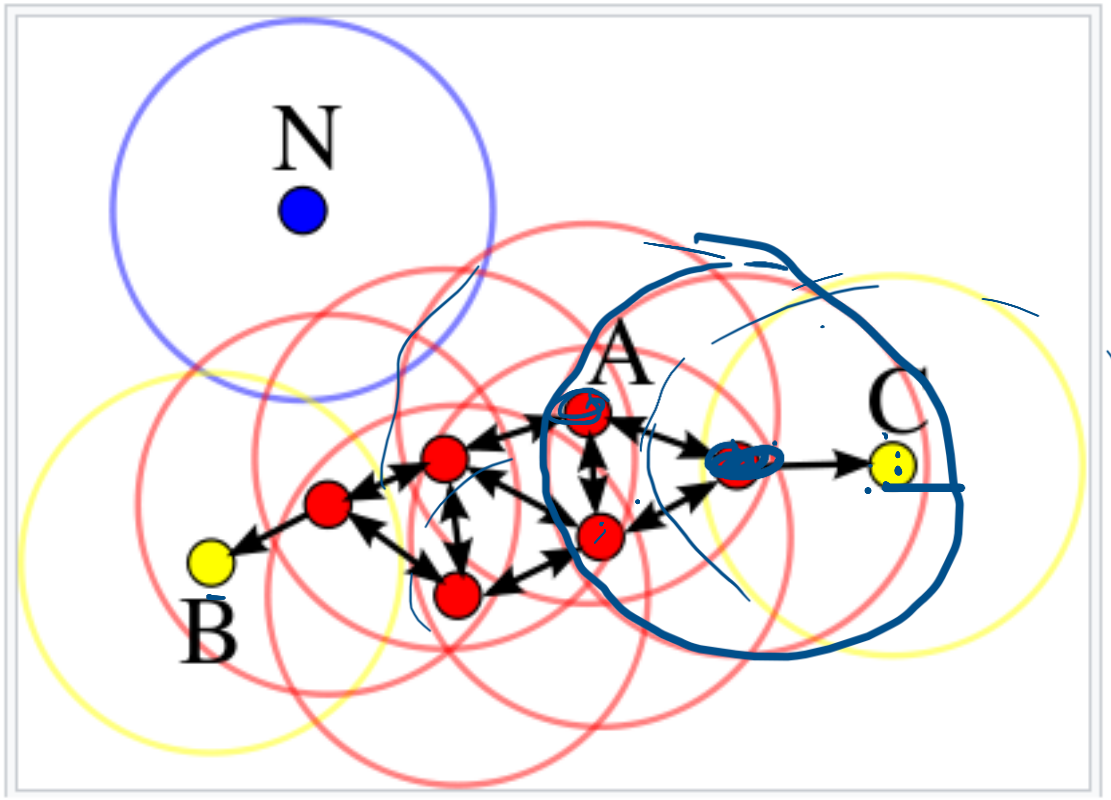
BİL 475 Örüntü Tanıma

Boyut İndirgeme Algoritmaları

Density−**B**ased **S**patial **C**lustering of **A**pplications with **N**oise ***DBSCAN***

