Loadings

Projecting the feature axes into the principal subspace

Projection of feature axes (loadings) in PC space

PC_2

PC_1
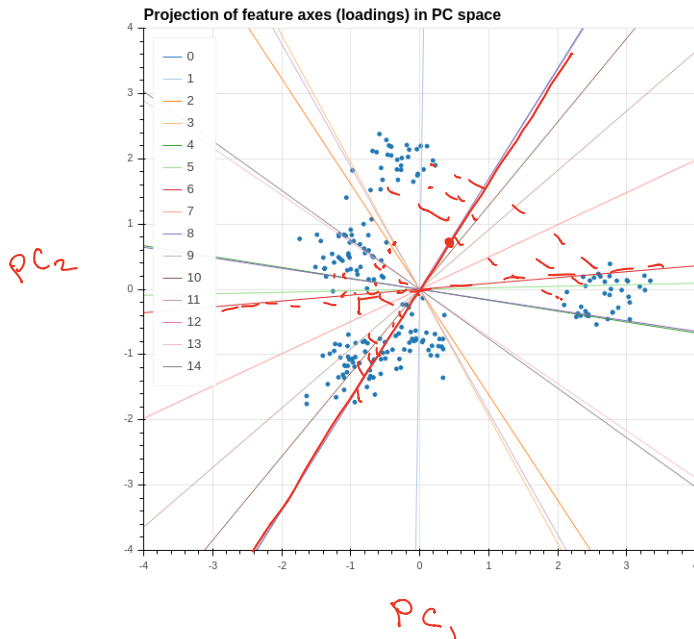
imagine a sample which has features

$$1 \begin{bmatrix} 1 & 0 \cdots & 0 \end{bmatrix}$$
$$\overset{K}{}$$

Projection of "fake"
Sample with features
$[1 \cdots 0]$.

$$\text{rows of} \quad K \begin{bmatrix} 1 & & \\ & 1 & \\ & & \ddots \\ & & & 1 \end{bmatrix} U$$

$$= [1 \cdots 0] U$$

columns of U are
principal eigenvectors
$u_1, u_2 \cdots, u_s$

$U \quad K \times S$ matrix

are the coordinates in
PC space of the "fake" samples
with only feature.