

WEEK 7

tried to acquire ADNI raw data

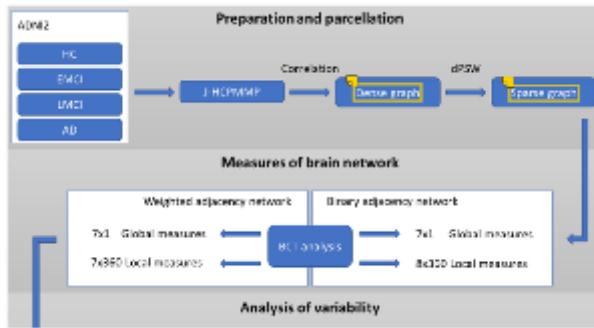
applied for ADNI database access (Apr. 3)

request approved (Apr. 5)

[ADNI](#)

[account]

tried to process the data as article 1



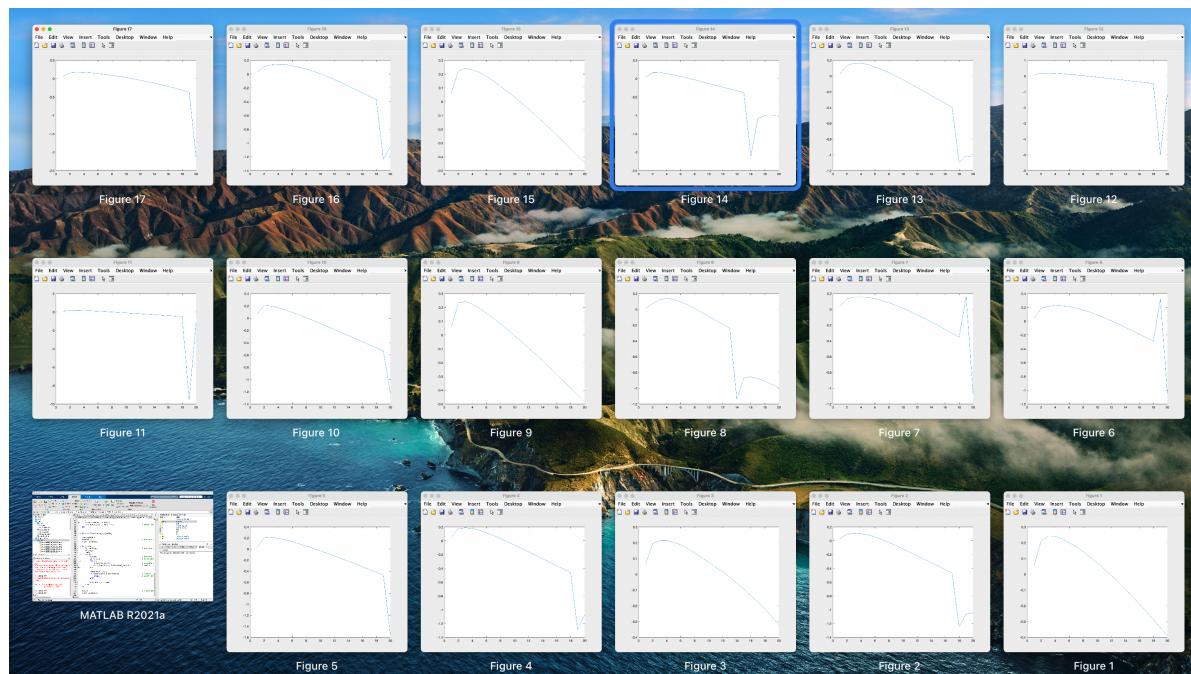
pre-process needed before bct analysis, including Correlation (assumed done) and dPSW thresholding (using threshold_proportional) and diagonal elements set to 0.

PSW is defined as the number of the retained strong weights divided by the total number of weights.

as for each individual, different PSW value should be calculated by:

$$\max_{PSW}(GCE) = E - PSW$$

E is a function of PSW. Technically Varying PSW from 0.01 to 1 step 0.05 to determine the optimal PSW. plots of gces are showed below:

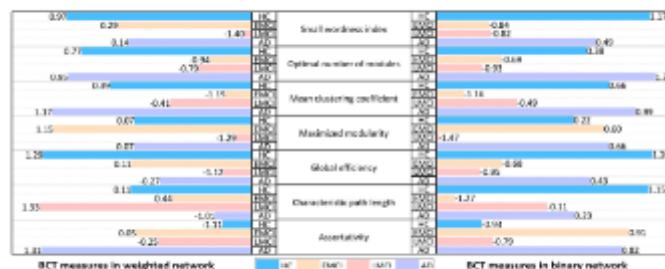


some of the figures seem like quadratic functions and have one peak only, but there are 2 figures out of 17 that have 2 peaks which are not expected.

whatever, I continued calculating [calcDPSW.m](#)[calcGlobalEfficiency.m](#)

dataset	global efficiency
HC	0.3690
LMCI	0.3132

images following show the parameter used by article [1](#)



- [strength](#)

	1x360 single										
o	1	2	3	4	5	6	7	8	9	10	.
	155.7295	194.6150	155.6986	155.2482	153.0772	172.6709	192.0432	219.9639	193.2908	191.5195	1
	2										

- [clustering coefficient](#)(all weights must be between 0 and 1)

- todo

- [local efficiency](#)

JUNK COMPLEX DOUBLE	
o	1
	0.3397 - 0.4467i
	0.3829 - 0.3184i
	0.5967 - 0.1953i
	0.4227 - 0.4137i
	0.3497 - 0.4714i
	0.2852 - 0.3541i
	0.2638 - 0.2988i
	0.4570 - 0.4733i
o	0.5870 - 0.1959i
	0.5421 - 0.1868i
	0.5502 - 0.1836i
	0.5499 - 0.1375i
	0.4492 - 0.4468i
	0.5590 - 0.4355i
	0.3880 - 0.5003i
	0.3216 - 0.3851i
	0.5184 - 0.3957i
	0.3372 - 0.3874i
	0.4240 - 0.4024i

- took 20mins

- [betweenness centrality](#)

	1	2
1	211	
2	0	
3	78	
4	12	
5	11541	
6	0	
7	0	
8	0	
9	0	
10	6	
11	0	
12	7487	
13	0	
14	0	
15	0	
16	79549	
17	0	

- took secs

- [eigenvector centrality](#)

	1
1	0.0451
2	0.0604
3	0.0457
4	0.0449
5	0.0445
6	0.0509
7	0.0581
8	0.0678
9	0.0579
10	0.0592
11	0.0555
12	0.0516
13	0.0559
14	0.0571
15	0.0561
16	0.0452
17	0.0560
18	0.0510

- [page rank centrality](#)

- todo

- [degree](#)

The screenshot shows a MATLAB workspace window. The current variable is 'ans', which is a 1x360 double array. The array has three rows labeled 1, 2, and 3. Row 1 contains the value 360 at index 1 and 0 elsewhere. Rows 2 and 3 are entirely zero.

	1	2	3	4	5	6	7	8	9	
1	360	360	360	360	360	360	360	360	360	
2										
3										

- small wordness index
- optimal number of modules
- mean clustering coefficient
- maximized modularity
- glocal efficiency
- characteristic path length
- assortativity

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1. Sheng, Jinhua, Bocheng Wang, Qiao Zhang, Rougang Zhou, Luyun Wang, and Yu Xin. "Identifying and Characterizing Different Stages toward Alzheimer's Disease Using Ordered Core Features and Machine Learning." *Heliyon* 7, no. 6 (June 2021): e07287. <https://doi.org/10.1016/j.heliyon.2021.e07287>.  