SUPPLEMENTARY MATERIAL: PREDICTION OF LONG-TERM MEMORY SCORES IN MCI BASED ON RESTING-STATE FMRI
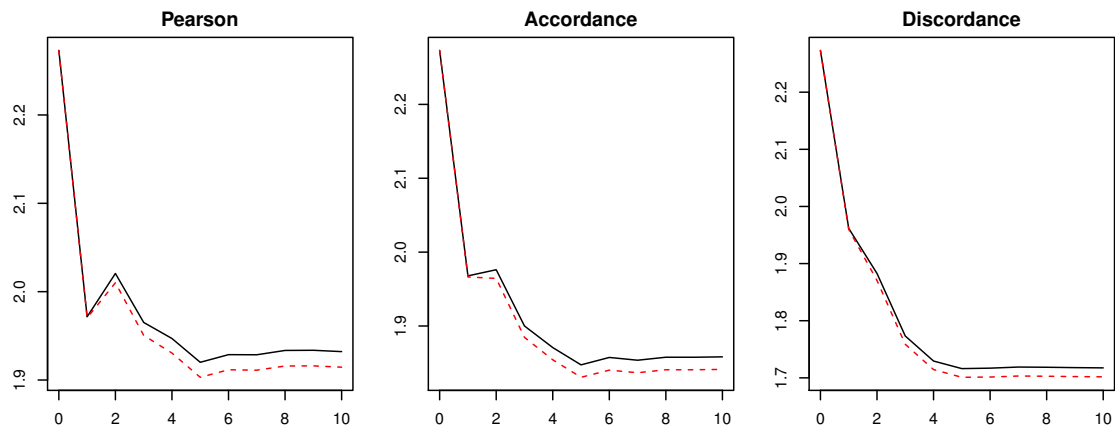
D.-E. MESKALDJI ET AL.

FIGURE 1. RMSEP plots for each PLSR model corresponding to Pearson correlation, accordance and discordance measures, respectively. Two cross-validation estimates are shown: CV is the ordinary cross validation estimate (continuous line), and adjCV is a bias-corrected cross-validation estimate (dashed line). According to these plots, the optimal number of components is 5 for all measures.

	LOO		CV-5-rand		CV-5-indep	
	ρ	R^2	ρ	R^2	ρ	R^2
Pearson	0.527	0.260	0.498±0.053	0.223±0.069	0.501±0.052	0.228±0.067
Accordance	0.561	0.315	0.523±0.049	0.270±0.055	0.523±0.052	0.270±0.059
Discordance	0.641	0.409	0.593±0.047	0.349±0.053	0.598±0.045	0.355±0.051

TABLE 1. Predictive performance of PLS regression models. The CV-5-rand and CV-5-indep performances are obtained by averaging 1000 iterations.

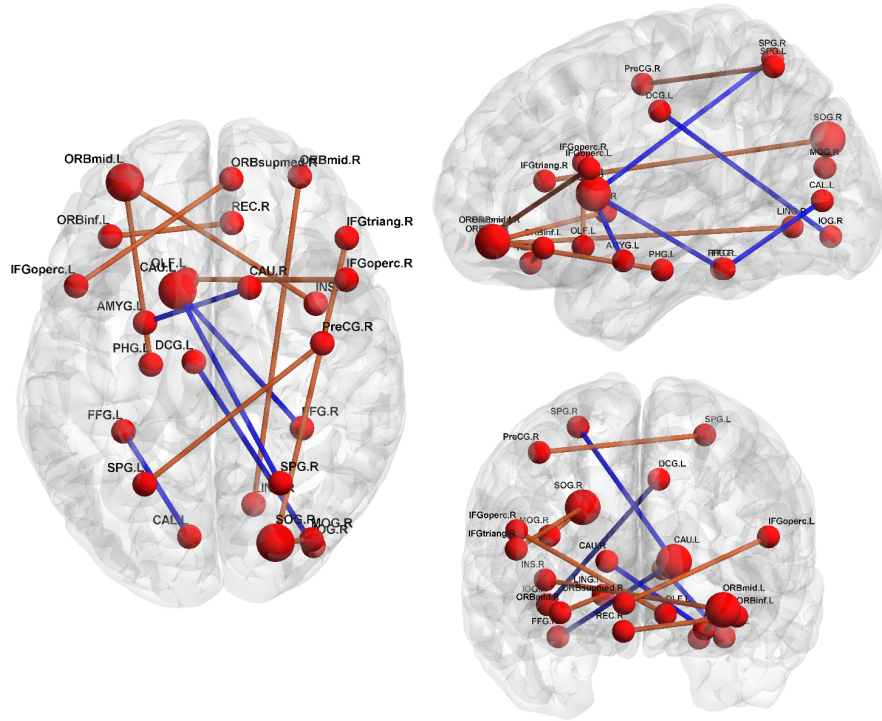|	First region	Second region	p-value	t-value
1	Parietal_Sup_L	Precentral_R	0.0008	3.5695
2	Rectus_R	Frontal_Inf_Orb_L	0.0011	3.4606
3	Fusiform_L	Calcarine_L	0.0015	-3.3378
4	Caudate_R	Amygdala_L	0.0023	-3.1974
5	Frontal_Mid_Orb_Medial_R	Frontal_Inf_Oper_L	0.0026	3.1580
6	Occipital_Inf_R	Cingulum_Mid_L	0.0028	-3.1351
7	Occipital_Sup_R	Frontal_Inf_Tri_R	0.0033	3.0797
8	Caudate_L	Parietal_Sup_R	0.0034	-3.0686
9	Occipital_Mid_R	Occipital_Sup_R	0.0038	3.0285
10	Caudate_L	Fusiform_R	0.0043	-2.9840
11	ParaHippocampal_L	Frontal_Mid_Orb_L	0.0045	2.9614
12	Olfactory_L	Frontal_Inf_Oper_R	0.0048	2.9426
13	Lingual_R	Frontal_Mid_Orb_R	0.0048	2.9422
14	Insula_R	Frontal_Mid_Orb_L	0.0049	2.9357

