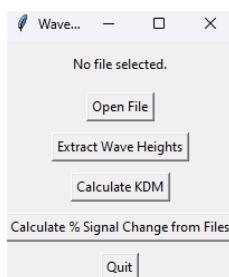


## Instructions for find\_peaks\_V4.exe

Please note that the software is not perfect and does not work with every single type of waveform, however it will vastly speed up the data analysis while I try fix in the meantime.

**Make sure that the files to be analysed have the concentration located at the start i.e. concentration – frequency / signal ON / signal OFF – trial. The concentration can be either 1uM 100uM or even 001 (0.01) 05 and it should work.**

Once the .exe is downloaded and run it will open a command prompt which will display information and any errors that occur during the software running. After some time, it will then pop up with a small window as shown:



### **Open File:**

This button will allow you to choose any channel on any concentration and display the raw data. Choosing the Smooth button at the bottom of the displayed raw data will automatically smooth the data and display the locations the software is choosing the Peaks and Troughs as well as the calculated wave height. I think this will be important to use for any values that are not working with the software as you will be able to see if the code isn't working for that particular waveform, but this button is really just to double check my software if something looks really wrong.

### **Extract Wave Heights:**

This button is to be used if you have two separate FOLDERS with one for Signal ON and one for Signal OFF, if you need to only do one folder and get average wave heights and signal change please use the Signal Change Button. Once the button is pressed the following steps must be followed (there should be instructions displayed on each window as it pops up through to double check):

1. Select the folder with all the .txt files for Signal ON.
2. Input the number of channels/electrodes there are inside of each file.
3. Select the folder with all the .txt files for Signal OFF.

4. Choose and name each of the .csv files starting with Signal ON then Signal OFF then the Raw Data.

The Signal ON and Signal OFF .csv files will contain the averages for all three channel for a given concentration file.

### **Calculate KDM:**

Once you have your Signal ON and Signal OFF .csv files you can calculate KDM with the program, once the button is pressed the following steps are followed:

1. Select the .csv with the Signal\_ON average wave heights that was output from the “Extract Wave Heights” button.
2. Do the same for the Signal\_OFF .csv file.
3. Save and name the results in your chosen folder location.

The kdm.csv file will contain the KDM values for each concentration and channel as well as the % Signal Change OFF and % Signal Change ON calculated by:

$$\% \text{ Signal Change ON} = \frac{i_{on} - i_{min-on}}{i_{min-on}} \times 100$$

$$\% \text{ Signal Change OFF} = \frac{i_{of} - i_{min-off}}{i_{min-off}} \times 100$$

### **Calculate % Signal Change:**

This button is for when you need to calculate the % Signal Change of a single frequency and/or you need the raw wave height data for a certain range of data. The steps are as follows:

1. Select all files that you would like to have the % Signal Change calculated for as well as the raw wave height data.
2. Choose the location and name your file.
3. Input the number of channels inside the files.

Note that there will be two .csv files output, the first one being the % Signal Change data and the second one called Raw\_Data will have all the wave height data that was calculated and used to find the % Signal Change.

Hopefully that is everything but if there are any issues feel free to reach out on email or messenger if that's easier!

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