

READ ME - MATLAB CHECK-CHOOSE and optional SWDs detection

IMPORTANT NOTE TO USE THE MATLAB SCRIPTS INCLUDED

1) MAKE SURE YOU HAVE:

- a) chronux_2_11 package (downloadable at <http://chronux.org/>)
- b) The Signal Processing Toolbox (can be enabled on On the main command interface, you can use Add-Ons -> Get Add-Ons, and use the Add-On Explorer to find the Signal Processing Toolbox). Free for student/academic licence.
- c) All Matlab included toolboxes selected to be used (add to path full toolbox folder with subfolders).

2) THE SWDs ANALYSIS INCLUDED IN THIS FOLDER IS SET TO BE USED ONLY WITH .dat FILES OBTAINES BY TAINITEC WIRELESS SYSTEM.

FOR SWDs AUTODETECTION ON OPEN EPHYS FILES CHECK ON <https://github.com/Gonzalez-Sulser-Team/SWD-Automatic-Identification>

CONTEXT:

- The script will allow you to obtain a .csv file with one selected EEG and one selected EMG channel to run the automatic sleep scorer on R-Studio.
 - Additionally a prompt window will ask you if you would like to run the automatic SWDs (absence-like seizures) detection on the selected EEG channel.
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WARNINGS:

- Make sure data folders and names are correctly formatted.
 - The main parsing script to open the .dat file was provided by TAINITEC (https://bitbucket.org/tainitec/data_parsing_samples/src/master/matlab/)
 - This particular version is set at a sampling rate of 250.4 Hz, to comply with specifications of data obtained through TAINITEC WIRELESS SYSTEM.
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INSTRUCTIONS:

1) CHECK AND CHOOSE BETWEEN 2 EEG AND 2 EMG CHANNELS, AND SAVE INTO .CSV FILE (MATLAB_FILES folder, Script: Taini_CheckChoose.m)

- 1.a) To run a set of animals create a .csv file using the format attached as rat_day_index_CDKL5.csv (Note BL3 in this case are split in two files that need to be merged, the script is set to do this automatically). By default columns M and O are set to "0" and can be automatically filled by the script with the selected eeg and emg channel numbers.
- 1.b) Change names for "rat", "day", "line", "pno", "p" variables (Note source .dat files are set as p "line " ratname), with ratname = [line ' ' rat]. (Example for file and Folder format for data: source_folder/CDKL5/CDKL5_1959/)
- 1.c) Run the script.
- 1.d) 2 options of EEG channels will appear along with a prompt window asking to choose (insert 1 or 2).

1.e) 2 options of EMG channels will appear along with a prompt window asking to choose (insert 1 or 2).

1.f) A .csv file will be written containing the chosen EEG and EMG channels with the format [ratname '_ ' day '_Channels.csv'], into a folder that can be specified in line 178 of the script.

2) OPTIONAL STEP: SWDs AUTOMATIC DETECTION

2.a) A prompt window will ask if you would like to run SWDs auto-detection scripts (TAINI_autodetect.m and cepstral_analysis.m plus additional scripts included in MATLAB_FILES folder)

2.b) After SWD analysis is done, a prompt window will ask you if you want to check the events: ALWAYS ANSWER YES AND CHECK IF THE EVENTS SHOWN ARE SWD IN DEED.

2.c) If SWDs are correctly detected, choose "YES" to save results, column L on rat_day_index_CDKL5.csv will be automatically filled with 1 if SWDs are found.