

# Analysis Dataset 1: Evoked Response Potential (ERP) of affective picture (IAPS)

The following script shows how dataset 1 was analyzed using the time-GAL toolbox. EEG data can be retrieved from the OSF repository (<https://osf.io/q56ns/>) and found in folder "Dataset1\_IAPS\_ERP".

## Import/group data

The time-GAL toolbox needs data to be formatted in a specific way: One 3D (matrix channels, time, trials) and one vector indicating subject's id of each trial. These matrix and vector are needed for each condition. Here, we show the example with pleasant vs. unpleasant figures:

```
[Data_Condition_Pleasant, List_Condition_Pleasant] = groupCondition('./  
Dataset1_IAPS_ERP/', 'Data_Pleasant', 'Data', 'FileName', 'Condition_Pleasant');
```

A total of 39 files were found with tag: Data\_Pleasant      Data: [129×601×32 double]

```
Reading file: Data_Pleasant_subject_1.mat | File 1 out of 39  
Reading file: Data_Pleasant_subject_10.mat | File 2 out of 39  
Reading file: Data_Pleasant_subject_11.mat | File 3 out of 39  
Reading file: Data_Pleasant_subject_12.mat | File 4 out of 39  
Reading file: Data_Pleasant_subject_13.mat | File 5 out of 39  
Reading file: Data_Pleasant_subject_14.mat | File 6 out of 39  
Reading file: Data_Pleasant_subject_15.mat | File 7 out of 39  
Reading file: Data_Pleasant_subject_16.mat | File 8 out of 39  
Reading file: Data_Pleasant_subject_17.mat | File 9 out of 39  
Reading file: Data_Pleasant_subject_18.mat | File 10 out of 39  
Reading file: Data_Pleasant_subject_19.mat | File 11 out of 39  
Reading file: Data_Pleasant_subject_2.mat | File 12 out of 39  
Reading file: Data_Pleasant_subject_20.mat | File 13 out of 39  
Reading file: Data_Pleasant_subject_21.mat | File 14 out of 39  
Reading file: Data_Pleasant_subject_22.mat | File 15 out of 39  
Reading file: Data_Pleasant_subject_23.mat | File 16 out of 39  
Reading file: Data_Pleasant_subject_24.mat | File 17 out of 39  
Reading file: Data_Pleasant_subject_25.mat | File 18 out of 39  
Reading file: Data_Pleasant_subject_26.mat | File 19 out of 39  
Reading file: Data_Pleasant_subject_27.mat | File 20 out of 39  
Reading file: Data_Pleasant_subject_28.mat | File 21 out of 39  
Reading file: Data_Pleasant_subject_29.mat | File 22 out of 39  
Reading file: Data_Pleasant_subject_3.mat | File 23 out of 39  
Reading file: Data_Pleasant_subject_30.mat | File 24 out of 39  
Reading file: Data_Pleasant_subject_31.mat | File 25 out of 39  
Reading file: Data_Pleasant_subject_32.mat | File 26 out of 39  
Reading file: Data_Pleasant_subject_33.mat | File 27 out of 39  
Reading file: Data_Pleasant_subject_34.mat | File 28 out of 39  
Reading file: Data_Pleasant_subject_35.mat | File 29 out of 39  
Reading file: Data_Pleasant_subject_36.mat | File 30 out of 39  
Reading file: Data_Pleasant_subject_37.mat | File 31 out of 39  
Reading file: Data_Pleasant_subject_38.mat | File 32 out of 39  
Reading file: Data_Pleasant_subject_39.mat | File 33 out of 39  
Reading file: Data_Pleasant_subject_4.mat | File 34 out of 39  
Reading file: Data_Pleasant_subject_5.mat | File 35 out of 39  
Reading file: Data_Pleasant_subject_6.mat | File 36 out of 39  
Reading file: Data_Pleasant_subject_7.mat | File 37 out of 39  
Reading file: Data_Pleasant_subject_8.mat | File 38 out of 39
```

