**fMRI Timeseries extraction from NIFTI data**

By following this procedure you will be able to extract 190 channel fMRI timeseries from 4-dimensional fMRI data (3D in space and 4th Dim is time), as per the cc200 template.

**Brief instructions**:

- Have the NIFTI toolbox loaded into Matlab path

- Have preprocessed data ready

- Put all data (NIFTI files: hdr/img) in 'data\_do' folder (nothing else should be in that folder)

- Run the timeseries-extraction code (Extract\_timeseries.m)

- Timeseries extracted files save into the 'data\_save' folder

**Detailed instructions:**

Here is the detailed procedure you may follow in order to extract timeseries from your NIFTI data: (This holds good for NIFTI data wherein each subject's data is in a folder which has hdr/img pair files). You may need to refer to the **timeseriesextract** folder supplied by me to follow the instructions, which has all the necessary codes along with the folder structure.

Prerequisites:

Have the following toolbox loaded into Matlab path-

NIFTI Toolbox

1. Preprocess the data

Have all preprocessed data in the 'todo' (i.e. to-do) folder. It is not a necessity, but may help keep the whole process organized

1. Kindly open the **timeseriesextract** folder before proceeding. It has many files and folders, and you need to refer to those files/folders in order to understand the instructions given below. The files in the folder are as below:

* *cc200\_91x109x91.nii* : cc200 template
* *cc200\_centroids.mat* : contains the centroids and names of all the 190 channels in the same order in which the 190 channels are extracted
* *channels\_190.xlsx :* contains all 190 channels with their names. Information taken from cc200\_centroids.mat file
* *Extract\_timeseries.m :* extracts timeseries from all subjects, folder-wise (one after the other) present in 'data\_do' folder. Timeseries data is saved as Tx190 MAT file for each subject (T=timepoints) in the 'data\_save' folder.

1. Put data of all subjects, i.e. NIFTI files (hdr/img) for all subjects, in the **data\_do** folder.

-Warning: There should be no other files than your subjects inside the **data\_do** folder.

-Warning: Once you start program execution, do not move or delete any subjects in the **data\_do** folder, including completed subjects.

1. Run the Timeseries extraction code (***Extract\_timeseries.m***). Timeseries extracted files are saved in the **data\_save** folder. They are MAT files of size Timepoints\*190 and will have the same filename as the input data filename

Estimated execution time on a 3.30GHz Intel Xeon computer with 16GB RAM:

Timeseries extraction - 10min per subject

(each subject had 1000 time points, each being 91x109x91 image)

Estimated file sizes per subject:

NIFTI files = 3.36GB

Timeseries MAT files (1000x190) = approx 790KB