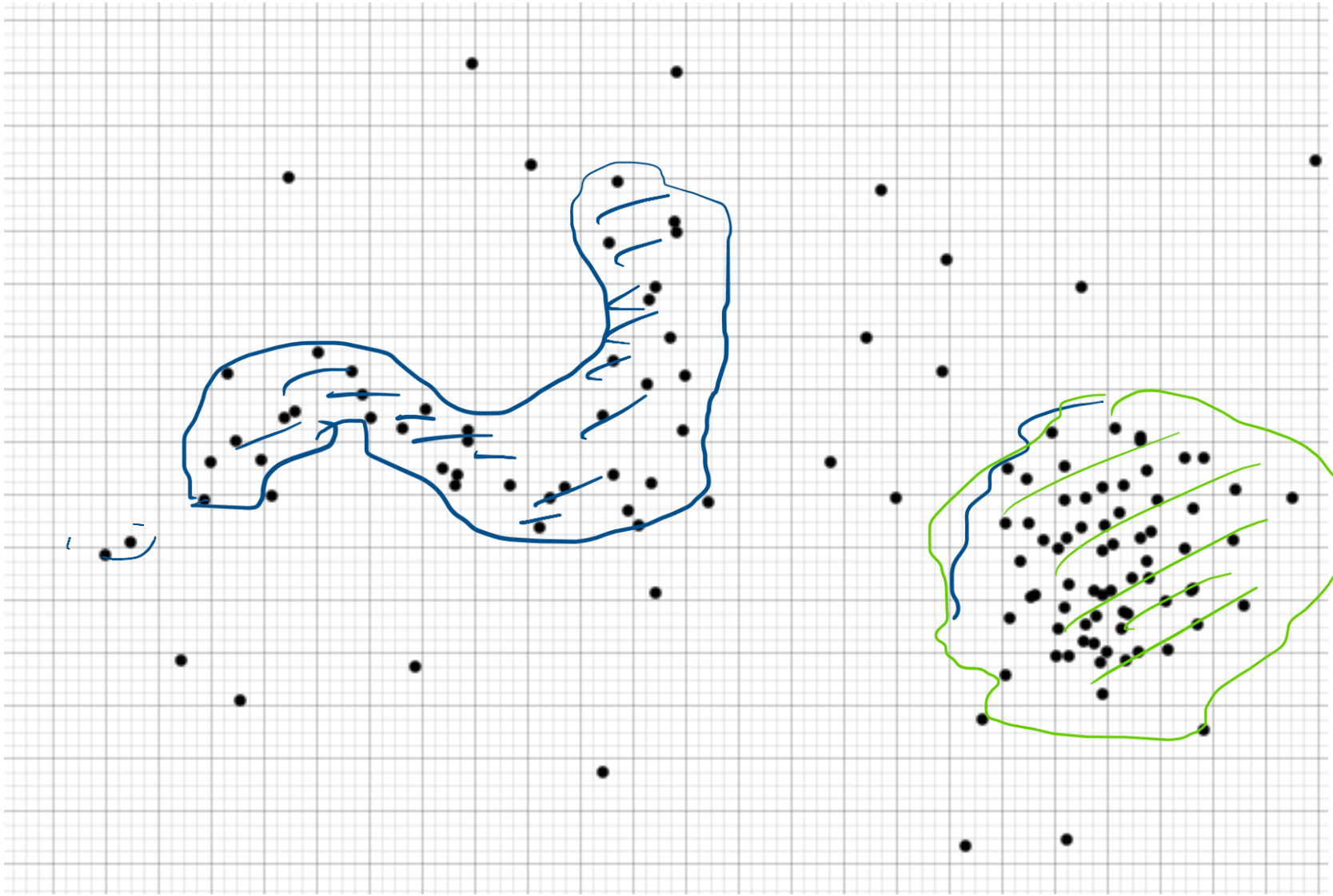
Amaç:

Ön ***Bilgi***:



https://en.wikipedia.org/wiki/DBSCAN

Density−**B**ased **S**patial **C**lustering of **A**pplications with **N**oise $\boldsymbol{DBSCAN}$

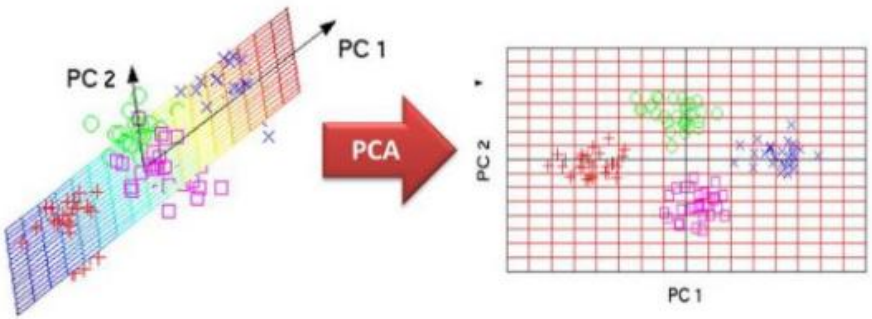


Density−**B**ased **S**patial **C**lustering of **A**pplications with **N**oise $\boldsymbol{DBSCAN}$

Boyut İndirgeme

PCA ve LDA Algoritmaları

Yüksek Boyutlu Öznitelik Uzayı



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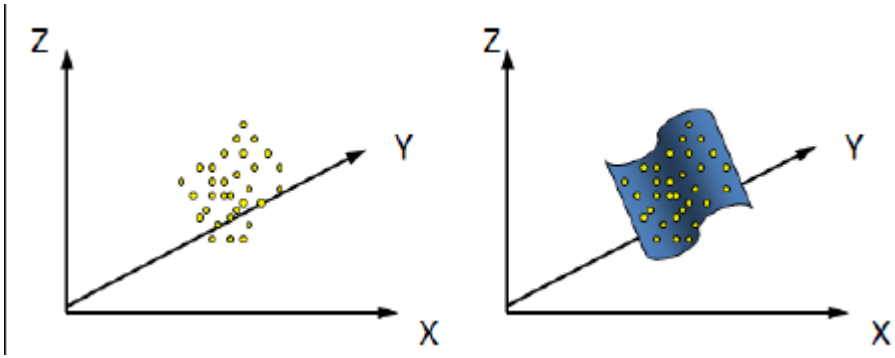
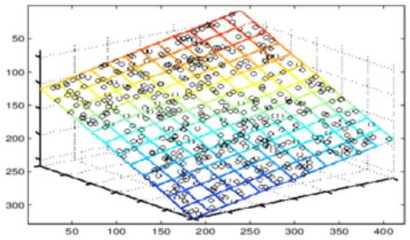
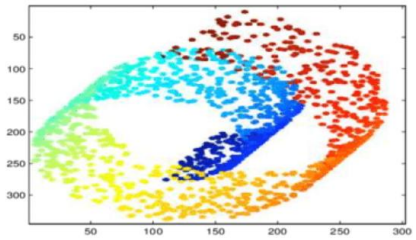
https://www.researchgate.net/publication/236165573_LEARNING_THE_MANIFOLDS_OF_LOCAL_FEATURES_AND_THEIR_SPATIAL_ARRANGEMENTS/figures?lo=1&utm_source=google&utm_medium=organic

