

$$\text{sl_fc_gsp} = \tanh \mathbb{E}_{\sigma \in S} \left\{ \tanh^{-1} \text{corr} \left(\text{corr}_t \left(\mathbb{E}_{|\boldsymbol{\xi}^{\sigma\tau'}|} B^{\tau'}(\boldsymbol{\xi}^{\sigma\tau'}, t), B^{\tau'}(\boldsymbol{\eta}^{\tau'}, t) \right), \right. \right. \\ \left. \left. \tanh \mathbb{E}_{\tau \in T} \left\{ \tanh^{-1} \text{corr}_t \left(\mathbb{E}_{|\boldsymbol{\xi}^{\sigma\tau}|} B^{\tau}(\boldsymbol{\xi}^{\sigma\tau}, t), B^{\tau}(\boldsymbol{\eta}^{\tau}, t) \right) \right\} \right) \right\}$$

for BOLD time-series $B^{\tau}(t)$ of subject $\tau \in$ cohort T , and voxels $\boldsymbol{\xi}^{\sigma\tau}$ in sphere $\sigma \in$ set of spheres S ; the voxels $\boldsymbol{\eta}^{\tau}$ are samples of comparator subjects' cortex in atlas space. The innermost $\tanh \mathbb{E} \tanh^{-1}$ is a correlation matrix of size $|\sigma| \times |\boldsymbol{\eta}|$. In practice, τ' denotes only a single patient. Consequently, the outermost $\text{corr}()$ contracts voxels $\boldsymbol{\eta}^{\tau'}$ for the patient with voxels $\boldsymbol{\eta}^{\tau}$ averaged over comparator subjects, producing a correlation vector of length $|\sigma| \equiv |S|$. The outermost $\tanh \mathbb{E} \tanh^{-1}$ produces a scalar measure of similarity of the patient's FC with the comparator subjects' FC.