Processing Data How-To v2.1

Nicholas Garcia

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1 Installation

There are several steps to installing and setting up the olberg-tools program. The first is to make download the olberg-tools files from https://github.com/RoundTab1er/olberg-tools. The olberg-tools folder should be added to the path.

The second step is to install PuTTY, a client which allows the Windows computer to communicate with the computer containing the combinato cluster processing program. Go to this link, https://www.chiark.greenend.org.uk/ sgtatham/putty/latest.html, download the 64-bit installer in the first box (labelled Package Files), and install.

The third step is to set up combinato (link: https://github.com/jniediek/combinato). Installation steps are listed on that website (THIS IS ALREADY DONE FOR THE IMAC NEXT TO THE NEW WINDOWS MACHINE).

The final step is to run the setup.bat in the olberg_tools folder. This copies an important file to the combinato directory on the remote machine.

Now you should be all set up. All olberg-tools scripts are contained in the $olberg - tools$ folder.

2 Save LabChart Data

The first step is to save the data recorded in LabChart to a MatLab compatible .mat file. Remove all of the blocks that don't contain relavent data, and saveas a MatLab file. You will be given the choice of which channels to export. Only two channels are needed: the AC-coupled intracellular trace (as of writing channel 4), and the AC-coupled extracellular trace (as of writing channel 2). Move this to your MatLab path (anywhere should be fine). In addition, make sure the $olberg\_tools\_master$ folder is in your path.

3 Set up prefs

Open $olberg\_tools\_prefs$ and set up all the prefs as desired. Each variable has a comment describing its function.

Editing the preferences for the combinato clustering program requires editing *options.py*, which is located in the combinato directory on the imac. The path is /anaconda2/lib/python2.7/site-packages/combinato/combinato/options.py. The explanations of what each variable does is located here: https://github.com/jniediek/combinato/wiki/Details.

4 Convert Data

The next step is to convert the data to the form combinato requires. Combinato requires a 1xn *data* vector and a sampling rate variable named *sr*. Run $olberg\_tool\_file\_processing\_master$. This creates a folder called data in the matlab folder, and creates a subfolder for the file being processed. Once you run the script there will be a file in data/¡file_being_processed¿ named as the file you specified, with *_processed* (eg. 2017-06-07-trimmed_processed.mat) on the end.

5 Run Combinato (Clustering)

Next, run the $olberg\_tools\_combinato\_master.sh$ script. This logs into a remote system, runs combinato, and copies the output files back to your pc. It will ask you for the name of the file you are processing, minus the .mat. It will then prompt you for the password of the system you are logging into three times (hopefully this will be improved soon!).

6 Process output data

Now we convert the data (ouput as .h5 files) to .mat files. Run $olberg\_tools\_analysis\_master$.

7 Visualizing Data

This will graph the results! The script requires a file name, channel, block, and cluster id's, and the intra/extra_col variables simply designate the column where the intra/extra block data exists in the block_data array.