The most known difference between supervised learning and unsupervised learning is that the data are labeled for supervised learning while unsupervised learning doesn’t need labeled data. Furthermore, as we discussed in the class, under-sampling and over-sampling for unsupervised classification is no longer an issue comparing to KNN. Also, in the article, both of unsupervised learning modes lead to patterns of acquisition that differ from supervised classification learning in a way that both unsupervised modes perform significantly better than supervised learning for type IV that stated in the study. Moreover, supervised and unsupervised learning differ and many aspects such as: applications, goal, complexity. In supervised learning the goal is to predict outcomes for new data while unsupervised learning is to get insights from large volumes of new data. Also, unsupervised is better in anomaly detection, which we applied ANN to credit card dataset to detect fraud when the target was highly unbalanced. In terms of complexity, unsupervised learning needs powerful tool to work with large amount of unclassified data while Supervised learning is easy to implement. The drawback of both unsupervised and supervised is that Supervised learning models can be time-consuming to train, and the labels for input and output variables require expertise. Meanwhile, unsupervised learning methods can have wildly inaccurate results unless you have human intervention to validate the output variables.

# References

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