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/ Dimensionality Reduction

It is the transformation of data from a high-dimensional space into a low-dimensional space so that the low-dimensional representation retains some meaningful properties of the original data, ideally close to its intrinsic dimension.

Wikipedia

Why reduce dimensions?

- Remove multicollinearity
- Deal with the curse of dimensionality
- Remove redundant features
- Interpretation & Visualization
- Make computations easier
- Identify Outliers

Multicollinearity

/ To do.

The curse of dimensionality

/ To do.

Dimensionality Reduction Methods

Method	Name	Based in	Duration
PCA	Principal Component Analysis	Linear	Fast
t-SNE	t Stochastic Neighbor Embedding	Neighbors	Slow
LargeVis	LargeVis	Neighbors	Slow
ISOMAP	t Stochastic Neighbor Embedding	Neighbors	
UMAP	Uniform Manifold Approximation and Projection	Neighbors	
AE	Autoencoder (2 or 3 at hidden layer)	Neural	
VAE	Variational Autoencoder	Neural	
LSA	Latent Semantic Analysis		
SVD	Singular Value decomposition	Linear	
LDA	Linear Discriminant Analysis	Linear	
MDS	Multidimensional Scaling		

PCA: Principal Component Analysis

/ To do.

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/ To do.

/ Q&A

What are your doubts?


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