Reading file: Data\_Pleasant\_subject\_9.mat | File 39 out of 39

Saving conditionData matrix and listSubjects vector as file: Condition\_Pleasant

```
[Data_Condition_Unpleasant, List_Condition_Unpleasant] = groupCondition('./Dataset1_IAPS_ERP/', 'Data_Unpleasant', 'Data', 'FileName', 'Condition_Unpleasant');
```

A total of 39 files were found with tag: Data\_Unpleasant      Data: [129×601×26 double]

```
Reading file: Data_Unpleasant_subject_1.mat | File 1 out of 39
Reading file: Data_Unpleasant_subject_10.mat | File 2 out of 39
Reading file: Data_Unpleasant_subject_11.mat | File 3 out of 39
Reading file: Data_Unpleasant_subject_12.mat | File 4 out of 39
Reading file: Data_Unpleasant_subject_13.mat | File 5 out of 39
Reading file: Data_Unpleasant_subject_14.mat | File 6 out of 39
Reading file: Data_Unpleasant_subject_15.mat | File 7 out of 39
Reading file: Data_Unpleasant_subject_16.mat | File 8 out of 39
Reading file: Data_Unpleasant_subject_17.mat | File 9 out of 39
Reading file: Data_Unpleasant_subject_18.mat | File 10 out of 39
Reading file: Data_Unpleasant_subject_19.mat | File 11 out of 39
Reading file: Data_Unpleasant_subject_2.mat | File 12 out of 39
Reading file: Data_Unpleasant_subject_20.mat | File 13 out of 39
Reading file: Data_Unpleasant_subject_21.mat | File 14 out of 39
Reading file: Data_Unpleasant_subject_22.mat | File 15 out of 39
Reading file: Data_Unpleasant_subject_23.mat | File 16 out of 39
Reading file: Data_Unpleasant_subject_24.mat | File 17 out of 39
Reading file: Data_Unpleasant_subject_25.mat | File 18 out of 39
Reading file: Data_Unpleasant_subject_26.mat | File 19 out of 39
Reading file: Data_Unpleasant_subject_27.mat | File 20 out of 39
Reading file: Data_Unpleasant_subject_28.mat | File 21 out of 39
Reading file: Data_Unpleasant_subject_29.mat | File 22 out of 39
Reading file: Data_Unpleasant_subject_3.mat | File 23 out of 39
Reading file: Data_Unpleasant_subject_30.mat | File 24 out of 39
Reading file: Data_Unpleasant_subject_31.mat | File 25 out of 39
Reading file: Data_Unpleasant_subject_32.mat | File 26 out of 39
Reading file: Data_Unpleasant_subject_33.mat | File 27 out of 39
Reading file: Data_Unpleasant_subject_34.mat | File 28 out of 39
Reading file: Data_Unpleasant_subject_35.mat | File 29 out of 39
Reading file: Data_Unpleasant_subject_36.mat | File 30 out of 39
Reading file: Data_Unpleasant_subject_37.mat | File 31 out of 39
Reading file: Data_Unpleasant_subject_38.mat | File 32 out of 39
Reading file: Data_Unpleasant_subject_39.mat | File 33 out of 39
Reading file: Data_Unpleasant_subject_4.mat | File 34 out of 39
Reading file: Data_Unpleasant_subject_5.mat | File 35 out of 39
Reading file: Data_Unpleasant_subject_6.mat | File 36 out of 39
Reading file: Data_Unpleasant_subject_7.mat | File 37 out of 39
Reading file: Data_Unpleasant_subject_8.mat | File 38 out of 39
Reading file: Data_Unpleasant_subject_9.mat | File 39 out of 39
```

Saving conditionData matrix and listSubjects vector as file: Condition\_Unpleasant

Once grouped all data from the folder of subject's files in two conditions data, it is saved on a file and workspace. We can use either the workspace data or load it again in a new session:

```
% load('Condition_Pleasant.mat');
% load('Condition_Pleasant.mat');
```







