Laboratorio de Sistemas de Percepción Visual con Aplicaciones en Robótica
Tecnológico Nacional de México / I.T Chihuahua
Contact:
Luis Madrid-Herrera, Juan Alberto Ramírez-Quintana
lmadrid@itchihuahua.edu.mx, jaramirez@itchihuahua.edu.mx

PVR P300 dataset

This dataset contains EEG signals acquired from 8 subject, which were recording using the device Cyton OpenBCI®. The sample rate is 250 Hz and the electrode channels positions are O1, Oz and O2. The paradigm to elicit the P300 wave is the DonchinC described in [1].

This dataset contains the raw EEG signals without any preprocessing.

For practical purposes, the dataset is in the same format of files as the dataset II of BCI Competition III [2]. Then, our dataset consists of one file .mat per subject that contains ten subfiles, five for train and five for test. The subfiles are composed by a numeric code to represent each event per sample collected:

- *Flashing*. This file indicates when a column or row^T is being intensified with the following numeric code:

$$event = \begin{cases} 1 & \text{when a column/row}^T \text{ is being intensified} \\ 0 & \text{when no column/row}^T \text{ is being intensified} \end{cases}$$

- *Signal*. Contains the EEG signals from each subject recorded in the channels O1, Oz and O2.
- *StimulusCode*. This file contains the numeric code to indicate when and which column or row^T is being intensified. Figure 1 shown the index for columns and rows^T. The numeric code for the events is shown in the next equation:

$$event = \begin{cases} 1,...,6 & \text{when a column is being intensified} \\ 7,...,12 & \text{when a row}^T \text{ is being intensified} \\ 0 & \text{when no column/row}^T \text{ is being intensified} \end{cases}$$

- *StimulusType*. This file indicates when the column or row^T that contains the target character is being intensified.

$$event = \begin{cases} 1 & \text{when the column/row}^T \text{ intensified contain the target character} \\ 0 & \text{when the column/row}^T \text{ intensified does not contain the target character} \end{cases}$$

- *TargetChar*. The target character label for each epoch.

Figure 1. a) column index from 1 to 6. b) row^T index from 7 to 12.

In case of using the dataset, please cite the following paper:

"Brain Computer Interface Speller System based on P300 Processing with Convolutional Neural Network and Low Number of Electrodes"

Bibliography

[1] “Brain Computer Interface Speller System based on P300 Processing with Convolutional Neural Network and Low Number of Electrodes”

[2] B. Blankertz, “Documentation Wadsworth BCI Dataset (P300 Evoked Potentials) - BCI Competition III Challenge 2004”, in Proceedings of the BCI Classification Contest, 2004.