TABLE 2. Most important connections in the Pearson correlation based model with their corresponding p-values and t-statistics. We show only p-values lower than 0.005. The connections are ordered by p-value significance. The sign of the t-statistics indicates wether more connectivity (Pearson correlation) contributes positively or negatively to the episodic memory performance.

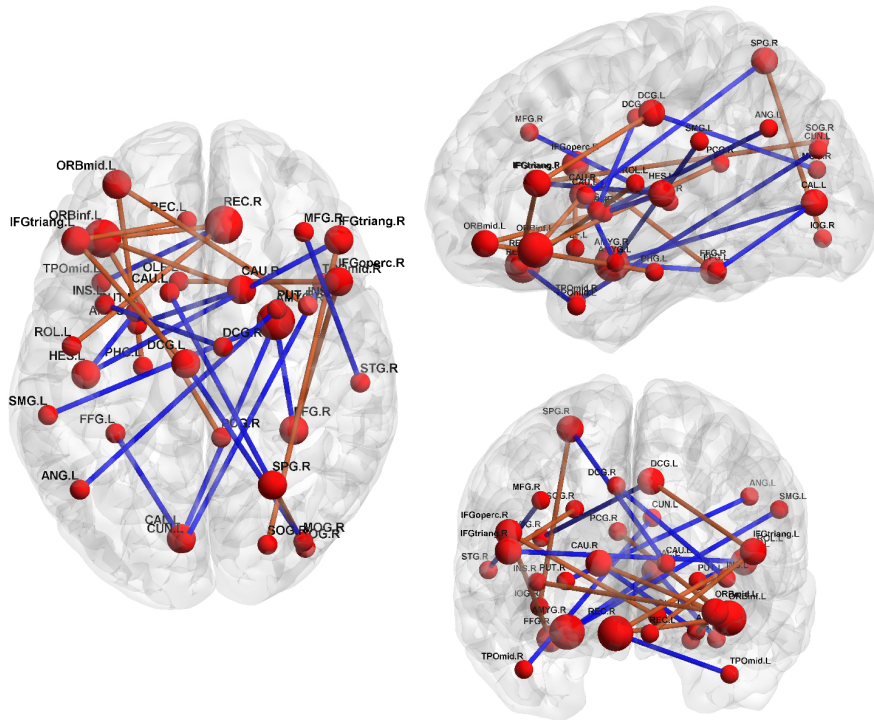|	First region	Second region	p-value	t.test
1	Occipital_Sup_R	Frontal_Inf_Tri_R	0.0004	3.7834
2	Caudate_R	Amygdala_L	0.0006	-3.6675
3	SupraMarginal_L	Amygdala_R	0.0009	-3.5063
4	Olfactory_L	Frontal_Inf_Oper_R	0.0011	3.4411
5	Insula_R	Frontal_Mid_Orb_L	0.0013	3.3963
6	Temporal_Pole_Mid_R	Cuneus_L	0.0015	-3.3465
7	Temporal_Sup_R	Frontal_Mid_R	0.0019	-3.2658
8	Fusiform_L	Calcarine_L	0.0020	-3.2568
9	Rectus_L	Frontal_Inf_Tri_L	0.0021	3.2342
10	Caudate_R	Frontal_Inf_Orb_L	0.0024	3.1804
11	Cingulum_Post_R	Frontal_Inf_Orb_L	0.0025	3.1699
12	Parietal_Sup_R	Occipital_Inf_R	0.0025	3.1670
13	Caudate_L	Parietal_Sup_R	0.0026	-3.1528
14	Calcarine_L	Amygdala_R	0.0026	-3.1517
15	Rectus_R	Rolandic_Oper_L	0.0029	3.1164
16	Cingulum_Mid_R	Insula_L	0.0030	-3.1028
17	Cingulum_Mid_L	Frontal_Inf_Tri_L	0.0031	3.0913
18	Heschl_L	Frontal_Inf_Tri_R	0.0033	-3.0737
19	ParaHippocampal_L	Frontal_Mid_Orb_L	0.0035	3.0509
20	Fusiform_R	Frontal_Inf_Oper_R	0.0039	3.0118
21	Fusiform_R	Amygdala_R	0.0041	-2.9983
22	Putamen_R	Angular_L	0.0043	-2.9803
23	Temporal_Pole_Mid_L	Rectus_R	0.0045	-2.9655
24	Occipital_Mid_R	Cingulum_Mid_L	0.0045	-2.9615
25	Rectus_R	Frontal_Inf_Orb_L	0.0047	2.9492
26	Heschl_L	Putamen_L	0.0048	-2.9383

