Performance Logs Data Description

The performance logs, labelled ERPLogs are the in-game selections made by the player. The folders within the NF Game Performance Logs folder contain the unlabelled and labelled performance logs for each of the scenes in the neurofeedback game. ERPLogs_labelling contains the python script used to label the raw performance logs.

Neurofeedback Game Selections
The Neurofeedback game consists of 3 scenes: Autumn, Winter and Summer. In each scene, the player makes 8 mental selections of the correct flashing tag. There were 4 total flashing tags, with only one being indicated as correct. They have 3 attempts per selection, meaning that after 3 incorrect flash tag selections the selection is logged as incorrect. If a correct selection is made within the threshold of 3 attempts, it is logged as correct.

File Name
The names of the folders for the logs specify which scene the logs are from and whether the data is labelled or unlabelled. Example:

- *ERPLogsWinter*: unlabelled logs for the Winter scene
- *ERPLogsSummer_labeled*: labelled logs for the Summer scene

The contents of the labelled and unlabelled files only differ in the representation of the selections. The labelled files more clearly communicate the accuracy of selections and the number of attempts required for selections. The unlabelled files can be converted to the labelled files via the python script in the ERPLogs_labelling folder.

The naming convention for the performance log files within these folders is as follows:

- *ParticipantID_GameCondition_AbbreviatedScene_ERP_Selection_Log_Year-Month-Day_Time*
  - example: sub24_AV_Aut_ERP_Selection_Log_2025-06-05_13-40

The game condition is either audio-visual (AV) or visual (V). Each participant (of which there are 22), accordingly has 2 log files per scene.

File Contents

Only the labelled ERPLog files will be discussed, as they more clearly communicate the in-game selections and are used for further analysis.

Each file within each labelled ERPLog folder (Autumn, Winter, Summer) contains the following columns: TimeStamp, ObjectName, correct. TimeStamp indicates the time at which the selection was made. It can be used alongside the EEG logs, as the timestamps and markers correspond to the in-game selections. ObjectName identifies the selection number (1-8) and the flash tag (1-4) that was selected by the player. The row entry of ObjectName can, for example, be the following:

- *ERPTagsA4 ERPFlashTag2D (1) ERPFlashTagFeedback*
    - *ERPTagsA4*: 4th selection for this scene (out of a total 8)
    - *ERPFlashTag2D (1)*: the player selected the 1st flash tag (of a total 4)
    - *ERPFlashTagFeedback*: does not specify anything about the selection

Finally, the 'correct' column consists of binary entries that specify whether a selection was correct: 0 – incorrect, 1 – correct. Sometimes, the same selection (eg ERPTagsA6, meaning the 6th selection) will appear across multiple rows. This indicates that the first attempt at selecting the correct flash tag was unsuccessful. Consequently, a 0 will also be seen in the 'correct' column. If a correct selection is made on the first attempt, in the log file you will immediately see a 1 in the final column and the next row in the file will contain the next selection.

These logs can be used to determine the overall accuracy of selections, as well as the average number of attempts required to accurately select the correct flash tag.