

The NIAK connectome pipeline

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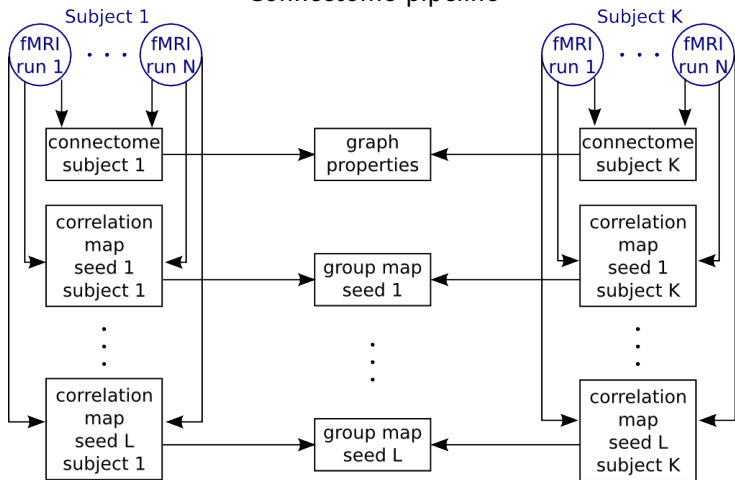


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CRIUGM, DIRO, Udm



Connectome pipeline



The networks and seeds input files have not been included for clarity.

User template

Grab preprocessed data

```
opt_g.min_nb_vol = 100;  
opt_g.min_xcorr_func = 0.5;  
opt_g.type_files = 'glm_connectome';  
files_in.fmri = niak_grab_fmri_preprocess('/data/fmri_preprocess',opt_g).fmri;
```

1. Set the minimum acceptable number of time frames that passed scrubbing.
2. Minimum spatial correlation between the individual BOLD volume and a group average (QC tool on coregistration).
3. Prepare the files to feed in the connectome pipeline
4. Grab the files

Input files

`files_in.networks`



network label

`files_in.seeds`

	A	B
1		roi_basc
2	PCC	1
3	dMPFC	12
4	aMPFC	42
5	dMPFC2	46
6	TPJ	49
7	PCUN	53
8	PHC	62
9	FUS	71

number of
the network

User template ... continued

Input file: brain parcellation

```
files_in.networks = '/home/pbellec/svn/niak/template/roi_aal_3mm.mnc.gz';
```

Input file: seed regions (csv files)

```
files_in.seeds = '/home/toto/database/list_seeds.csv';
```

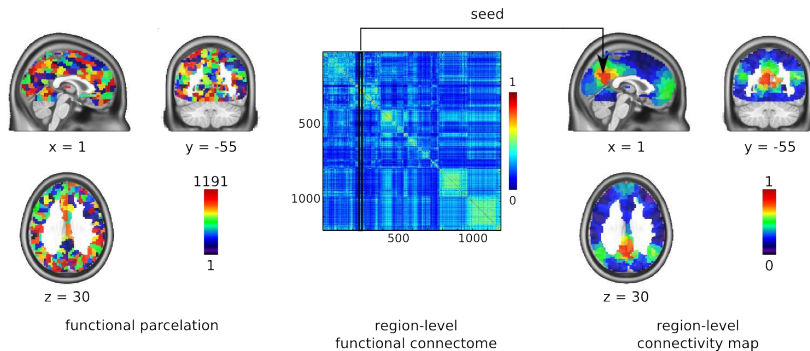
Options

```
opt.connectome.type = 'Z'; % The type of connectome.  
opt.connectome.thresh.type = 'sparsity-pos'; % how to binarize the connectome.  
opt.connectome.thresh.param = 0.2; % the cut-off on connectivity
```

Run the pipeline

```
pipeline = niak_pipeline_connectome(files_in,opt_pipe);
```

Output: individual connectomes



Saved in individual .mat files.

Output: graph properties

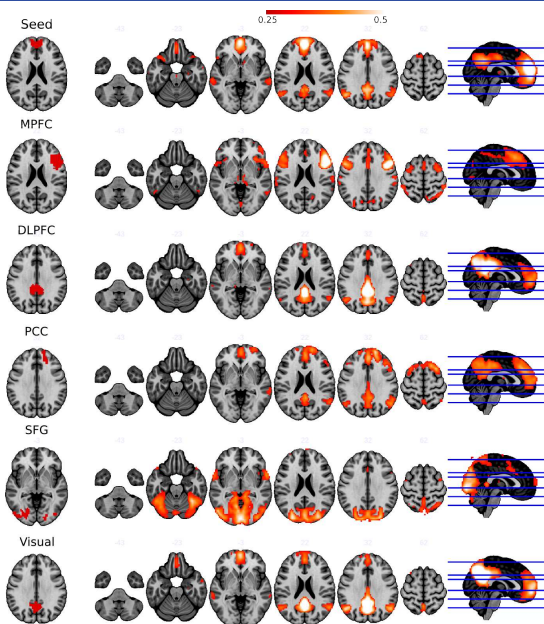
	A	B	C	D
1		Dcentrality_DLPCI	Dcentrality_DMO	Dcentrality_FUS
2	session1_sub05676	-0.4180975675	0.1320308108	0.2420564864
3	session1_sub08224	0.7485541619	-0.1643167673	-0.5294651389
4	session1_sub08889	2.4971908638	-0.7043358847	-0.5442595472
5	session1_sub09607	1.0599716142	0.1382571671	0.1382571671
6	session1_sub14864	0.1862837144	0.6943302082	0.6943302082
7	session1_sub18604	1.1220449913	1.3059867931	1.8578121986
8	session1_sub22894	-0.5935012783	1.0648111169	1.0648111169
9	session1_sub27641	0.3672248004	0.2797903241	1.0667006108
10	session1_sub33259	1.1411152971	-0.4251213852	-0.089499239
11	session1_sub34482	1.3486391285	0.1226035571	1.1442998666
12	session1_sub36678	1.7417839427	0.3440560875	1.3117138334
13	session1_sub38579	-0.1304375846	0.3587033577	0.1956563769
14	session1_sub39529	1.1375060069	-0.8204961361	1.7901733879

• • •
graph metrics

-
- subjects
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Graph properties are generated with the brain connectivity toolbox
<https://sites.google.com/site/bctnet/Home/functions>. See Rubinov
and Sporns, Neuroimage 2010.

Output: connectivity maps



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