Gmail by Google

Alex Schlegel <schlegel@gmail.com>

Picture Memory Data

7 messages

Peter Horak <peter.c.horak@gmail.com> Mon, May 18, 2015 at 12:32 PM
To: "Alexander A. Schlegel" <Alexander.A.Schlegel.GR@dartmouth.edu>

Hi Alex,

I copied the picture memory data for one subject to /home/tselab/projects/alex_mvpa on wundt. The 4 files correspond to the 4 picture memory sessions (encode 150 pictures, identify 100 pictures 20min later, identify 100 pictures the next day, identify 100 pictures the day afrter). The data is saved as a structure with the following fields:
data - the ECoG data as a channel x sample x trial 3D array
shape - indicates to what each dimension of the array corresponds
channel - a cell array of the channel labels
time - an array the times of each sample relative to stimulus onset (the pictures were presentecd for 3sec each)
trial - a struct array with one element for each trial and the following fields
    correct - a string indicating whether the subject identified the picture correctly or not (each encode event is given the label of the corresponding event in the later, recall sessions)
    category - the category of the image presented
    image - the name of the image presented
    presentation - a string indicating whether this is the first or second time the image has been presented
    session - a string indicating whether the event is from a encode or recall session ('recall' should really be replaced with 'identify' or 'recognize')
fs - the sample frequency (I downsampled to 400Hz from 1600Hz)

A few other notes: 1) When looking through the data I saw a number of major interictal spikes. I left the trials containing them in the dataset for now but wanted to warn you that they are there and need to be accounted for (probably removed). 2) This dataset was collected before we realized that the clinical system applies a 1-70Hz bandpass filter when we export data unless we explicitely specify otherwise. I tried re-exporting the data without the filter, but then had some trouble extracting events from the sync channel. What range of frequencies do you plan to analyze? If you need to look at frequencies above 70Hz I can continue to work on re-exporting the data. I just decided to send you what I had for now since the re-export was being a pain.

Let me know if I've overlooked anything or you have questions about the data/experiment.

--Peter

Alex Schlegel <alexander.a.schlegel.gr@dartmouth.edu> Tue, May 19, 2015 at 1:26 PM
Reply-To: schlegel@gmail.com
To: Peter Horak <peter.c.horak@gmail.com>

Thanks a lot, Peter! Some questions:

1) What's the standard way of identifying and dealing with the interictal spikes? Can I just set an amplitude threshold over which a trial will be rejected?

2) I would like to have the ability to consider frequencies potentially below 1Hz and up to around 150Hz, so if you can figure out how to get the data without that bandpass filter, that would be great. Couldn't you just export again without the filter but use the events data from the existing filtered data? I can start with these data, regardless.

3) How can I find out where these electrodes are?

4) Are these data preprocessed in any way other than the bandpass filter, downsampling, and segmentation into

epochs?

Thanks!
Alex
[Quoted text hidden]

Peter Horak <peter.c.horak@gmail.com> Tue, May 19, 2015 at 3:19 PM
To: Alex Schlegel <schlegel@gmail.com>

Hi Alex,

1) The standard method is manual review by a clinician though there have been various attempts to automatically detect them. For your purposes though, you just need to remove artifactual trials, so an amplitude threshold should be fine. Markus spent some time experimenting with this and found that calculating the range of amplitudes (max-min) and range of slopes (diff) for each trial and removing those trials with outliers works well.

2) I will keep looking into this. I don't have the start time of the original data that I was able to align, so I need to do it over again. Since I already did it before, I'm not sure why it is being a problem this time.

3) Do you need exact locations or just a rough picture?

4) I removed a few bad channels, rereferenced the data to the average of all remaining electrodes, resampled to 400Hz, and cut the data into segments of 5 seconds each (1sec before presentation, 3sec picture presentation, 1sec after presentation).

--Peter
[Quoted text hidden]

Alex Schlegel <schlegel@gmail.com> Tue, May 19, 2015 at 3:23 PM
To: Peter Horak <peter.c.horak@gmail.com>

Thanks Peter.

> 3) Do you need exact locations or just a rough picture?

I need to know enough to decide which electrodes to include in my analysis. Ideally I could look at an image that shows where the electrodes are in the patient's brain. Do you have something like labeled MRI/CT scans? If I find anything, I'll eventually need more precise locations/coordinates.

Alex

Peter Horak <peter.c.horak@gmail.com> Tue, May 19, 2015 at 3:31 PM
To: Alex Schlegel <schlegel@gmail.com>

There usually is a powerpoint for each subject with images of an MRI/CT coregistration. I will try to get it for this patient. We also can request the raw MRI and CT scans as DICOM files but don't currently have a pipline in place for coregistering them etc.

--Peter
[Quoted text hidden]

Peter Horak <peter.c.horak@gmail.com> Wed, May 20, 2015 at 11:23 AM
To: Alex Schlegel <schlegel@gmail.com>

I created a folder ~/alex_mvpa on helmholtz (I couldn't log into wundt) with a pdf that includes electrode labels, images of the electrode placements (MRI/CT), and the numbering of the electrode grids. The folder also contains

an MNI brain and electrode segmentations as nifty files.

--Peter
[Quoted text hidden]

Alex Schlegel <schlegel@gmail.com> Thu, May 21, 2015 at 7:34 AM
To: Peter Horak <peter.c.horak@gmail.com>

Thanks Peter.

Kevin is in the process of reinstalling wundt. Speaking of which, you should store all of the files you don't want to lose inside /home/tselab/studies on these computers. That is that only folder that is regularly backed up to tsestorage. Anything else is liable to be lost if a hard drive fails.

The folder I'm using for this project is on ebbinghaus in ~/studies/dcclassify, so I'll move the pdf there.

Thanks again!
Alex

[Quoted text hidden]