TABLE 3. Most important connections in the accordance based model with their corresponding p-values and t-statistics. We show only p-values lower than 0.005. The connections are ordered by p-value significance. The sign of the t-statistics indicates wether more accordance contributes positively or negatively to the episodic memory performance.

	First region	Second region	p-value	t-value
1	Amygdala_R	Supp_Motor_Area_L	0.0001	-4.1564
2	Paracentral_Lobule_L	Cingulum_Ant_L	0.0001	4.1217
3	Thalamus_L	Insula_R	0.0003	3.8323
4	Angular_L	Occipital_Sup_R	0.0007	3.6194
5	Paracentral_Lobule_L	Cingulum_Mid_R	0.0009	3.5214
6	Thalamus_R	Cuneus_L	0.0009	3.5114
7	Paracentral_Lobule_L	Frontal_Inf_Orb_L	0.0010	3.4917
8	Amygdala_R	Supp_Motor_Area_R	0.0011	-3.4374
9	Thalamus_L	Insula_L	0.0012	3.4263
10	Angular_L	Occipital_Sup_L	0.0013	3.3959
11	Temporal_Inf_L	Postcentral_L	0.0017	3.3101
12	Postcentral_L	Frontal_Mid_Orb_L	0.0018	3.2871
13	Thalamus_L	Cuneus_R	0.0019	3.2720
14	Amygdala_R	Frontal_Sup_L	0.0019	-3.2655
15	Temporal_Pole_Sup_R	Thalamus_L	0.0021	3.2266
16	Hippocampus_L	Cingulum_Ant_R	0.0022	-3.2226
17	Thalamus_L	Occipital_Sup_R	0.0022	3.2160
18	Occipital_Sup_L	Frontal_Inf_Oper_R	0.0025	-3.1722
19	Cuneus_R	Precentral_R	0.0025	-3.1659
20	Thalamus_L	Occipital_Sup_L	0.0027	3.1509
21	Temporal_Mid_R	Insula_L	0.0027	3.1452
22	Hippocampus_L	Cingulum_Ant_L	0.0028	-3.1263
23	Amygdala_R	Frontal_Mid_Orb_R	0.0029	-3.1220
24	Rectus_L	Olfactory_R	0.0032	-3.0899
25	Paracentral_Lobule_R	Frontal_Inf_Orb_L	0.0032	3.0871
26	Parietal_Inf_L	Rolandic_Oper_R	0.0035	-3.0554
27	Hippocampus_R	Supp_Motor_Area_L	0.0036	-3.0473
28	Amygdala_R	Frontal_Mid_R	0.0036	-3.0460
29	Paracentral_Lobule_L	Insula_L	0.0036	3.0403
30	Hippocampus_R	Cingulum_Ant_L	0.0043	-2.9781

TABLE 4. Most important connections in the discordance based model with their corresponding p-values and t-statistics. We show only p-values lower than 0.005. The connections are ordered by p-value significance. The sign of the t-statistics indicates wether more discordance contributes positively or negatively to the episodic memory performance.

(A) Pearson

(B) Accordance

FIGURE 2. Significant connections obtained by thresholding p-values (at level 0.005) corresponding to the coefficients of Pearson (A) and accordance (B) based PLSR models. The connection color represents the sign of the coefficient corresponding to each connection in the PLSR model (orange for positive coefficients and blue for negative coefficients). The node size is proportional to the node degree in the brain maps after the thresholding.