Introduction

A tool for predicting and visualizing the fMRI brain activity during bidirectional conversations of type human-human or human-machine.

Dependencies

- python>=3.6
- Openface is required (https://github.com/TadasBaltrusaitis/OpenFace) to compute facial features from videos.

Demo: using Qt Creator Interface

The working directory must be specified and must contain an Inputs folder containing speech, eyetracking, and video folders.

```
./BrainPredict
```

Demo: using the command line

- To run a demo, we need a video file (of the interlocutor), and the audios of both the participant and the interlocutor, and an eyetracking file of the participant.
- A example is provided in the folder "Demo". To run the example:

```
# Generate time series
python src/predict.py -rg 1 2 3 4 5 6 -t r -ofp "path_to_openface" -pmp PredictionModule -in
# Make predictions
python src/predict.py -rg 1 2 3 4 5 6 -t r -ofp "path_to_openface" -pmp PredictionModule -in
# Generate animated prediction in video from the obtained predictions
python src/animation.py -in Demo
# Using visbrain to visualize the predictions in the brain
python src/visualization.py -in Demo

--regions REGIONS [REGIONS ...], -rg REGIONS [REGIONS ...]
--type TYPE, -t TYPE  conversation type (human or robot)
--openface_path OPENFACE_PATH, -ofp OPENFACE_PATH
                      path of Openface
 -pred_module_path PRED_MODULE_PATH, -pmp PRED_MODULE_PATH
                      path of the prediction module
--input_dir INPUT_DIR, -in INPUT_DIR
                      path of input directory
--generate, -g        generate features from input signals
--predict, -p         make predictions
```

- The obtained time series, predictions, and visualization videos are stored in Demo/Outputs.