HOPLAB: BIDSify nifti dataset

Some valuable links first:

<https://bids-specification.readthedocs.io/en/stable/01-introduction.html>

<http://reproducibility.stanford.edu/bids-tutorial-series-part-1a/#man13>

<https://en.wikibooks.org/wiki/SPM/BIDS>

<https://github.com/bids-standard/bids-starter-kit/wiki>

Step 0: download JSONio library for matlab

<https://github.com/gllmflndn/JSONio>

In matlab: addpath '/Applications/JSONio-master'

Step 1: create folder structure

Example (with project, sub, and ses label):

PS: I also have a folder beh to store my behavioral data in, and as far as I understood it, such a folder belongs in the ‘sourcedata’ folder

A screenshot of a social media post

Description automatically generated

Step 2: transfer nifti files to correct folders

Meaning, per subject, per session (if relevant), to func anat or beh (or e.g. dwi if you have this)

Step 3: rename your nifti files

Example: sub-01\_ses-01\_task-experimental\_run-1\_bold.nii = func

sub-01\_ses-01\_T1w.nii = anat

PS: if you have a lot of files to rename, do it using matlab/python to save you time

Step 4: create .tsv file for every SPM onsets file you have

Use Ineke’s script as a good starting point (‘SPM\_onsetsfile\_to\_BIDS.m’); or if you don’t have SPM onsets file yet -> <https://github.com/bids-standard/bids-starter-kit/blob/master/matlabCode/createBIDS_FullExample_events_tsv.m>

!This code has been written and works for how my SPM onsets file structure; I tried to make the code flexible so it can do its job whatever structure but be wary and check it does its job correctly for your SPM file!

For each task; each run, you'll need a .tsv with the name sub-01\_ses-01\_task-XXX\_run-01\_events.tsv OR

* if it's the same for all runs but not all subs, you can have only 1 per sub
* if it's the same for all subs and all runs, you can have only 1 for all subs
* if it's the same for all subs but not all runs, you can have 1 per run for all subs

!place accordingly in folder hierarchy

Step 5: create .json file for every nifti file you have

<https://github.com/bids-standard/bids-starter-kit/blob/master/matlabCode/createBIDS_bold_json_full.m>

<https://github.com/bids-standard/bids-starter-kit/blob/master/matlabCode/createBIDS_anat_Full_T1w_json.m>

Different script from Ineke for the anat and for the func (‘create\_jsonfile\_bold’ or ‘\_T1w’)

An excel file called echo spacing contains formulas to calculate effective echo spacing and total readout time, for the func sequence runs (you need ETL = EPI factor, WFS, SENSE or whatever factor (MB factor can be ignored); these things you can get from a .txt file that you can create from the sequence parameters on the MR scanner computer)

!If you have ParRec or Dicom available, use dcm2niix since this will create both nifti and json files for you

PS: make your life easier by collecting not just nifti from the scanner ;)

Step 6: create dataset\_description.json file to put in project/ (e.g. project/Nifti)

See ‘create\_jsonfile\_datasetdescription.m’

Step 7: create participants.tsv to put in project/ (e.g. project/Nifti)

See ‘create\_jsonfile\_participants.m’

Last step: run BIDS validator (& MRIQC)

<https://bids-standard.github.io/bids-validator/>

python script that runs MRIQC on your BIDS dataset: <https://gist.github.com/marcoaqil/c0e0584513fd482d6ea8e9b164b7c1f4>

Now you’re ready for any BIDS app ;-)

Credit to many of the scripts found here: <https://github.com/bids-standard/bids-starter-kit/tree/master/matlabCode>