

E-mail: micca.gin@gmail.com

Version: V1

Date: March 30th, 2016

MICCA is a Matlab toolbox which implement a multi-scale unsupervised clustering algorithm of independent components detected using single subject independent component analysis (ICA) from a subject cohort. ICA is a powerful way to investigate functional connectivity of the human brain recorded by functional magnetic resonance imaging (fMRI).

Article:

A novel group ICA approach based on multi-scale individual component clustering. Application to a large sample of fMRI data, Mikaël Naveau, Gaëlle Doucet, Nicolas Delcroix, Laurent Petit, Laure Zago, Fabrice Crivello, Gaël Jobard, Emmanuel Mellet, Nathalie Tzourio-Mazoyer, Bernard Mazoyer, Marc Joliot, *Neuroinformatics* (2012) 10:269-285.

<https://dx.doi.org/10.1007/s12021-012-9145-2>

Copyright

This atlas is protected by copyright; you can freely use it for none profit research purposes, providing the above reference is cited. For other use please contact us through micca.gin@gmail.com

Note that you are not allow to redistribute the MICCA, please us the email to get the distribution with a valid serial number.

The distribution includes 5 matlab files:

micca.m (main routine), micca_clustering.m, micca_fast_corr.m, micca_full_connected_set.m, micca_sort_group.m

Two ascii files provided as example of inputs:

- The ICA nifti file (One 4D file per subject) "liste_IC_test.txt" :

subjectname IC-number 3D ICA localisation
t0001 1 /data/... /t001/.../melodic_IC.nii,1
t0001 2 /data/... /t001/.../melodic_IC.nii,2
t0001 3 /data/.../t001/.../melodic_IC.nii,3
t0002 1 /data/.../t002/.../melodic_IC.nii,1
t0002 2 /data/.../t002/.../melodic_IC.nii,2
t0002 3 /data/.../t002/.../melodic_IC.nii,3

- The mask file (1 for brain voxels 0 otherwise) , one per subjects "liste_mask_test.txt" :

/data/... /t001/.../mask.nii
/data/... /t002/.../mask.nii

Additional parameter

- The threshold define the inclusion of the component in the analysis. It is optional and if not provided it will be computed (See Naveau et al. 2012).

To run the program :

launch matlab

add the path to spm12 distribution

[vol group] = micca('liste_IC_test.txt','liste_mask_test.txt',[thresh])

Marc Joliot, GIN,IMN E5/UMR5293, 2021

