

Running head: SENSORY AND MOTOR FEATURES IMPROVE AUTISM CLASSIFICATION

Motor and Sensory Features Successfully Decode Autism Spectrum Disorder and Combine with
the Original RDoC Framework to Boost Diagnostic Classification

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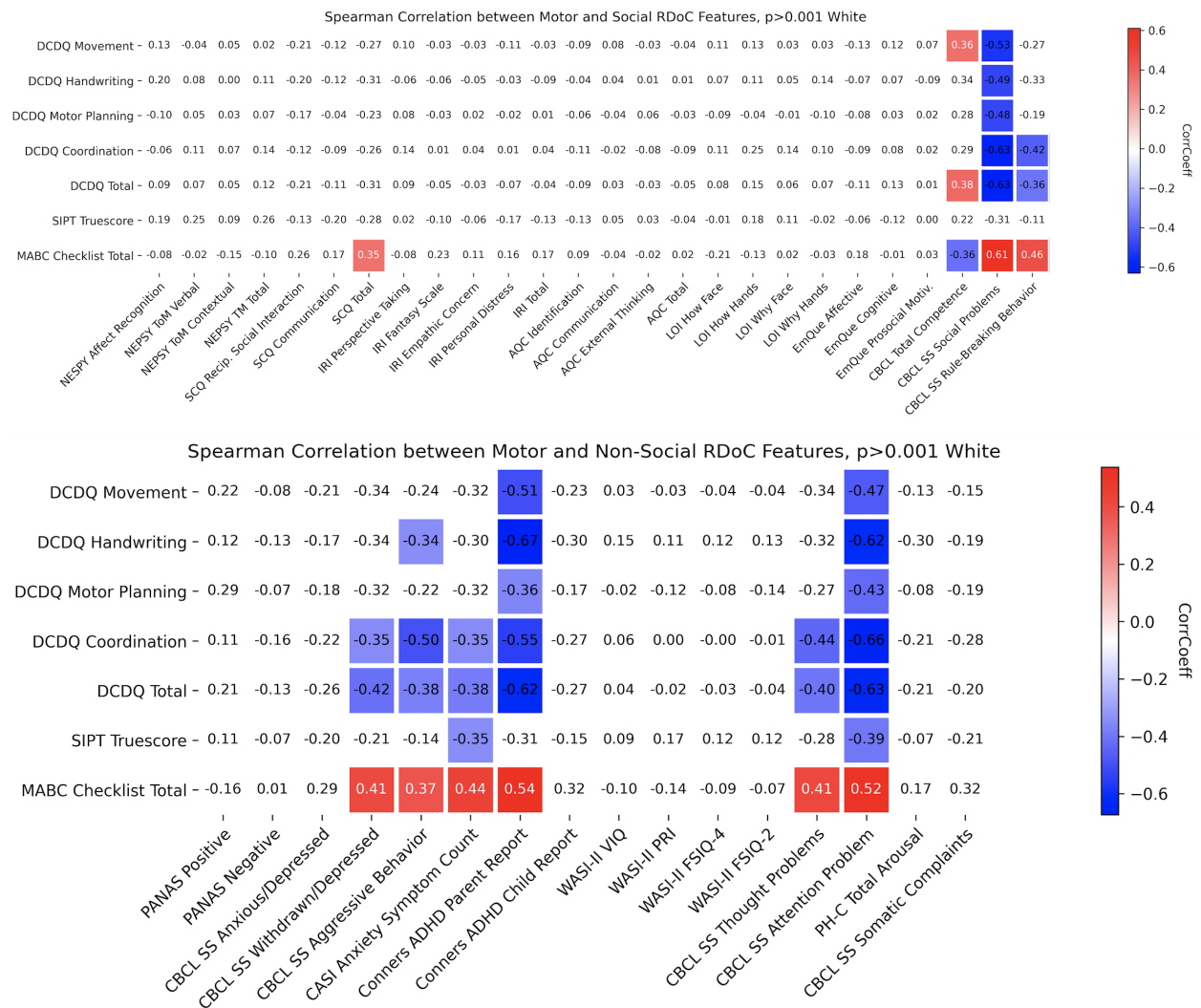
Supplementary Materials

Supplementary Table 1. Average MCC (top) and BAcc (bottom) performance of each full feature set. Mean and standard deviation of MCC and BAcc performance across 2000 cross validation loops, as well as p value calculated against a null distribution reported for both decoders.