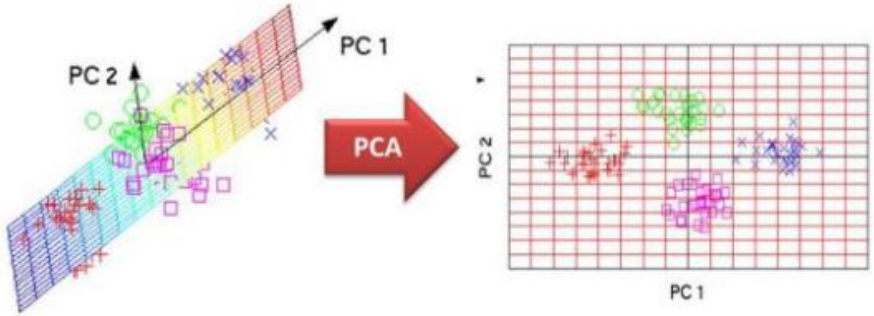
https://www.pnas.org/content/103/26/9885/tab-figures-data

https://towardsdatascience.com/a-complete-guide-to-principal-component-analysis-pca-in-machine-learning-664f34fc3e5a









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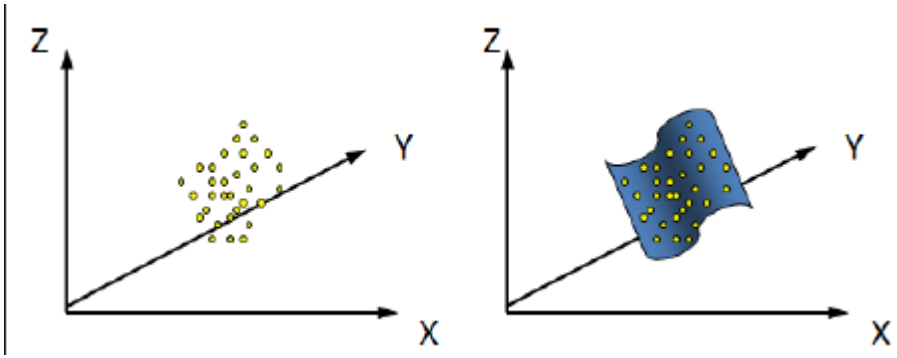

