

Run all your fMRI univariate analysis with one JSON file and 50 lines of code.

bidspm: an SPM centric BIDS app



Features

- standardized inputs
- BIDS raw data
- BIDS derivatives data

BIDS app API

```
%% smooth
bidspm(fmriprep_dir, ...
       output_dir, ...
       'subject', ...
       'action', 'smooth', ...
       'task', {'Motion'}, 'space', ...
       {'MNI152NLin6Asym'}, 'fwhm', 6);

%% stat
bidspm(bids_dir, output_dir, 'subject', 'action', 'stats', ...
       'preproc_dir', preproc_dir, 'model_file', model_file, ...
       'fwhm', 6);

bidspm(bids_dir, output_dir, 'dataset', 'action', 'stats', ...
       'preproc_dir', preproc_dir, 'model_file', model_file, ...
       'fwhm', 6);
```

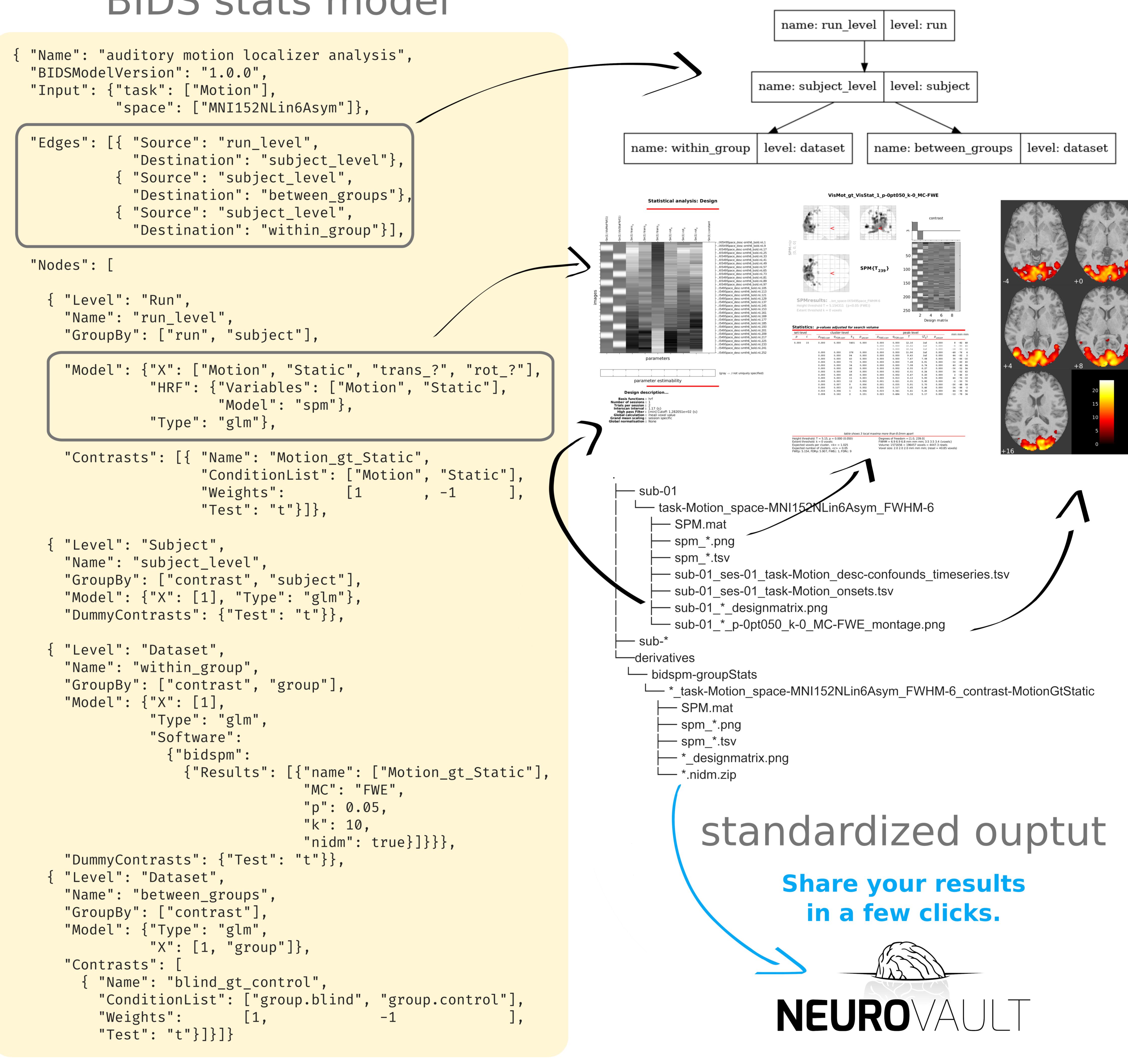
```
docker run -it --rm \
-v $bids_dir:/raw \
-v $output_dir:/output_dir \
-v $model_dir:/models \
cpplab/bidspm:latest \
/raw \
/derivatives \
subject \
--action stats \
--preproc_dir /output_dir/derivatives/bidspm-preproc \
--model_file /models/smdl.json \
--fwhm 6
```

