Vertex space   **PCA** space   **Target**

N

V
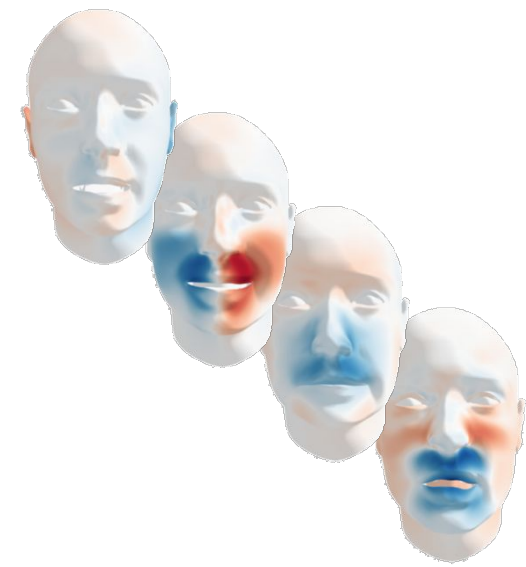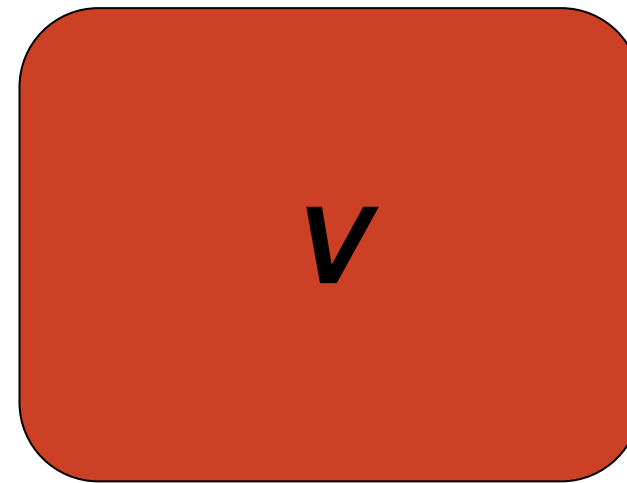
$P = 30149 \times 3$

Estimate + apply PCA transform

$(V - \mu)W^T$

X

$P = 50$

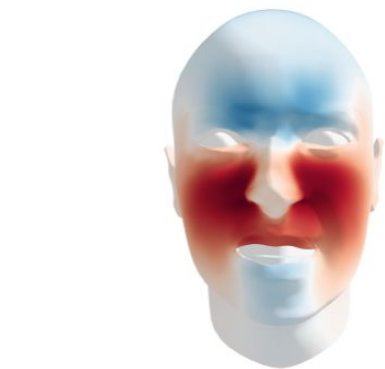*Rescale*

$X / \sigma(X)$

X
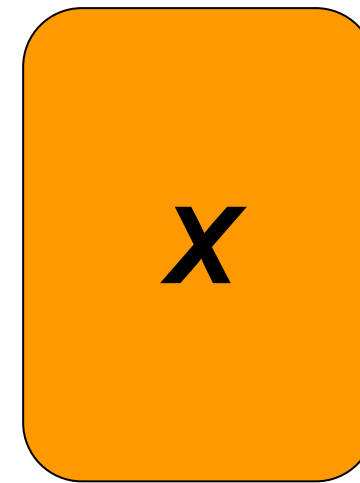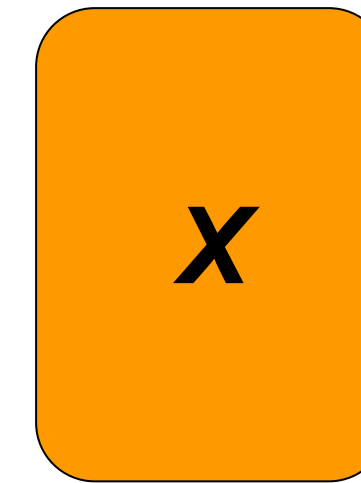
$P = 50$

Estimate + apply encoding model

$X\beta + \alpha$

y

Encoding

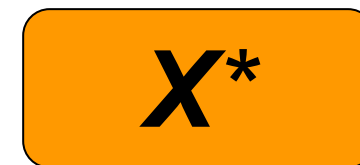What is the most plausible outcome (emotion/valence/arousal) given a particular face (movement)?

1

V*

$P = 30149 \times 3$
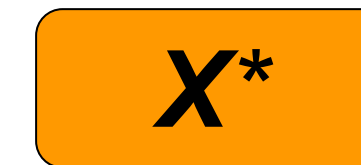
Inverse PCA transform

$(X^* + \mu)W$

X*

$P = 50$

Inv. rescale

$X \times \sigma(X)$

X*

$P = 50$

Estimate + apply recon. model

$\mathrm{inv}(X\beta + \alpha)$

y

Reconstruction

What is the most plausible face (movement) given a particular outcome (e.g., "anger")