Introduction to unsupervised learning

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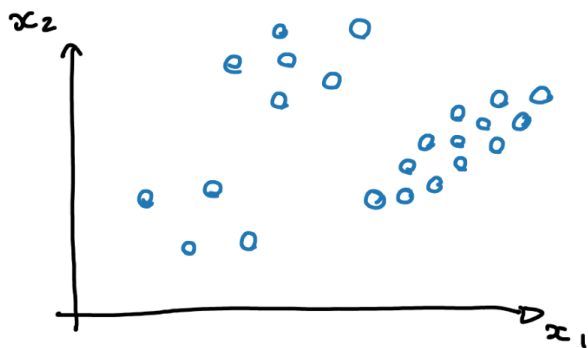
Supervised learning

$x^{(5)}$

$y \in \{ \square, \triangle \}$
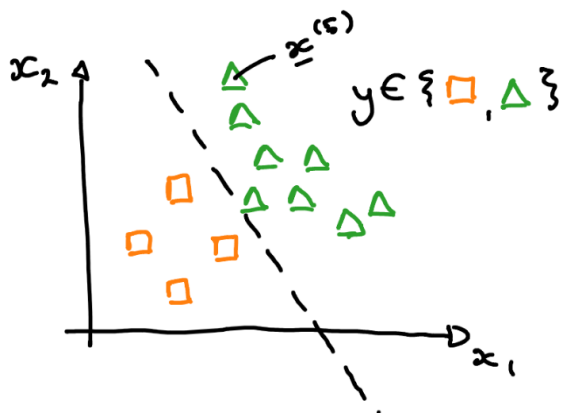
Unsupervised learning

Dimensionality reduction

Features:[1]

x[1]: [0.59, 4.35, 4.80, 7.60, ..., 3.48, 4.93, 5.13, 3.07]
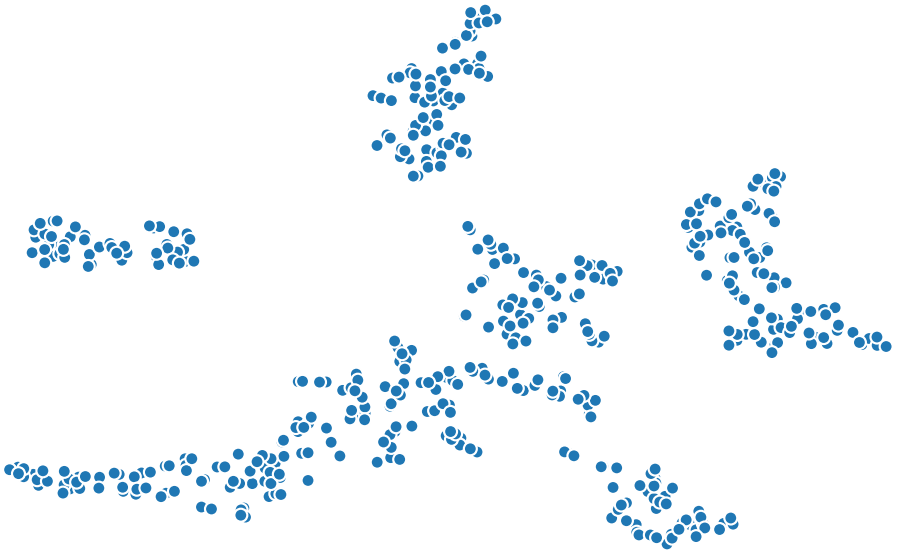
x[2]: [5.93, 4.86, 0.49, 6.84, ..., 2.98, 4.93, 5.93, 2.68]

x[3]: [7.99, 7.74, 3.43, 5.77, ..., 4.57, 3.47, 5.76, 2.33]

x[4]: [0.87, 4.11, 4.74, 1.01, ..., 5.34, 2.97, 3.83, 5.77]

x[5]: [0.64, 4.66, 4.72, 0.51, ..., 6.78, 3.36, 4.39, 5.73]

