

SELECTING # OF COMPONENTS IN

PCA

$$\frac{1}{m} \sum_{i=1}^m \|x_i - x_{i \text{ approx}}\|^2$$

Average Squared
Projection Error



$$= 0.01$$

$$\frac{1}{m} \sum_{i=1}^m \|x_i\|^2$$

Total Variation in Data



99% of
Variance retained

0.01 or 0.05
are common values