KPCA (Kernel PCA): a non-linear version of PCA that uses kernels.

https://people.eecs.berkeley.edu/~wainwrig/stat241b/scholkopf_kernel.pdf

https://ml-explained.com/blog/kernel-pca-explained

KLDA (Kernel LDA or Generalized discriminant analysis): a non-linear version of LDA

https://en.wikipedia.org/wiki/Kernel_Fisher_discriminant_analysis
https://homepages.inf.ed.ac.uk/rbf/CVonline/LOCAL_COPIES/LI1/kda/index.html

Multidimensional Scaling (MDS): linear dimensionality reduction technique that tries to preserve the distances between data.

https://towardsdatascience.com/mds-multidimensional-scaling-smart-way-to-reduce-dimensionality-in-python-7c126984e60b

https://www.statisticshowto.com/multidimensional-scaling/

Isomap (Isometric Mapping): a non-linear dimensionality reduction method based on the spectral theory which tries to preserve the geodesic distances in the lower dimension.

https://towardsdatascience.com/isomap-embedding-an-awesome-approach-to-non-linear-dimensionality-reduction-fc7efbca47a0

https://www.sjsu.edu/faculty/guangliang.chen/Math253S20/lec10ISOmap.pdf

UMAP (Uniform Manifold Approximation and Projection): a non-linear dimensionality reduction technique based on manifold learning techniques and ideas from topological data analysis.

https://towardsdatascience.com/umap-dimensionality-reduction-an-incredibly-robust-machine-learning-algorithm-b5acb01de568

https://towardsdatascience.com/how-exactly-umap-works-13e3040e1668

ICA (Independent Component Analysis): a linear dimension reduction method, which transforms the dataset into columns of independent components.

https://towardsdatascience.com/independent-component-analysis-ica-a3eba0ccec35

https://www.emerald.com/insight/content/doi/10.1016/j.aci.2018.08.006/full/pdf?title=independent-component-analysis-an-introduction

LLE (Locally Linear Embedding): a non-linear dimensionality reduction technique that can discover non-linear structures in the data set, and also preserve the distances within local neighborhoods.

https://towardsdatascience.com/lle-locally-linear-embedding-a-nifty-way-to-reduce-dimensionality-in-python-ab5c38336107

https://cs.nyu.edu/~roweis/lle/papers/lleintro.pdf

PP (Projection pursuit): non-linear dimensionality reduction technique which involves finding the most "interesting" possible projections in multidimensional data.

https://towardsdatascience.com/interesting-projections-where-pca-fails-fe64ddca73e6

https://www.geeksforgeeks.org/projection-pursuit-using-python/

Factor Analysis (FA): an approach to find latent variables which are not directly measured in a single variable but rather inferred from other variables in the dataset.

https://spotintelligence.com/2023/11/28/factor-analysis/

https://www.datacamp.com/tutorial/introduction-factor-analysis

Non-negative matrix factorization (NMF): a matrix factorization method where we constrain the matrices to be nonnegative.

https://towardsdatascience.com/nmf-a-visual-explainer-and-python-implementation-7ecdd73491f8

https://blog.acolyer.org/2019/02/18/the-why-and-how-of-nonnegative-matrix-factorization/

t-SNE: t-Distributed Stochastic Neighbor Embedding

https://towardsdatascience.com/t-sne-machine-learning-algorithm-a-great-tool-for-dimensionality-reduction-in-python-ec01552f1a1e

https://towardsdatascience.com/t-sne-clearly-explained-d84c537f53a

Canonical Correlation Analysis (CCA)

https://towardsdatascience.com/canonical-correlation-analysis-b1a38847219d

https://www.cs.cmu.edu/~tom/10701_sp11/slides/CCA_tutorial.pdf

Decision Trees: a non-parametric supervised learning algorithm, which is utilized for both classification and regression tasks.

https://blog.paperspace.com/decision-trees/
https://towardsdatascience.com/an-exhaustive-guide-to-classification-using-decision-trees-8d472e77223f
https://towardsdatascience.com/understanding-decision-trees-for-classification-python-9663d683c952

Random Forests: an ensemble learning method for classification, regression and other tasks that operates by constructing a multitude of decision trees.

https://towardsdatascience.com/random-forest-3a55c3aca46d
https://towardsdatascience.com/random-forests-algorithm-explained-with-a-real-life-example-and-some-python-code-affbfa5a942c

Useful Resources
www.towardsdatascience.com
www.machinelearningmastery.com
www.analyticsvidhya.com
www.machinelearningplus.com
www.kdnuggets.com

If you choose any of the topics below, you would need to present the specific paper mentioned below.

Ensemble Methods: techniques that create multiple models and then combine them to produce improved results.
https://www.cse.unr.edu/~bebis/CS479/PaperPresentations/EnsembleMethods.pd
https://machinelearningmastery.com/tour-of-ensemble-learning-algorithms/

Bayesian Face Recognition
https://www.cse.unr.edu/~bebis/CS479/PaperPresentations/EnsembleMethods.pdf

Feature Selection from Huge Feature Sets
https://www.cs.colostate.edu/~draper/papers/bins_iccv01.pdf