0. Sections

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1. PROJECT

Title: Brain-Computer Music Interface for Monitoring and Inducing Affective States (BCMI-MIdAS)

Dates: 2012-2017

Funding organisation: Engineering and Physical Sciences Research Council (EPSRC)

Grant no.: EP/J003077/1

2. DATASET

Title: EEG data during ‘peaceful’ auditory processing at different tempi.

Description: This dataset accompanies the publication by Nicolaou et al. (2017) (please see Section 5 for full reference). The purpose of the research activity in which the data were collected was to investigate how tempo affects the EEG connectivity between different electrodes. For this purpose the participants listened to 'peaceful' music clips at 4 different tempi (50, 100, 150 and 200 beats per minute). To isolate changes related to tempo from changes related to acoustic stimulation, the participants also listened to noise clips generated from the original music clips. Differences in connectivity from a resting state were also studied to isolate the effect of acoustic stimulation. The dataset contains the EEG data while the participants listened to the music and noise clips, and the EEG data from resting state.

Publication Year: 2017

Creators: Nicoletta Nicolaou, Asad Malik

Contributors: Ian Daly

Principal Investigator: Slawomir Nasuto.

Organisation: University of Reading

Source: The original music clips used as stimuli were described in Vieillard et al. (2008), “Happy, sad, scary and peaceful musical excerpts for research on emotions”, Cognition and Emotion 22(4), 720-752. doi: 10.1080/02699930701503567.

3. TERMS OF USE

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4. CONTENTS

Zip File listing:

The zip file contains 21 mat files, named using the convention:

"P*number*_BCMI_frontHN_2017.mat", where *number* corresponds to a random participant number from 1 to 21. For example, file "P8_BCMI_frontHN_2017.mat" contains the EEG data of Participant 8.

The data is provided in a *.mat format for MATLAB. The sampling rate is 1 kHz and the EEG corresponding to a music or noise clip is 9.5 s long (the duration of the clips).

Each *.mat file contains the variables "music", "noise", and "base", corresponding to unprocessed raw EEG data collected during listening to music clips, listening to noise clips and resting state respectively.

1. "music" is a structure variable containing the following fields:

- data: EEG data obtained while participant was listening to the music clips, with eyes open and looking at a fixation cross on a pc screen in front them; data has dimensions (9500 samples x 19 channels x 12 trials). EEG channel locations are as follows: Fp1, Fp2, F7, F3, Fz, F4, F8, T3, C3, Cz, C4, T4, T5, P3, Pz, P4, T6, O1, and O2. Reference: FCz, ground: AFz.

- tempo: the tempo of the clip corresponding to each trial; dimensions: (1 x 12 trials).

- clip: the name of the corresponding original music stimulus file; dimensions: (12 trials x 3 characters).

2. "noise" is a structure variable with the same fields and dimensions as "music". The EEG data were obtained while listening to the noise clips.

3. "base" is a variable containing EEG data from the 5-minute baseline resting state task while participants had their eyes open and looked at a fixation cross on a pc screen in front of them; dimensions: (300000 samples x 19 channels).

5. METHOD and PROCESSING

This information is available in the publication:

N. Nicolaou, A. Malik, I. Daly, J. Weaver, F. Hwang, A. Kirke, E.B. Roesch, D. Williams, E.R. Miranda, S. Nasuto (2017), "Directed motor-auditory EEG connectivity is modulated by music tempo", Front. Hum. Neurosci. doi: 10.3389/fnhum.2017.00502.

Please cite this reference if you use this dataset in your study.

Thank you for your interest in our work.