Assignment- 03
EEG classification based on visual stimuli

In this assignment, EEG data of two different classes is given to you. EEG data has been captured while an image is shown to a person. Each EEG sample is associated with the label of a class, whose image was shown to the subject while signal acquisition.

Each EEG sample contains 128 channels and 440 samples. Each class is having 50 different EEG samples. Take a typical train test ratio (80:20) and divide the EEG data. Form an ERP EEG sample (averaged over all samples of a class) for each class from training data.

You have to perform EEG classification based on the shown images. For a particular test sample, apply a decision rule (you can apply your own decision rule) to classify the sample in either of the two classes. This type of EEG classification can be used to analyze a patient's brain behavior.

For example, You can find the correlation coefficient (between -1 to +1) between the respective channels of the ERP sample and a particular test EEG sample. For each channel of a test sample, you will get two different values of the correlation coefficient. Assign a class of the signal depending on the value of the correlation coefficient. This way you will have 128 predictions for one EEG sample. Finally, apply the majority rule to find the actual label.

For any clarification regarding the assignment please contact: Rahul Mishra (D16043) / Hrishikesh Tiwari (D19037) / Fiza Parveen (S20009)