Your grade: 100%

Your latest: **100%** • Your highest: **100%** • To pass you need at least 80%. We keep your highest score.

Next item →

1. What is the main difference between kernel PCA and linear PCA? 1 / 1 point

- ○ The objective of linear PCA is to decrease the dimensionality of the space whereas the objective of Kernel PCA is to increase the dimensionality of the space.
- ◉ Kernel PCA tend to uncover non-linearity structure within the dataset by increasing the dimensionality of the space thanks to the kernel trick.
- ○ Kernel PCA and Linear PCA are both Linear dimensionality reduction algorithm but they use a different optimization method.
- ○ Kernel PCA tend to preserve the geometric distances between the points while reducing the dimensionality of the space.

Correct
Correct! When you use these kernel functions and map the higher-dimensional space, you're able to uncover nonlinear structures within your data set.

2. (True/False) Multi-Dimensional Scaling (MDS) focuses on maintaining the geometric distances between points. 1 / 1 point

- ◉ True
- ○ False

Correct
Correct! You can find more information in the video *Kernel Principal Component Analysis and Multidimensional Scaling*.

3. Which of the following data types is more suitable for Kernel PCA than PCA? 1 / 1 point

- ◉ Data where the classes are not linearly separable.
- ○ Data with linearly separable classes.
- ○ Data that do not need to be mapped to a higher dimension to distinguish categories.
- ○ None; they can be used interchangeably.

Correct
Correct! With kernel PCA, we are able to identify nonlinear features by mapping to a higher dimension prior to applying PCA.

4. By applying MDS, you are able to: 1 / 1 point

- ○ Attain higher dimensions for the features.
- ◉ Find embeddings for points so that their distance is the most similar to the original distance.
- ○ Preserve variance within the original data.
- ○ Maximize distance between data points in a lower dimension.

Correct
Correct! The goal of MDS is to find embeddings that minimize the "Stress" cost function and mimic the original distance relationship the most.

5. Which one of the following hyperparameters is NOT considered when using GridSearchCV for Kernel PCA? 1 / 1 point

- ◉ n_clusters
- ○ n_components
- ○ gamma
- ○ kernels

Correct
Correct! "n_clusters" is not a hyperparameter for Kernel PCA and thus cannot be incorporated.