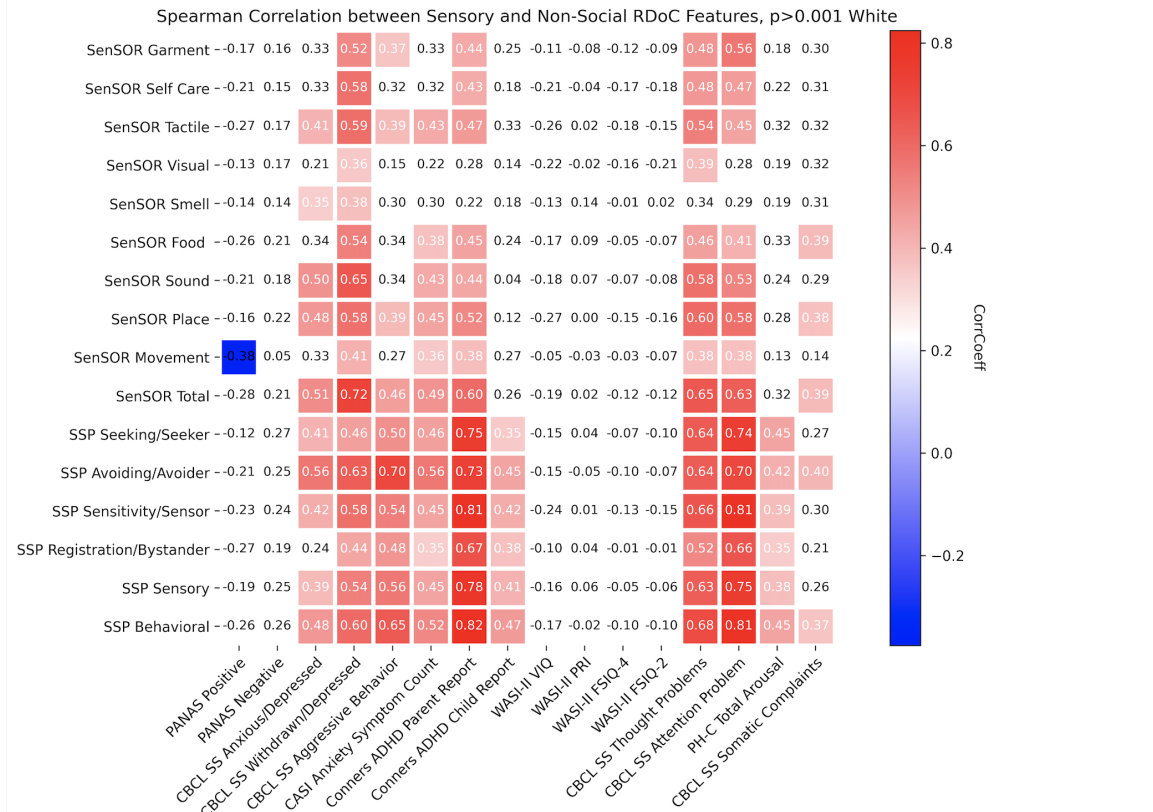
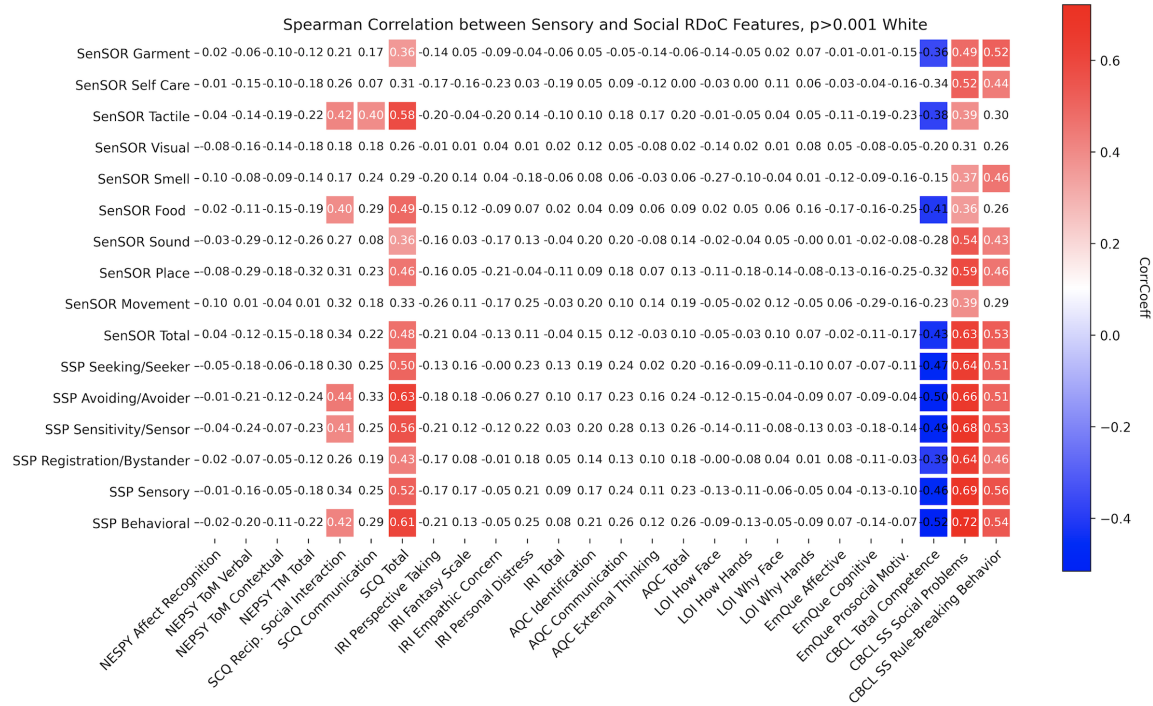
Feature Set	ASD vs. TD	ASD vs. TD	ASD vs DCD	ASD vs. DCD
	MCC and BAcc (Mean±STD)	(Null p)	MCC and BAcc (Mean±STD)	(Null p)
Motor	0.793±0.156	0.00080	-0.040±0.285	0.591
	0.890±0.081	0.0010	0.479±0.123	0.591
Sensory	0.902±0.110	0.00020	0.628±0.208	0.0136
	0.947±0.060	0.00020	0.805±0.105	0.0170
M+S	0.885±0.111	0.00020	0.531±0.212	0.0250
	0.938±0.060	0.0010	0.756±0.105	0.0372
RDoC	0.863±0.130	0.00020	0.328±0.256	0.162
	0.926±0.069	0.0010	0.655±0.123	0.183
RDoC + M	0.887±0.107	0.00040	0.302±0.249	0.175
	0.934±0.063	0.00060	0.643±0.119	0.175
RDoC + S	0.911±0.098	0.00020	0.492±0.236	0.0568
	0.950±0.055	0.00020	0.736±0.116	0.0660
RDoC + M + S	0.930±0.088	0.00020	0.479±0.239	0.0640
	0.960±0.051	0.00020	0.730±0.118	0.0652

