

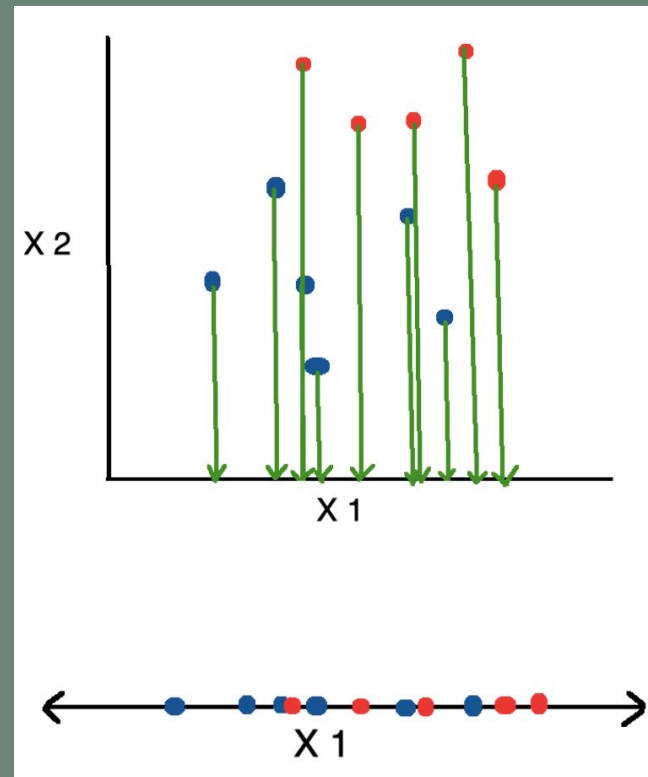
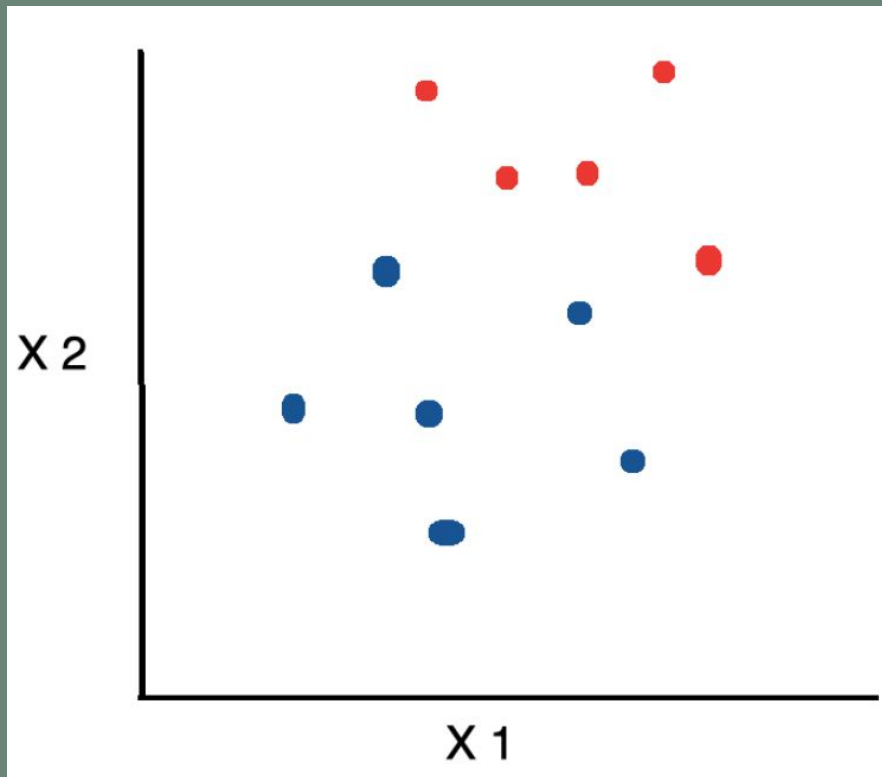
Reconhecimento de Padrões