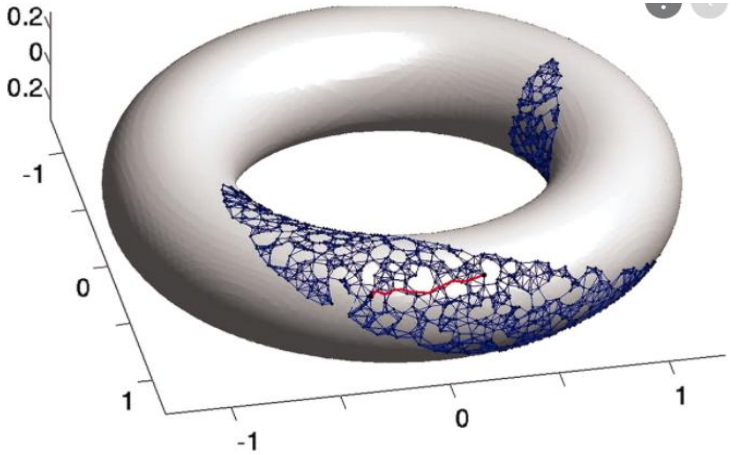

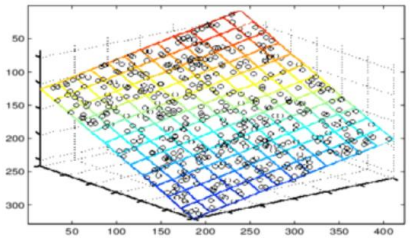

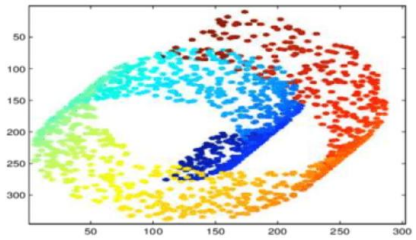

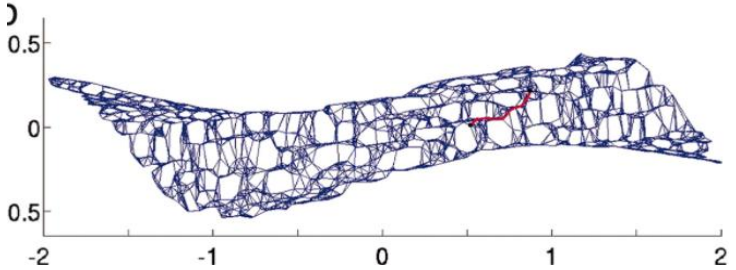

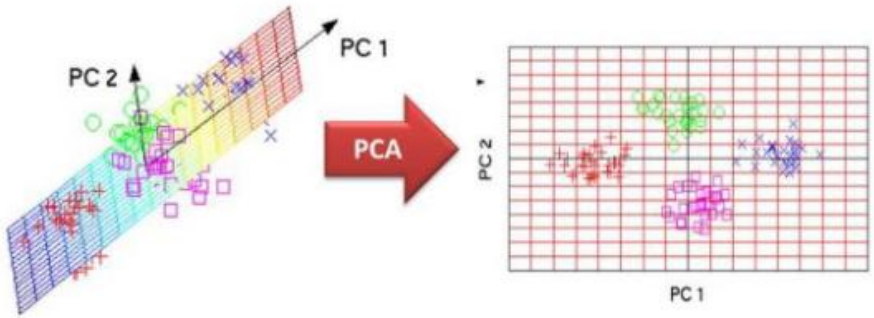

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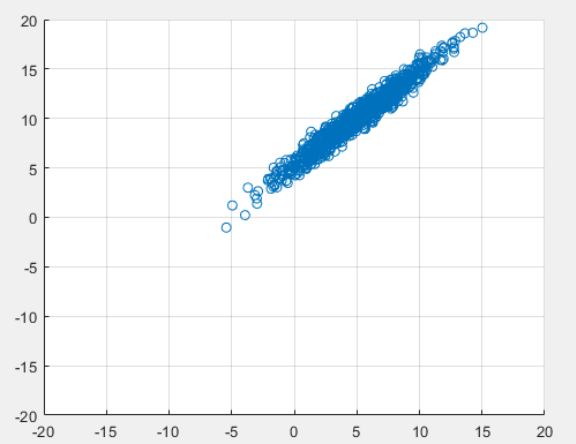
Temel Bileşen Analizi
(Principal Component Analysis (PCA))



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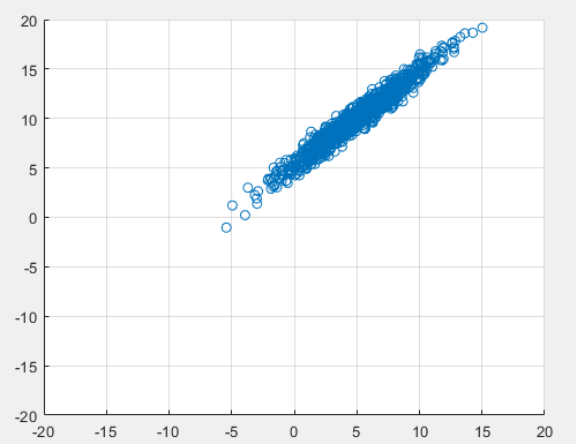
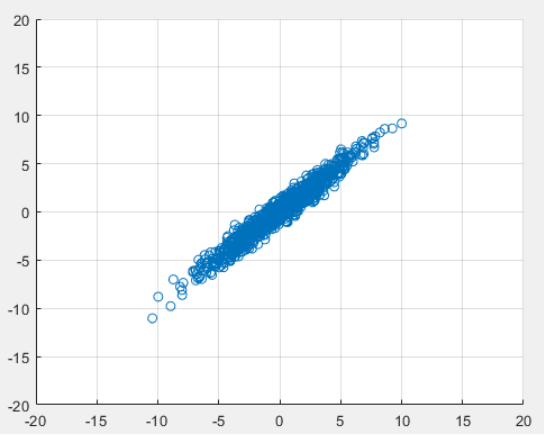
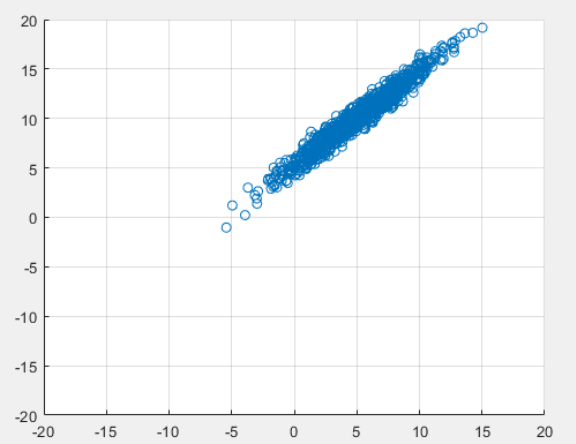
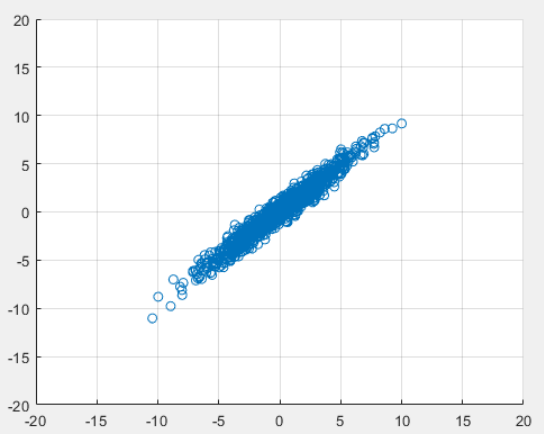
(Principal Component Analysis (PCA))





