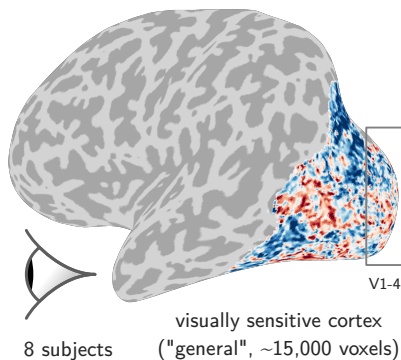


10,000 images ( $2 \times$ )

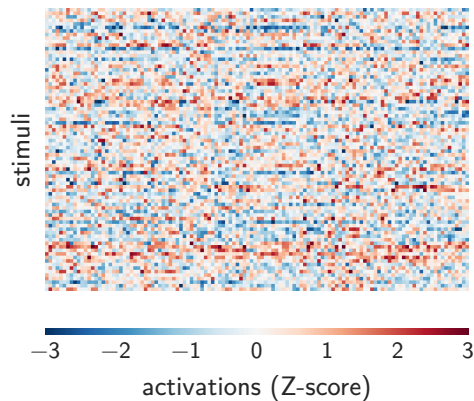
natural scenes



functional MRI



voxels



1

Learn the latent dimensions shared between two sets of neural responses on training data

$$\begin{aligned}\text{cov}(X_{\text{train}}, Y_{\text{train}}) &= X_{\text{train}}^{\top} Y_{\text{train}} / n_{\text{train}} \\ &= U_{\text{train}} \Sigma_{\text{train}} V_{\text{train}}^{\top}\end{aligned}$$

2

Compute the spectrum of variance along the latent dimensions on held-out **test data**

$$\begin{aligned}\Sigma_{\text{test}} &= \text{cov}(X_{\text{test}} U_{\text{train}}, Y_{\text{test}} V_{\text{train}}) \\ &= (X_{\text{test}} U_{\text{train}})^{\top} (Y_{\text{test}} V_{\text{train}}) / n_{\text{test}}\end{aligned}$$

comparison between methods