Redução de dimensionalidade

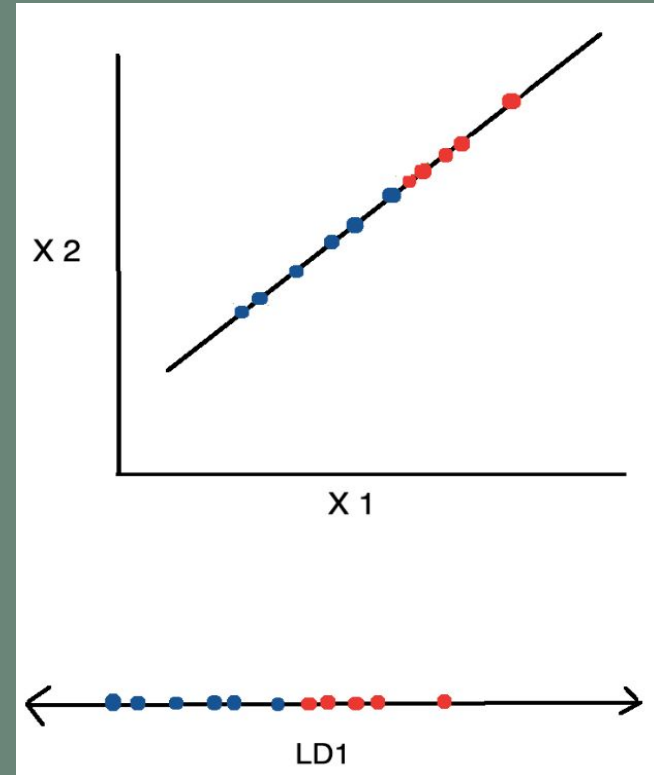
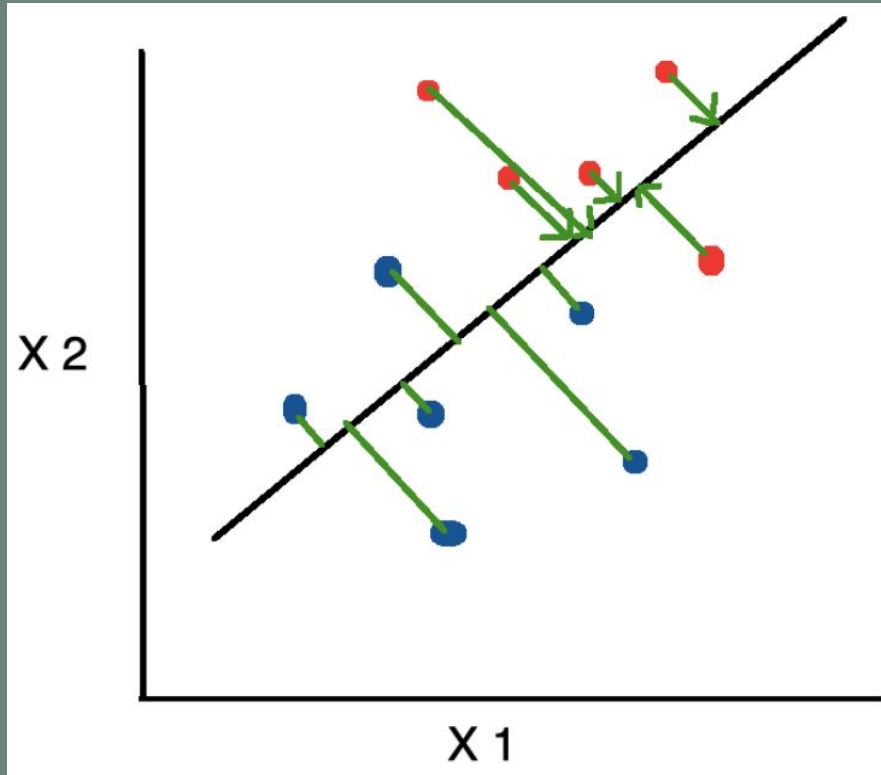
Profa: Deborah Magalhães