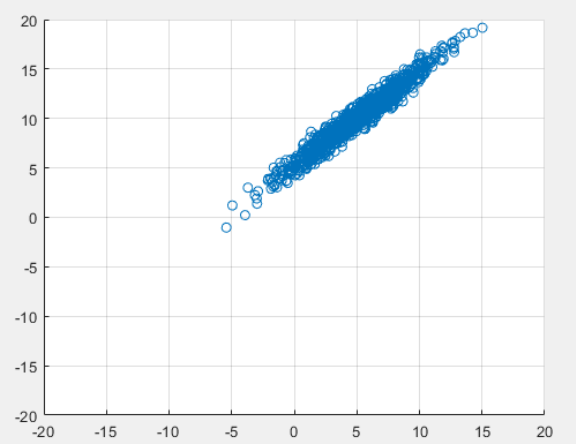
Temel Bileşen Analizi
(Principal Component Analysis (PCA))

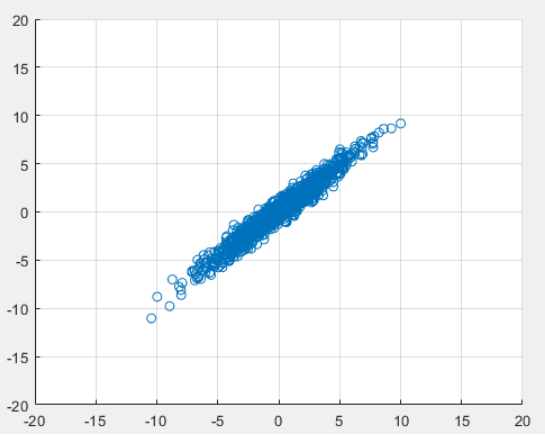


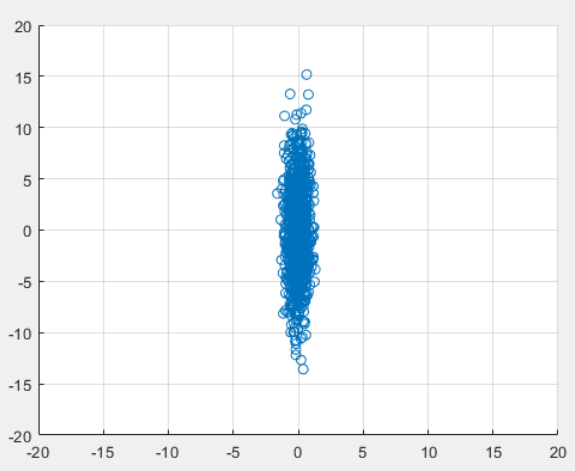


Bir noktanın düzleme olan uzaklığı

Temel Bileşen Analizi
(Principal Component Analysis (PCA))







PCA
Algoritması
Adımları

Temel Bileşen Analizi
(Principal Component Analysis (PCA))

Bir Örnek

```
Xr =

     7    11
    11    18
    -2     4
     8    13
     6    11
     1     6
     4     9
     6    12
    17    22
    14    20
```

7.2 12.6

```
X_zm =

   -0.2000   -1.6000
    3.8000    5.4000
   -9.2000   -8.6000
    0.8000    0.4000
   -1.2000   -1.6000
   -6.2000   -6.6000
   -3.2000   -3.6000
   -1.2000   -0.6000
    9.8000    9.4000
    6.8000    7.4000
```

```
C =

   32.6222   33.0889
   33.0889   34.2667
```

```
V =

   -0.7158    0.6983
    0.6983    0.7158
```

```
D =

    0.3453         0
         0   66.5435
```

Temel Bileşen Analizi
(Principal Component Analysis (PCA))

