

Supplemental information

**Low-dimensional organization of global
brain states of reduced consciousness**

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Supplementary Material of: “Low-dimensional organization of global brain states of reduced consciousness”

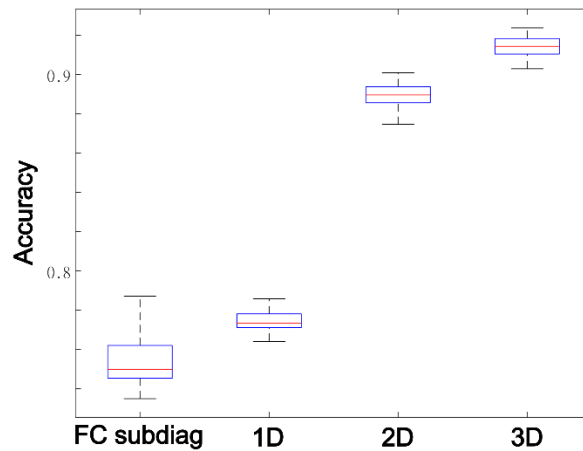


Figure S1: Comparison of the performance of a Support Vector Machine (SVM) classifier using feature spaces of different dimensionality. We trained the same SVM classifier with four different sources of features: the lower triangular part of the generated FC and the 1D, 2D and 3D latent representation of those matrices.

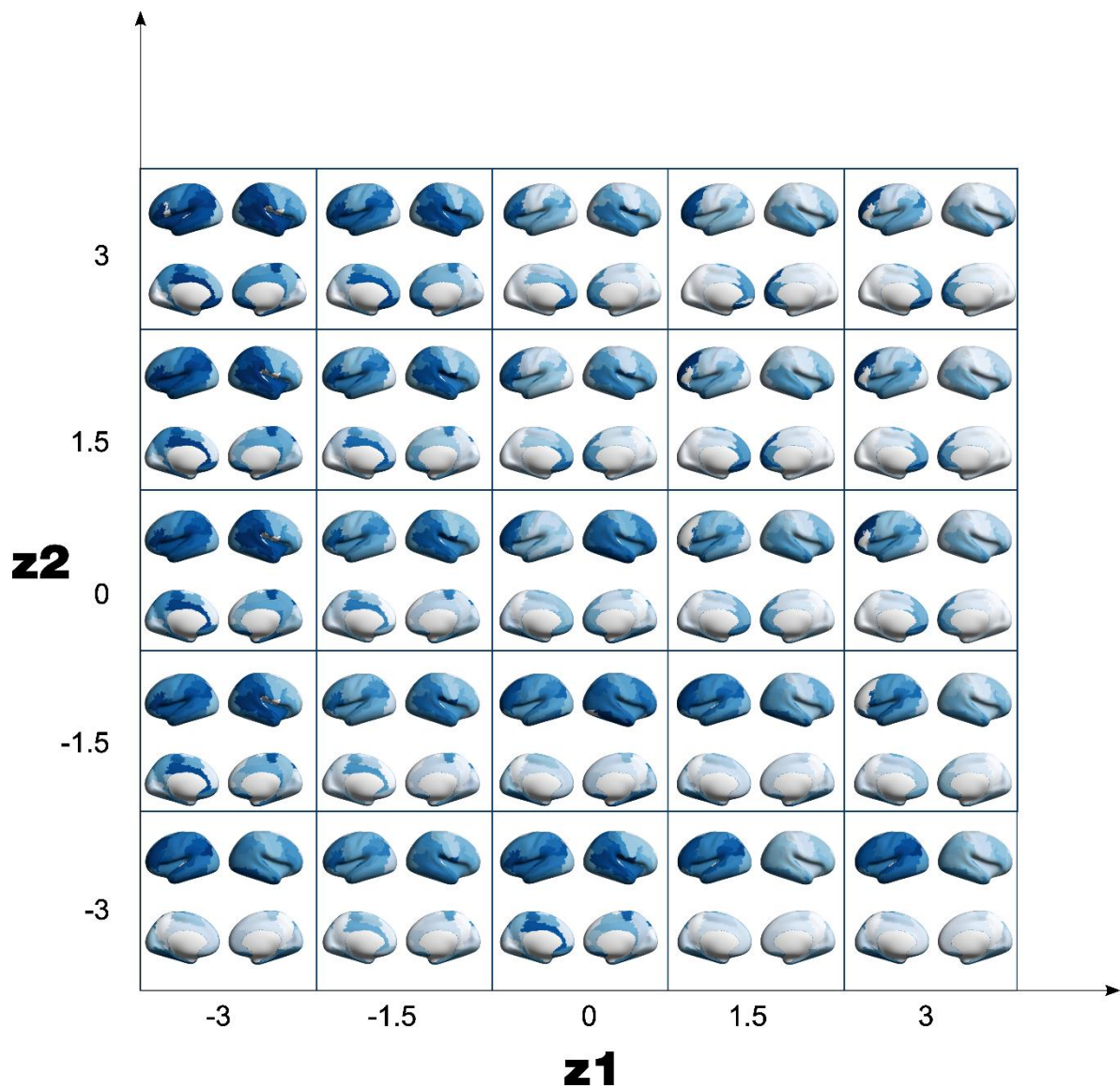


Figure S2: the networks obtained by decoding several points of the latent space. We decoded pairs in the latent space within a 5x5 grid in the range of $z1=[-3;3]$ and $z2=[-3,3]$. For each decoded FC, we computed the mean across rows to obtain the nodal FC strength, and we represented the corresponding maps normalized between 0 and 1 rendered into brain anatomy.