Supplementary Table 2. Average MCC (top) and BAcc (bottom) performance of each optimized feature set for male subjects only. Mean and standard deviation of MCC and BAcc performance across 2000 cross validation loops, as well as p value calculated against a null distribution reported for both decoders.

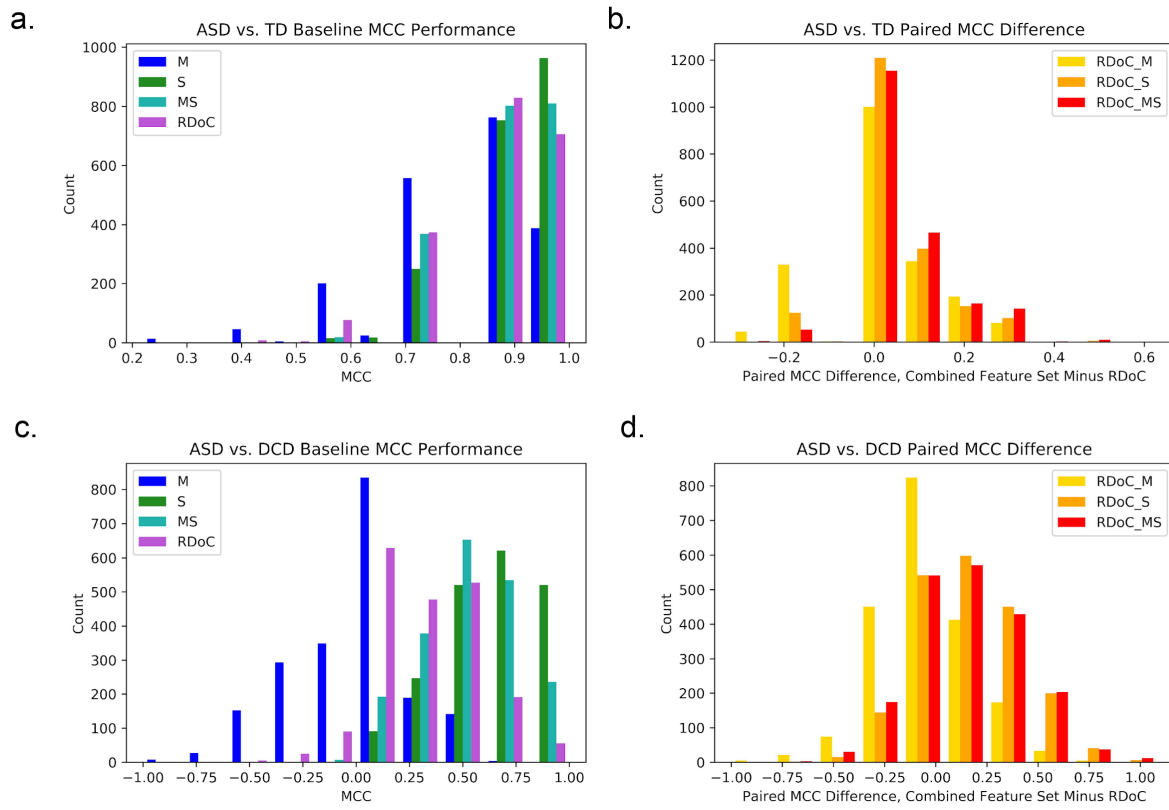
Feature Set	ASD vs. TD	ASD vs. TD	ASD vs DCD	ASD vs. DCD
	MCC and BAcc (Mean±STD)	(Null p)	MCC and BAcc (Mean±STD)	(Null p)
Motor	0.852±0.122	0.00080	-0.036±0.333	0.581
	0.918±0.068	0.0012	0.483±0.152	0.577
Sensory	0.961±0.077	0.00020	0.585±0.298	0.0463
	0.978±0.042	0.00020	0.777±0.149	0.0696
M+S	0.929±0.098	0.0010	0.594±0.292	0.0494
	0.961±0.054	0.0010	0.782±0.147	0.0756
RDoC	0.985±0.056	0.00160	0.566±0.269	0.0743
	0.992±0.031	0.00160	0.767±0.133	0.0724
RDoC + M	0.988±0.053	0.00120	0.557±0.269	0.0742
	0.993±0.030	0.00120	0.762±0.133	0.0742
RDoC + S	0.963±0.076	0.00080	0.555±0.277	0.0786
	0.980±0.042	0.00080	0.766±0.139	0.0768
RDoC + M + S	0.962±0.074	0.0010	0.555±0.275	0.0758
	0.979±0.041	0.0010	0.767±0.138	0.0780