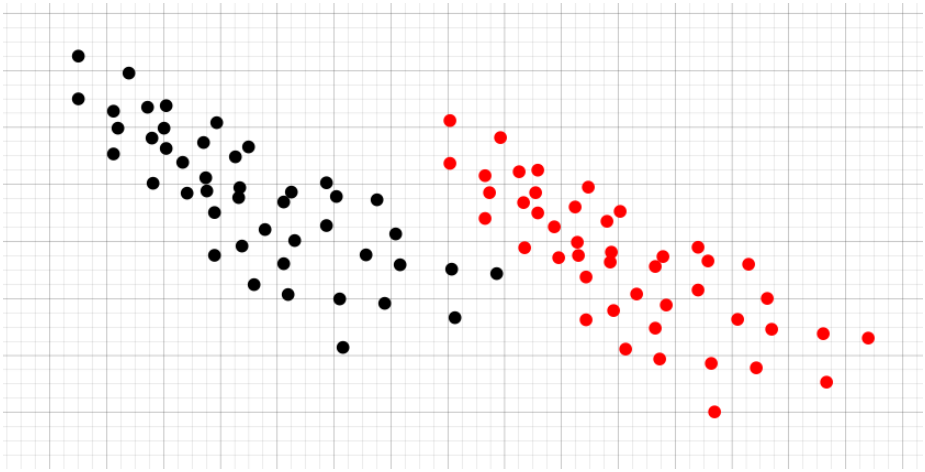
MATLAB

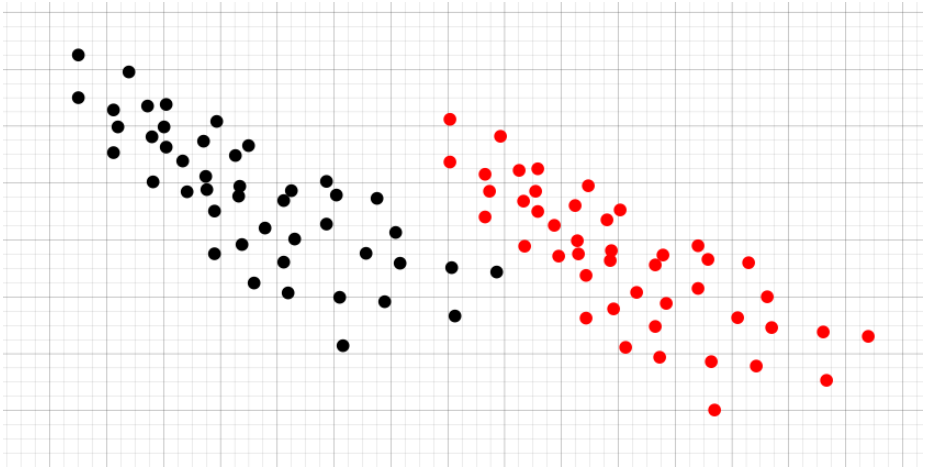
PCA Vektör Seçimi

https://www.youtube.com/watch?v=MnRskV3NY1k&ab_channel=T%C3%BCbingenMachineLearning

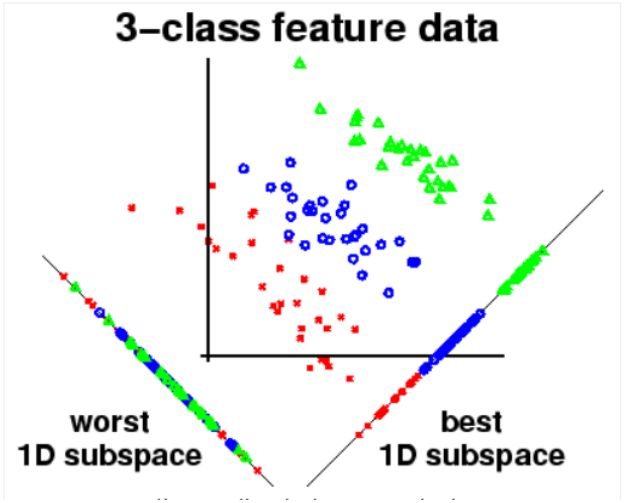
https://www.youtube.com/channel/UCupmCsCA5CFXmm31PkUhEbA

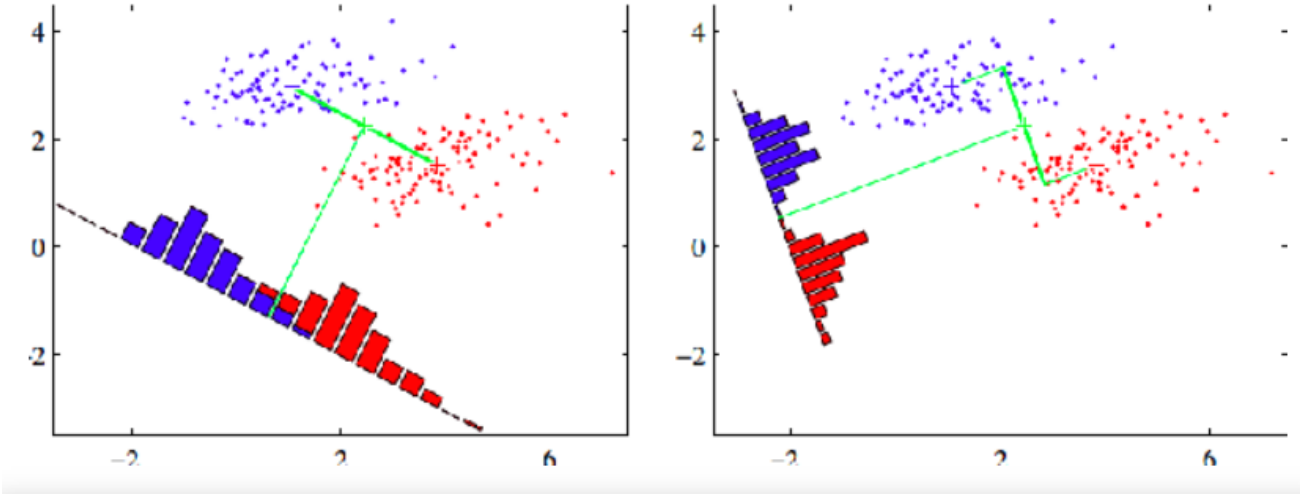
Doğrusal Diskriminant Analizi
(Linear Discriminant Analysis (LDA))





