

Signal Processing 4



The tasks below refer to the provided datasets. You should deliver a report on your solutions to the **MANDATORY TASK** and **2 additional tasks** (free choice).

VEP_responses
1. Modify the script[1] so as to be applied in the case of 50 first trials and describe the impact that the outlier have on averaging and SNR (signal-to-noise ratio).
AUDITORY_MEG_reponses
2. Repeat the procedure described in script[5] after altering the "latencies-of-interest", present the new results and describe any interesting trend.
3. Modify the script[6] so as to implement ISOMAP analysis for the responses from the other auditory cortex. Compare the results with the ones obtained from the execution of the original script.
MANDATORY TASK: Classify trials of spontaneous activity (control dataset) from trials of MEG responses (stimulation session).
EPILEPSY
4. unzip the EPILEPSY_worked_example file and run script[8] (you may need to add to path the corresponding material after the unfolding). By modifying it, try to identify the less informative sensor. What is the classification performance when only features from this sensor are used to detect an ictal event.
5. Try to work the problem solved in script[8] by using (power spectral density) PSD-related features instead of Hjorth descriptors.

*"You cannot teach a man anything;
you can only help him find it within himself."*

-Galileo