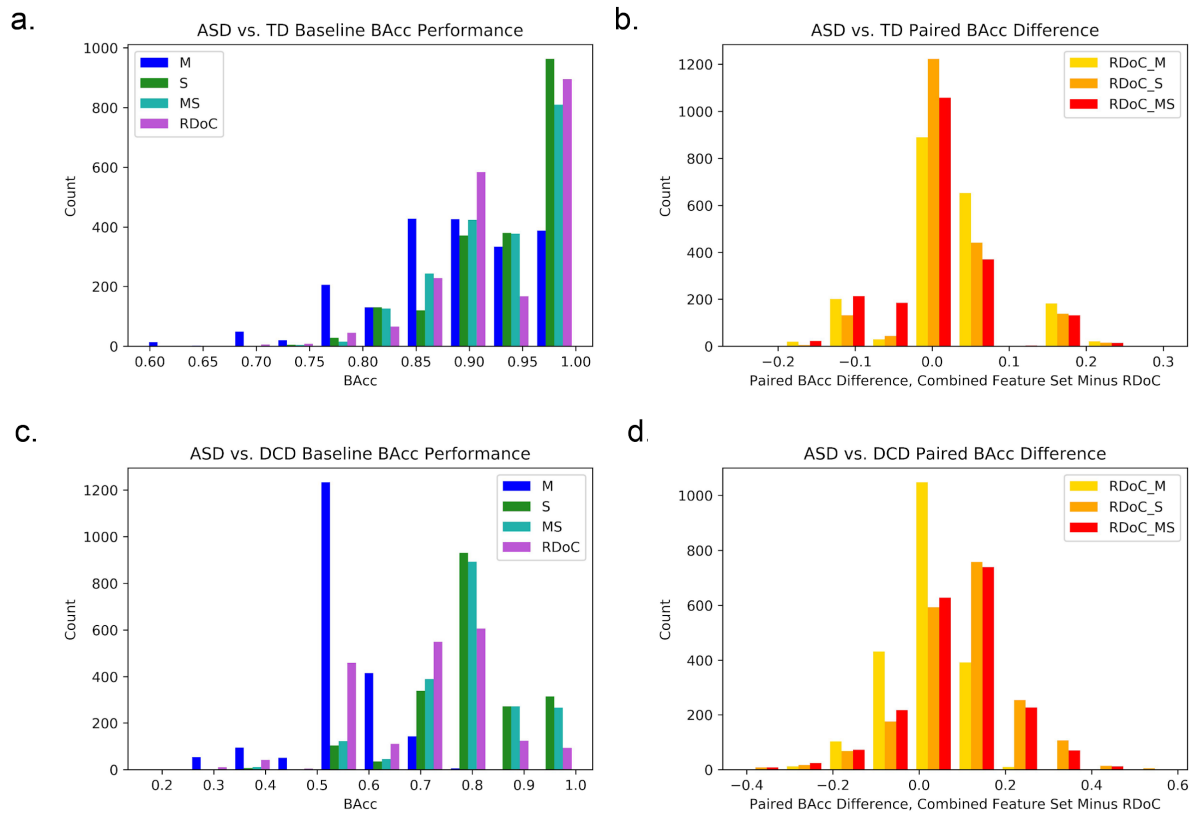
Supplementary Figure 1. Spearman correlation of RDoC and Motor features. In concordance with Tables 3 and 4, RDoC features are separated into social (top) and non-social (bottom) constructs. The strength of correlations where $p < 0.001$, uncorrected, are displayed with heatmap coloring; other cells are white.