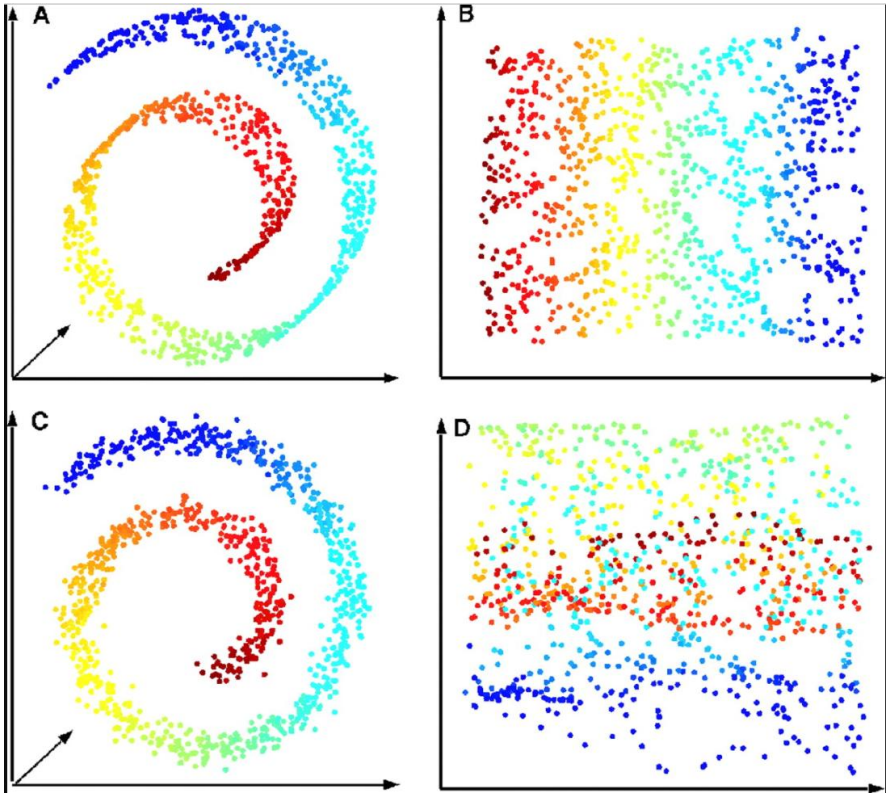
Doğrusal Diskriminant Analizi
(Linear Discriminant Analysis (LDA))





PCA ve LDA Nasıl Kullanılır?

