

Week6: CS 6301 - Machine Learning Lab

Date: 6.3.23

Instructions:

1. For exercises and spot write the results obtained, plots and inferences (what do u understand from the results).
2. Write ur own functions (instead of packages) for the algorithms to get full mark.
3. Plot your results for before and after dimensionality reduction in all the three algorithms.

1. Implement Linear Discriminant Analysis (LDA) (5)

Perform classification of NIR spectra data with Linear Discriminant Analysis.

<https://github.com/nevernervous78/nirpyresearch>

2. Implement Principal Component Analysis (PCA) (5)

Perform dimensionality reduction using PCA for the same dataset.

3. Implement Independent Component Analysis (ICA) (5)

Perform independent componenet analysis (ICA) with the following data.

(In millions of yen)

Fiscal years ended / ending March 31	2019	2020	2021	2022	2023 (Forecast)
Cash flows from operating activities	64,235	261,863	274,907	147,517	280,000
Cash flows from investing activities	-76,675	-84,023	-122,491	-63,377	-100,000
Free cash flows	-12,440	177,840	152,416	84,140	180,000
Cash flows from financing activities	-50,503	-91,747	1,394	-189,616	-
Cash and cash equivalents, at end of period	278,314	359,252	523,345	430,778	-

Cash Flows

Ref: <https://medium.com/machine-learning-researcher/dimensionality-reduction-pca-and-lda-6be91734f567>