

Lab exercises

Follow and do the tutorials from the following links:

- Principal Component Analysis

<https://towardsdatascience.com/pca-using-python-scikit-learn-e653f8989e60>

- Manifold learning

<https://jakevdp.github.io/PythonDataScienceHandbook/05.10-manifold-learning.html>

- Boosting

<https://machinelearningmastery.com/visualize-gradient-boosting-decision-trees-xgboost-python/>

- Clustering

<https://towardsdatascience.com/an-introduction-to-clustering-algorithms-in-python-123438574097>

- Support Vector Machine

<https://jakevdp.github.io/PythonDataScienceHandbook/05.07-support-vector-machines.html>

- Linear Discriminant Analysis

https://scikit-learn.org/stable/auto_examples/decomposition/plot_pca_vs_lda.html#sphx-glr-auto-examples-decomposition-plot-pca-vs-lda-py

Further exercises

- Experiment with tabular data

<http://archive.ics.uci.edu/ml/datasets/Travel+Reviews>

<http://archive.ics.uci.edu/ml/datasets/Iris>

<http://archive.ics.uci.edu/ml/datasets/Heart+Disease>

- Sklearn datasets

<https://scikit-learn.org/stable/datasets/index.html>

- Use dimension reduction (e.g. clustering, PCA, manifold learning)
 - To visualize the pattern in the data
- Try all classification algorithms (e.g. SVM, LDA, boosting)
 - To see which one is better
- Compare the advantages and disadvantages of all algorithms
- Reading materials

<https://towardsdatascience.com/3-ways-to-load-csv-files-into-colab-7c14fcbdc92>

More datasets to try if you have time

<http://archive.ics.uci.edu/ml/datasets.php>

Links

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