Other features

- mass univariate or ROI
- bayesian model comparison

BIDS stats model

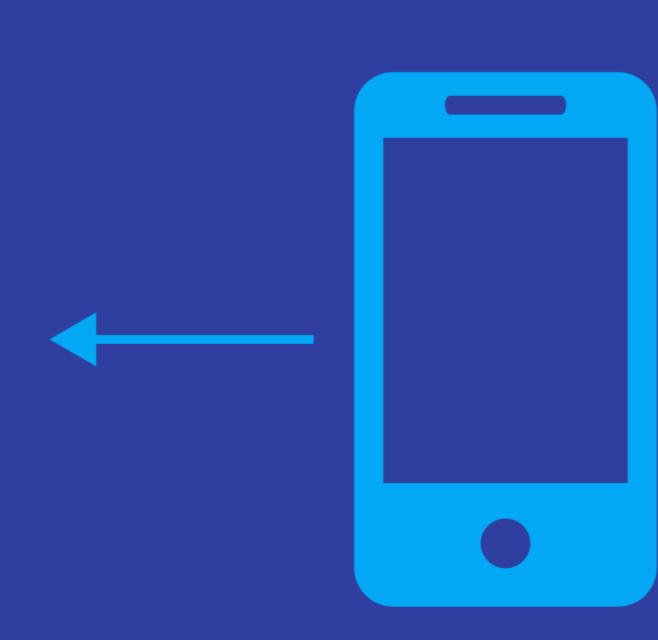
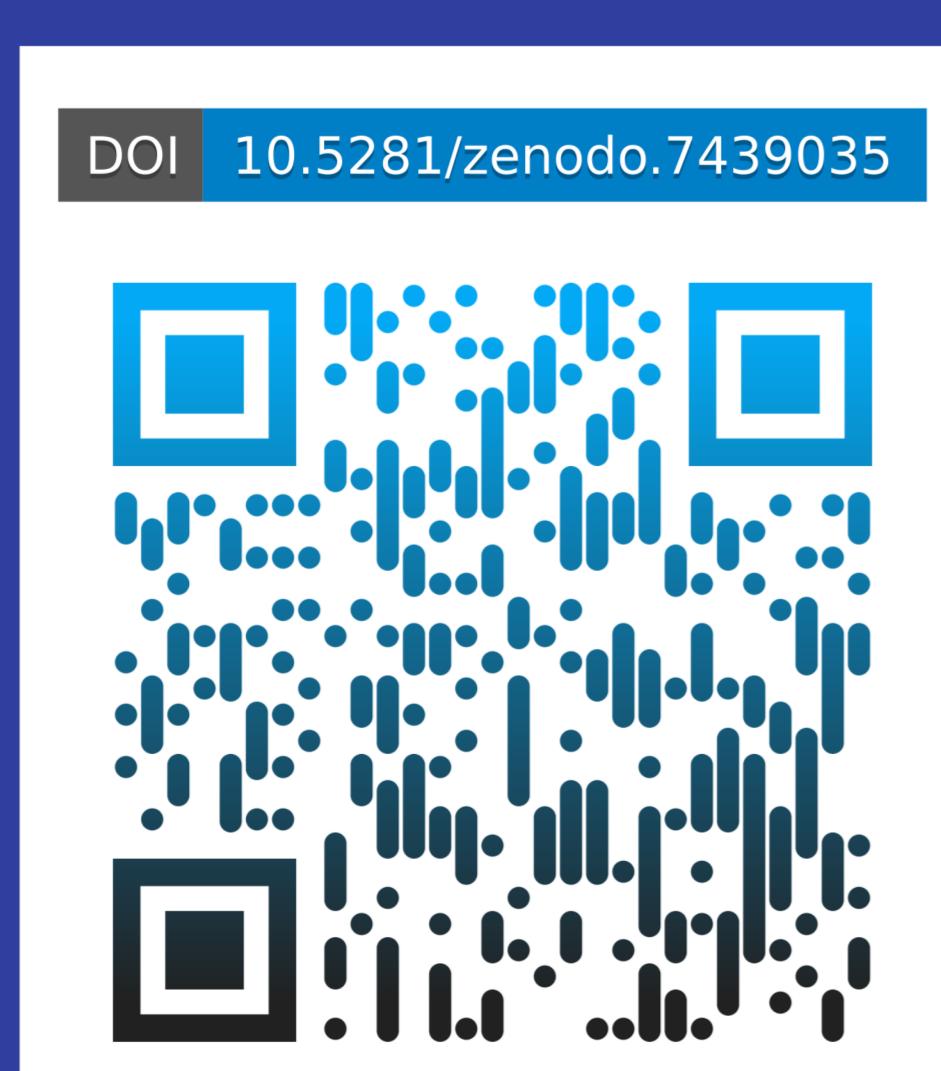
```
{
  "Name": "auditory motion localizer analysis",
  "BIDSModelVersion": "1.0.0",
  "Input": {"task": ["Motion"], "space": ["MNI152NLin6Asym"]},
  "Edges": [{"Source": "run_level", "Destination": "subject_level"}, {"Source": "subject_level", "Destination": "between_groups"}, {"Source": "subject_level", "Destination": "within_group"}],
  "Nodes": [
    {"Level": "Run", "Name": "run_level", "GroupBy": ["run", "subject"]},
    {"Model": {"X": ["Motion", "Static", "trans_?", "rot_?"], "HRF": {"Variables": ["Motion", "Static"], "Model": "spm"}, "Type": "glm"}, "Contrasts": [{"Name": "Motion_gt_Static", "ConditionList": ["Motion", "Static"], "Weights": [1, -1], "Test": "t"}]},
    {"Level": "Subject", "Name": "subject_level", "GroupBy": ["contrast", "subject"], "Model": {"X": [1], "Type": "glm"}, "DummyContrasts": {"Test": "t"}},
    {"Level": "Dataset", "Name": "within_group", "GroupBy": ["contrast", "group"], "Model": {"X": [1], "Type": "glm", "Software": {"bidspm": {"Results": [{"name": "Motion_gt_Static", "MC": "FWE", "p": 0.05, "k": 10, "nidm": true}]}}}, "Contrasts": [{"Name": "blind_gt_control", "ConditionList": ["group.blind", "group.control"], "Weights": [1, -1], "Test": "t"}]}
  ]
}
```



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