

In the optimal linear autoencoder with code dimension h , which parallels Principal Component Analysis (PCA), the Mean Squared Error (MSE) of reconstruction can be computed from the singular values obtained through Singular Value Decomposition (SVD) of the centered data matrix X . Specifically, after performing SVD to get singular values, the MSE corresponds to the variance lost by omitting the smaller singular values beyond the top h components. Therefore, the MSE is calculated by summing the squares of the discarded singular values and normalizing by the number of samples (and features, if necessary), effectively quantifying the reconstruction error introduced by reducing the data's dimensionality to h .