İleri Yöntemler
KPCA , KLDA , Manifold Temelli, tSNE



https://www.science.org/doi/10.1126/science.295.5552.7a

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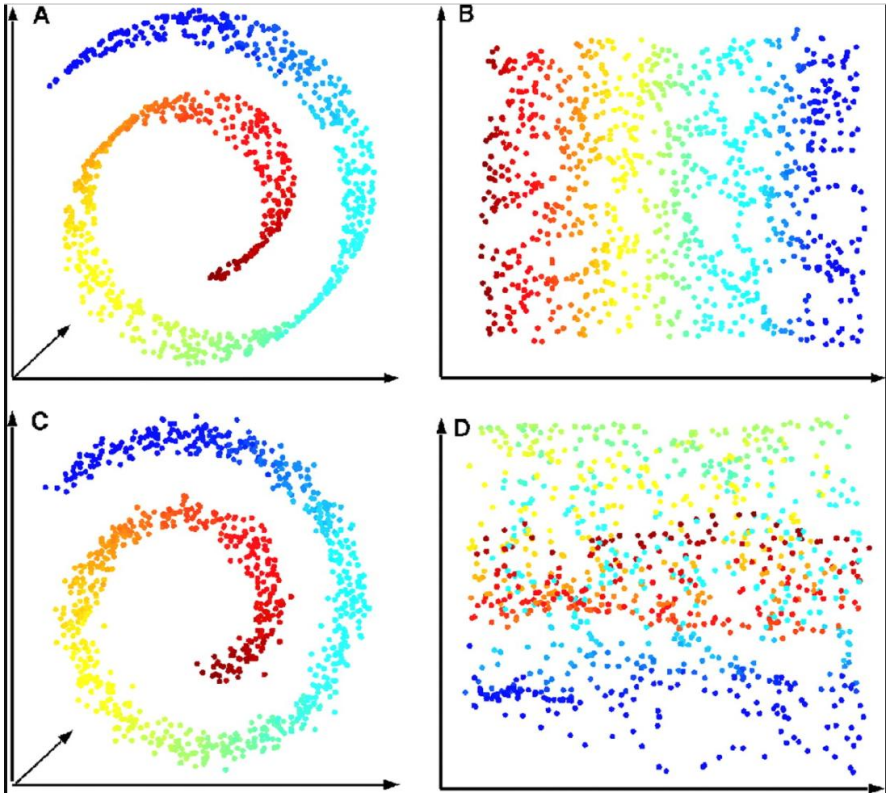
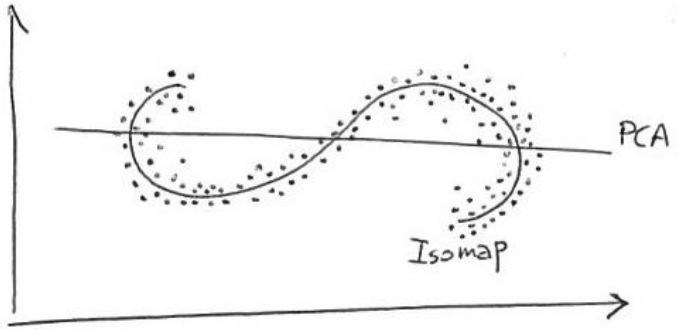
KPCA , KLDA , Manifold Temelli, tSNE





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https://medium.com/data-science-in-your-pocket/dimension-reduction-using-isomap-72ead0411dec

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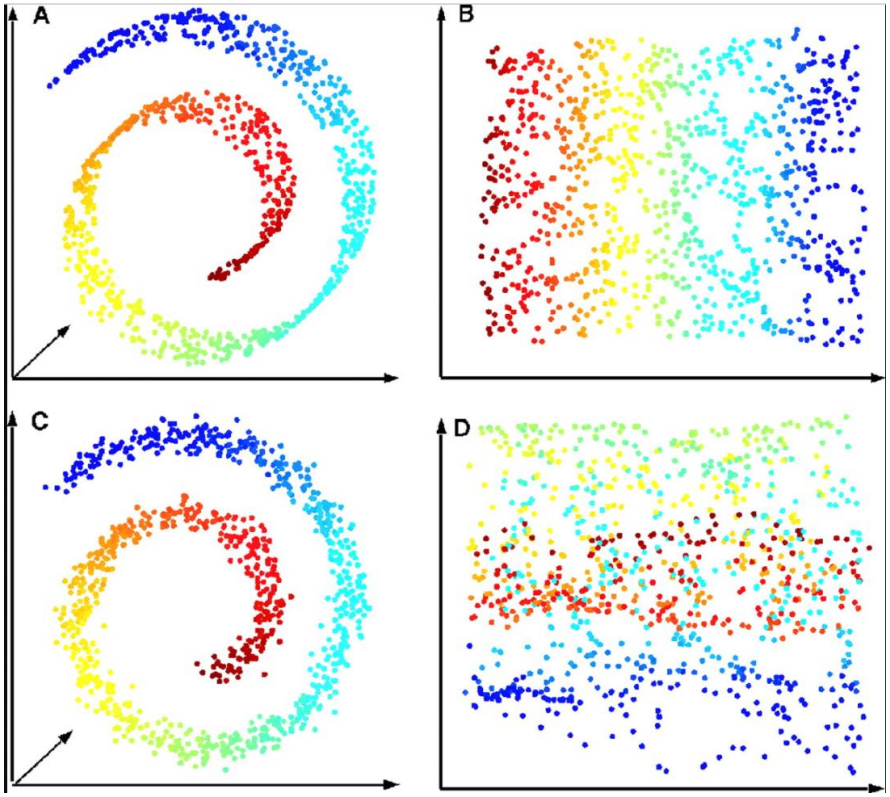
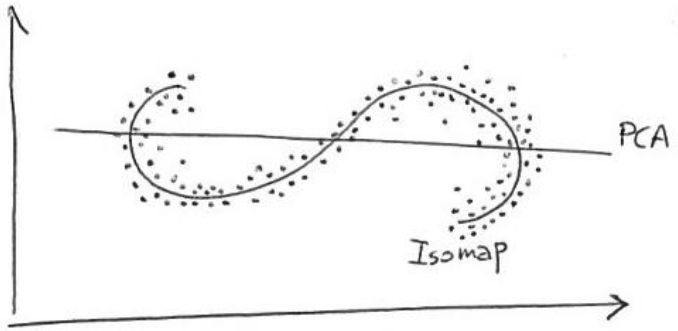
KPCA , KLDA , Manifold Temelli, tSNE





kNN

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İleri Yöntemler
Veri Görselleştirme, tSNE