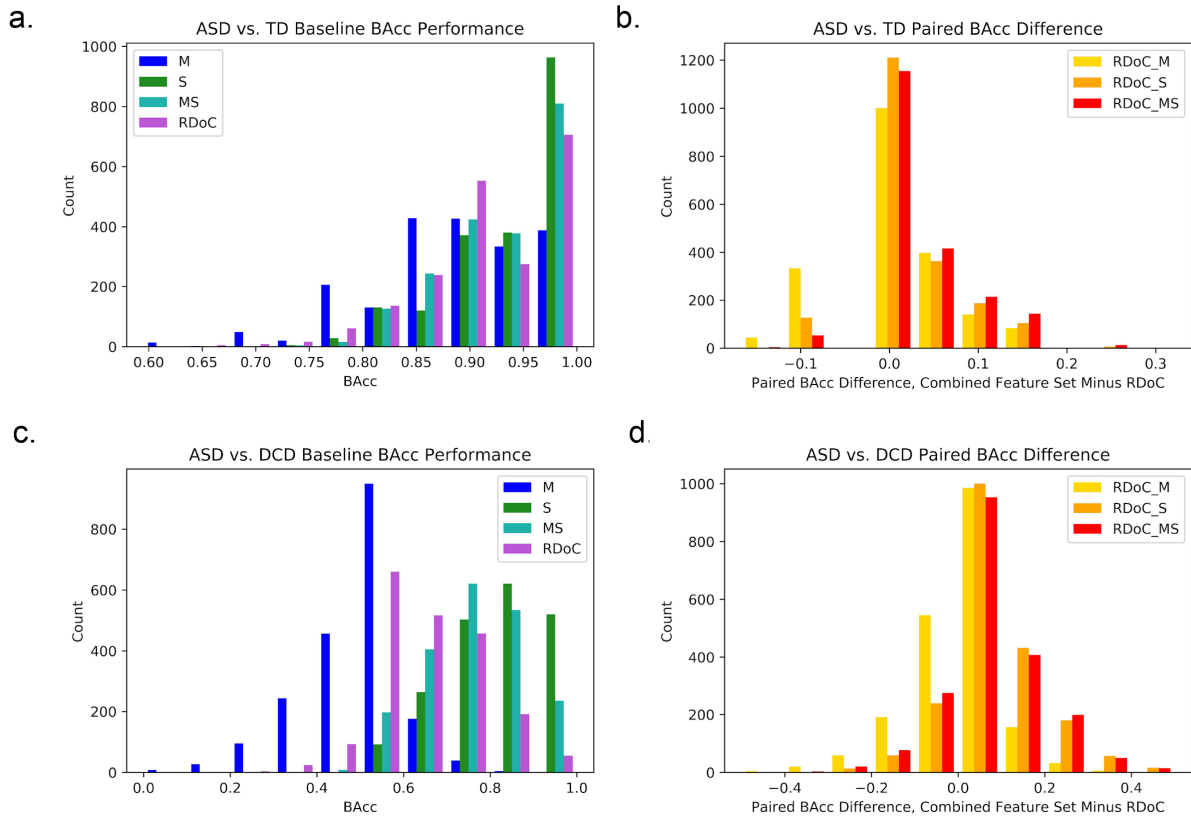
Supplementary Figure 2. Spearman correlation of RDoC and Sensory features. In concordance with Tables 3 and 4, RDoC features are separated into social (top) and non-social (bottom) constructs. The strength of correlations where $p < 0.001$, uncorrected, are displayed with heatmap coloring; other cells are white.



Supplementary Figure 3. MCC Decoding Performance of Full Feature Sets. Same conventions as Figure 1.



Supplementary Figure 4. BAcc Decoding Performance of Optimized Feature Sets. Same conventions as Figure 1.



Supplementary Figure 5. BAcc Decoding Performance of Full Feature Sets. Same conventions as Figure 1.