stores the generated velocity plot.