ISC-toolbox: Group comparison

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What?

- To compare ISCs of two groups of subjects
- A new feature in the version 3.0 of the toolbox
- Stimulus/task must be same for both groups; Especially, fMRI time series must be of the same length
- Pre-processing as in basic ISC analysis
- Statistics via a permutation test - see https://www.biorxiv.org/content/10.1101/370023v1 for details
How?

You need 2 groups of subjects

Check compute ISC difference maps checkbox
Group comparison settings

Set test-type as unpaired (group)

Group permutation type should be SW; Other choices lead to incorrect results and they will be removed from later versions

Recommended to set this on

Experimental feature; not recommended if you are uncertain about its function

These relate to cluster Extent based multiple comparisons correction; If you have read the stats paper linked on the first page, these choices apply only for global models at the moment

5000 should be enough. We do fine tune restricted set of voxels automatically.

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Session comparison

• If you want to compare two different stimuli on the same subjects
• Time-series length must still be equal
Files

• In the PFsession directory – for most up-to-date info see PfsessionFiles.wiki in the wiki sub-directory

• The most important ones:

• **z_nonparametric1Band0.nii** : Z-values with voxel-wise models. Obtained from voxel-wise permutation test yielding different model for each voxel

• **pvalmaps3D1Band0.nii** : Uncorrected p-value map, referring to ZsumStat1.mat, all voxels with the same model
Files

- In the results directory, up-to-date info resultsFiles.wiki

- **SessionComparison1Band0ThresholdsWin0_Group_SW_MCConly_0_25000.csv**: Group comparison thresholds, use these to threshold group comparison maps. There are several thresholds which apply to different files as explained in resultsFiles.wiki

- Note that this file may be named differently based on the options used.
Finally

• Read the stats paper:
  https://www.biorxiv.org/content/10.1101/370023v1
  Please cite the paper if you use the methods implemented in the ISC toolbox

As a general reference for the toolbox, we recommend