**INSTALLATION**

1. Download and install all-in-one Python software for Windows from: <https://code.google.com/p/pythonxy/>
2. Find the folder where Python has been installed. Normally, this is in disk C and is labelled according to the version you've downloaded. For example, version 2.7 is labelled "Python27"
3. Once you've found the Python folder, get into the following path C:\Python27\Lib\site-packages
4. In such path, copy the folder "lmfit" that can be downloaded from <https://github.com/lmfit/lmfit-py>

**INSTRUCTIONS**

1. Before running the program, you must always have ready the following information:
   1. Sampling frequency in Hz. For example: 256
   2. Complete filename paths of txt-files where were recorded 3-min eyes-closed and 3-min eyes- open conditions. For example: C:\eyes-open.txt
2. Run the Python-file labelled as "Neurophysiological\_Indexes" by double-clicking the corresponding icon. YOU DON'T NEED TO OPEN PYTHON(X,Y) APP!
3. Follow the instructions of the command window by inserting first the sampling frequency, and then the filename paths of eyes-open and eyes-close EEG files.
4. Once the command window is closed, two png-files will be created in the same folder where EEG-files are located. Find attached some examples of such png-files in this folder.

**COMMENTS**

Individual Alpha Frequency (IAF) is the frequency at which neurons are synchronized due to resting mental state. As Occipital region reflects the major synchronization activity owing to visual processing, the recording sites are O1 and O2. The present applications was programmed according the method published by (Posthuma, et al., 2001). Note that the IAF for each subject will appear as title in corresponding generated figure. Check the example.

Sensory-Motor Rhythm (SMR) index is a neurophysiological predictor proposed by (Blankertz, et al., 2010). This predictor is measured via C3 and C4 recording sites. As greater the index is, a higher-aptitude subject will be in BCI applications. Although the program has been optimized, some troubling issues need to be faced due to curve fitting tools in use. In order to have an alternative solution to any problem occurring during the EEG signal evaluation, two predictor indexes are displayed in the title of the generated figure: A and B. Note that the first index is the most optimal.

**REFERENCES**

# Blankertz, B. et al., 2010. Neurophysiological predictor of SMR-based BCI performance. *Neuroimage,* 51(4), pp. 1303-1309.

Posthuma, D., Neale, M. C., Boomsma, D. I. & de Geus, E. J. C., 2001. Are Smarter Brains Running Faster? Heritability of Alpha. *Behavior Genetics,* 31(6), pp. 567-579.