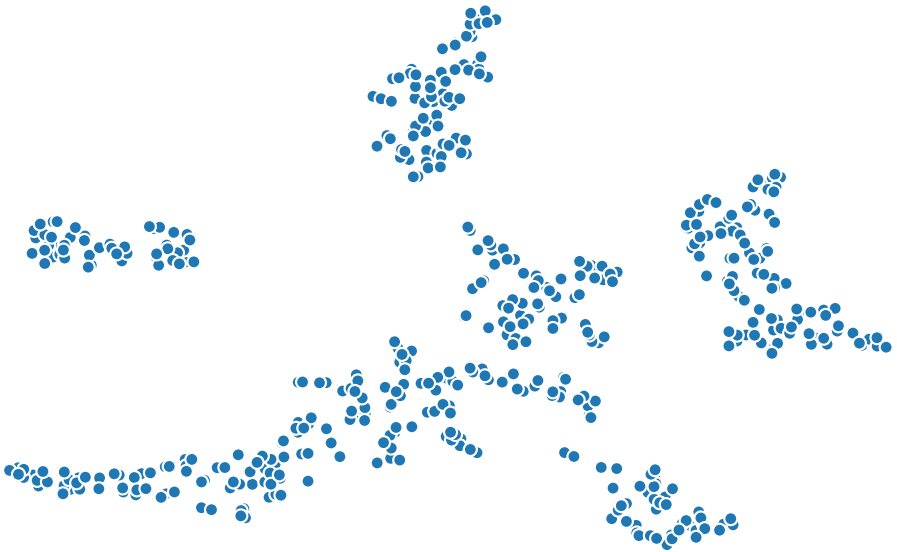x[6]: [8.28, 8.85, 3.10, 6.91, ..., 4.26, 3.74, 7.06, 4.33]

...

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[1]Data from (Kamper et al., 2014).

Dimensionality reduction can be used for

- Visualisation

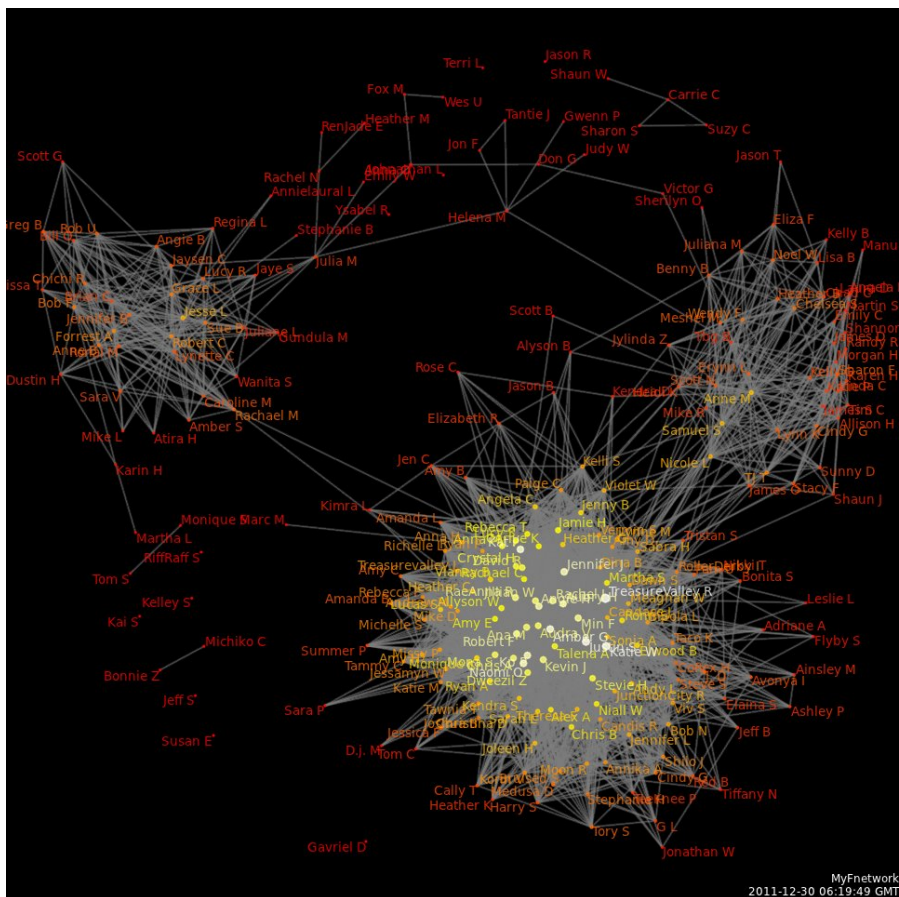- Reducing computational cost

- Compression

Clustering

Figure from Wikipedia.

Videos covered in this note

- Introduction to unsupervised learning (19 min)

Reading

- ISLR 12 intro
- ISLR 12.1