Accuracy	F1	Initialization	Batch	Epochs	Architecture	Fold
0,92	0,92	Default algorithm	32	200	4 layers	0
0,86	0,86	Default algorithm	32	200	4 layers	1
0,91	0,91	Default algorithm	32	200	4 layers	2
0,90	0,90	Default algorithm	32	200	4 layers	3
0,91	0,91	Default algorithm	32	200	4 layers	4
0,87	0,86	Default algorithm	64	200	4 layers	0
0,89	0,89	Default algorithm	64	200	4 layers	1
0,91	0,91	Default algorithm	64	200	4 layers	2
0,91	0,91	Default algorithm	64	200	4 layers	3
0,93	0,93	Default algorithm	64	200	4 layers	4
0,92	0,92	Default algorithm	32	500	4 layers	0
0,88	0,88	Default algorithm	32	500	4 layers	1
0,91	0,91	Default algorithm	32	500	4 layers	2
0,91	0,91	Default algorithm	32	500	4 layers	3
0,93	0,93	Default algorithm	32	500	4 layers	4
0,92	0,92	Default algorithm	64	500	4 layers	0
0,89	0,89	Default algorithm	64	500	4 layers	1
0,90	0,90	Default algorithm	64	500	4 layers	2
0,90	0,90	Default algorithm	64	500	4 layers	3
0,90	0,89	Default algorithm	64	500	4 layers	4
0,92	0,92	Pre-trained CAE	32	200	4 layers	0
0,90	0,90	Pre-trained CAE	32	200	4 layers	1
0,91	0,91	Pre-trained CAE	32	200	4 layers	2
0,90	0,90	Pre-trained CAE	32	200	4 layers	3
0,93	0,93	Pre-trained CAE	32	200	4 layers	4
0,93	0,93	Pre-trained CAE	64	200	4 layers	0
0,90	0,90	Pre-trained CAE	64	200	4 layers	1
0,91	0,91	Pre-trained CAE	64	200	4 layers	2
0,91	0,91	Pre-trained CAE	64	200	4 layers	3
0,91	0,91	Pre-trained CAE	64	200	4 layers	4
0,93	0,93	Pre-trained CAE	32	500	4 layers	0
0,89	0,89	Pre-trained CAE	32	500	4 layers	1
0,91	0,91	Pre-trained CAE	32	500	4 layers	2
0,90	0,90	Pre-trained CAE	32	500	4 layers	3
0,93	0,93	Pre-trained CAE	32	500	4 layers	4
0,89	0,89	Pre-trained CAE	64	500	4 layers	0
0,91	0,91	Pre-trained CAE	64	500	4 layers	1
0,91	0,91	Pre-trained CAE	64	500	4 layers	2
0,91	0,91	Pre-trained CAE	64	500	4 layers	3
0,93	0,93	Pre-trained CAE	64	500	4 layers	4
0,91	0,91	Default algorithm	32	200	5 layers	0
0,88	0,88	Default algorithm	32	200	5 layers	1
0,90	0,90	Default algorithm	32	200	5 layers	2
0,90	0,90	Default algorithm	32	200	5 layers	3
0,91	0,91	Default algorithm	32	200	5 layers	4
0,91	0,91	Defalult algorithm	64	200	5 layers	0
0,89	0,89	Default algorithm	64	200	5 layers	1

0,90	0,90	Default algorithm	64	200	5 layers	2
0,89	0,89	Default algorithm	64	200	5 layers	3
0,92	0,92	Default algorithm	64	200	5 layers	4
0,91	0,91	Default algorithm	32	500	5 layers	0
0,89	0,89	Default algorithm	32	500	5 layers	1
0,89	0,89	Default algorithm	32	500	5 layers	2
0,90	0,90	Default algorithm	32	500	5 layers	3
0,91	0,91	Default algorithm	32	500	5 layers	4
0,92	0,92	Default algorithm	64	500	5 layers	0
0,90	0,90	Default algorithm	64	500	5 layers	1
0,89	0,89	Default algorithm	64	500	5 layers	2
0,90	0,90	Default algorithm	64	500	5 layers	3
0,92	0,92	Default algorithm	64	500	5 layers	4
0,93	0,93	Pre-trained CAE	32	200	5 layers	0
0,89	0,89	Pre-trained CAE	32	200	5 layers	1
0,87	0,87	Pre-trained CAE	32	200	5 layers	2
0,91	0,91	Pre-trained CAE	32	200	5 layers	3
0,93	0,93	Pre-trained CAE	32	200	5 layers	4
0,93	0,93	Pre-trained CAE	64	200	5 layers	0
0,91	0,91	Pre-trained CAE	64	200	5 layers	1
0,91	0,91	Pre-trained CAE	64	200	5 layers	2
0,91	0,91	Pre-trained CAE	64	200	5 layers	3
0,93	0,93	Pre-trained CAE	64	200	5 layers	4
0,93	0,93	Pre-trained CAE	32	500	5 layers	0
0,91	0,91	Pre-trained CAE	32	500	5 layers	1
0,92	0,92	Pre-trained CAE	32	500	5 layers	2
0,91	0,91	Pre-trained CAE	32	500	5 layers	3
0,93	0,93	Pre-trained CAE	32	500	5 layers	4
0,93	0,93	Pre-trained CAE	64	500	5 layers	0
0,91	0,91	Pre-trained CAE	64	500	5 layers	1
0,91	0,91	Pre-trained CAE	64	500	5 layers	2
0,91	0,91	Pre-trained CAE	64	500	5 layers	3
0,92	0,92	Pre-trained CAE	64	500	5 layers	4

Supplementary Table S1 - Classification performance (Accuracy and F1-score) of models trained on HCP validation dataset in a 5-fold cross-validation scheme with different hyperparameters (batch size, epochs, architecture).
Best model for the Default algorithm initialization is a 4-layers architecture, a batch size of 32 for 500 epochs. For the pre-trained CAE, best model was the one with a 5-layers architecture, a batch size of 64 and 200 epochs.