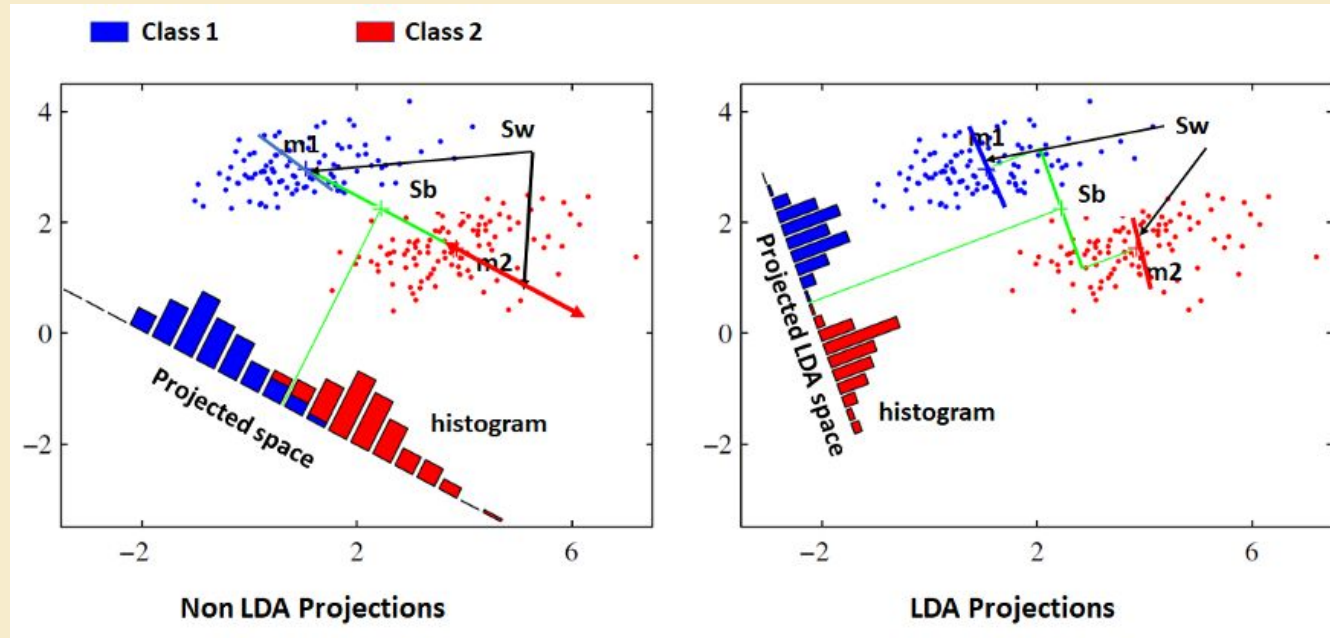
Reduzir 1-D



Reduzir 1-D com LDA

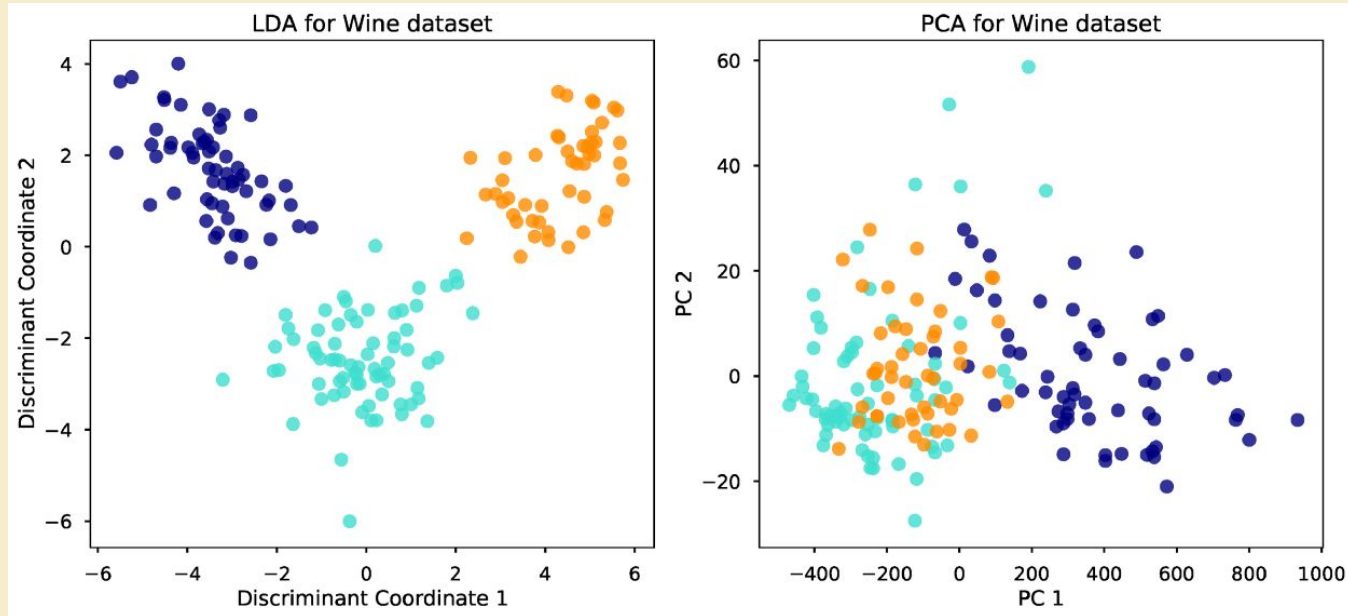


Linear Discriminant Analysis (LDA)



Fonte: Svensén, M., & Bishop, C. M. (2007). Pattern recognition and machine learning.

Linear Discriminant Analysis (LDA)



Fonte: <https://towardsdatascience.com/linear-discriminant-analysis-explained-f88be6c1e00b>

Linear Discriminant Analysis (LDA)

1. Calcular os vetores médios de cada classe;
2. Calcular as matrizes de dispersão intra e inter classes;
3. Calcular os autovetores e autovalores;
4. Manter os primeiros k autovetores, ordenados na ordem decrescente de autovalores;
5. Usar os k autovetores para projetar um novo espaço de características.

Linear Discriminant Analysis (LDA)

Passo 1: $\sum_{i=1}^C \sum_{j=1}^N \frac{x_j}{N_i}$

Passo 2: $S_w = \sum_{i=1}^C \sum_{j=1}^N (x_j - \bar{x}_i)(x_j - \bar{x}_i)^T$

$$S_b = \sum_{i=1}^C N_i (\bar{x}_i - \bar{x})(\bar{x}_i - \bar{x})^T$$

Passo 3: $S_w^{-1} S_b$



Muito Obrigada!

Se você tiver qualquer dúvida ou sugestão:

- deborah.vm@ufpi.edu.br