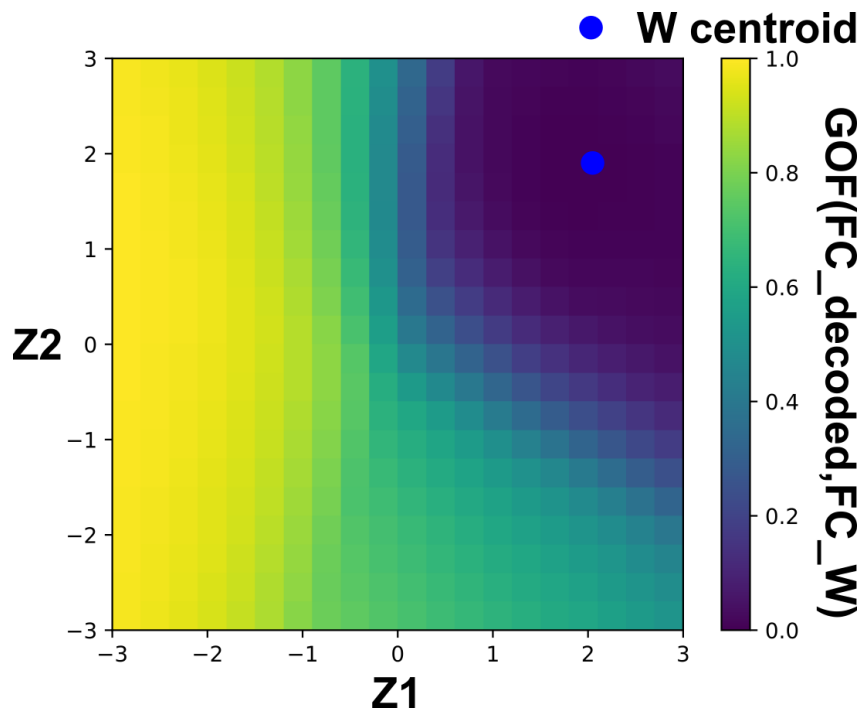


Figure S3: Mapping GOF in the latent space by comparing the distance to W. We systematically decoded points within a 20x20 grid in the latent space and computed the GOF between the decoded FCs and the wakefulness FC. We display the GOF map together with the controls centre (blue circle)

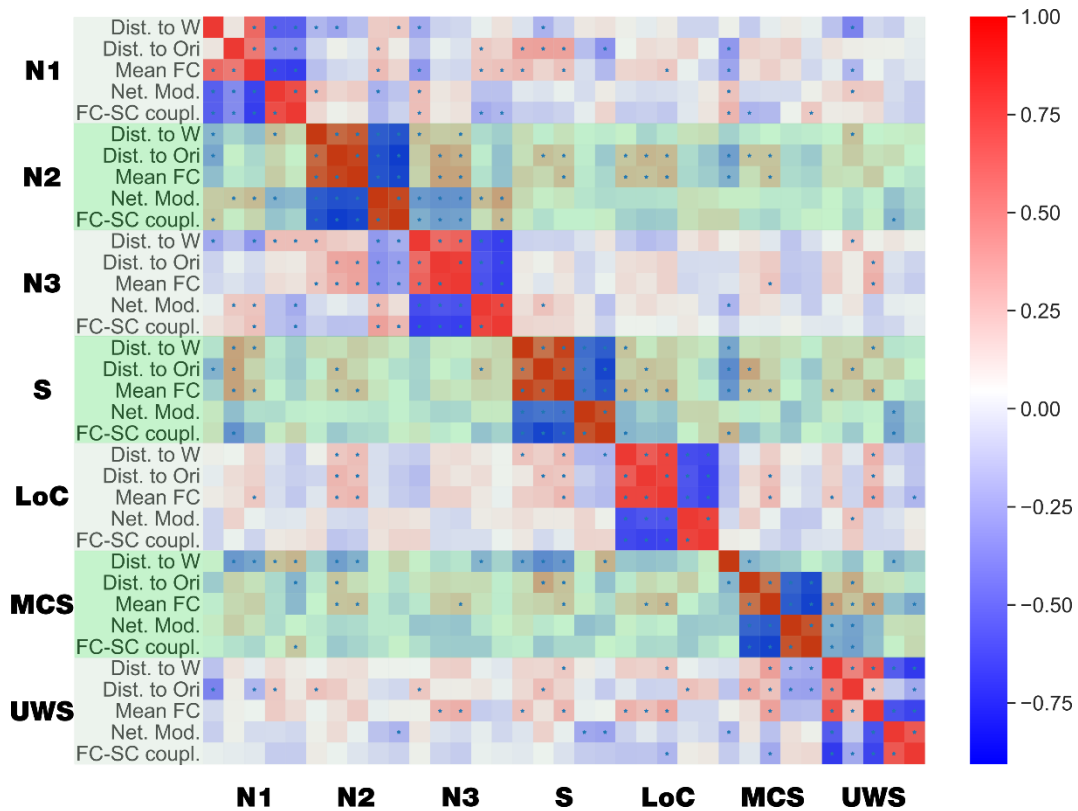


Figure S4. Consistency in the spatial patterns of change induced by perturbations applied to the brain states in the rows/columns. The i,j entry of this matrix contains the correlation coefficient between the spatial distributions of metric changes corresponding to states i (row) and j (column). The stars within each matrix entry indicate that the correlation between this pair of metrics is statistically significant ($p < 0.05$, false discovery rate (FDR) corrected). (W: wakefulness, N1, N2 and N3 stages from light to deep sleep; S: sedation; LOC: loss of consciousness; MCS: minimally conscious state; UWS: unresponsive wakefulness syndrome)