

Aprendizado de Máquinas

Marcelo Vinícius Cysneiros Aragão

marcelovca90@inatel.br

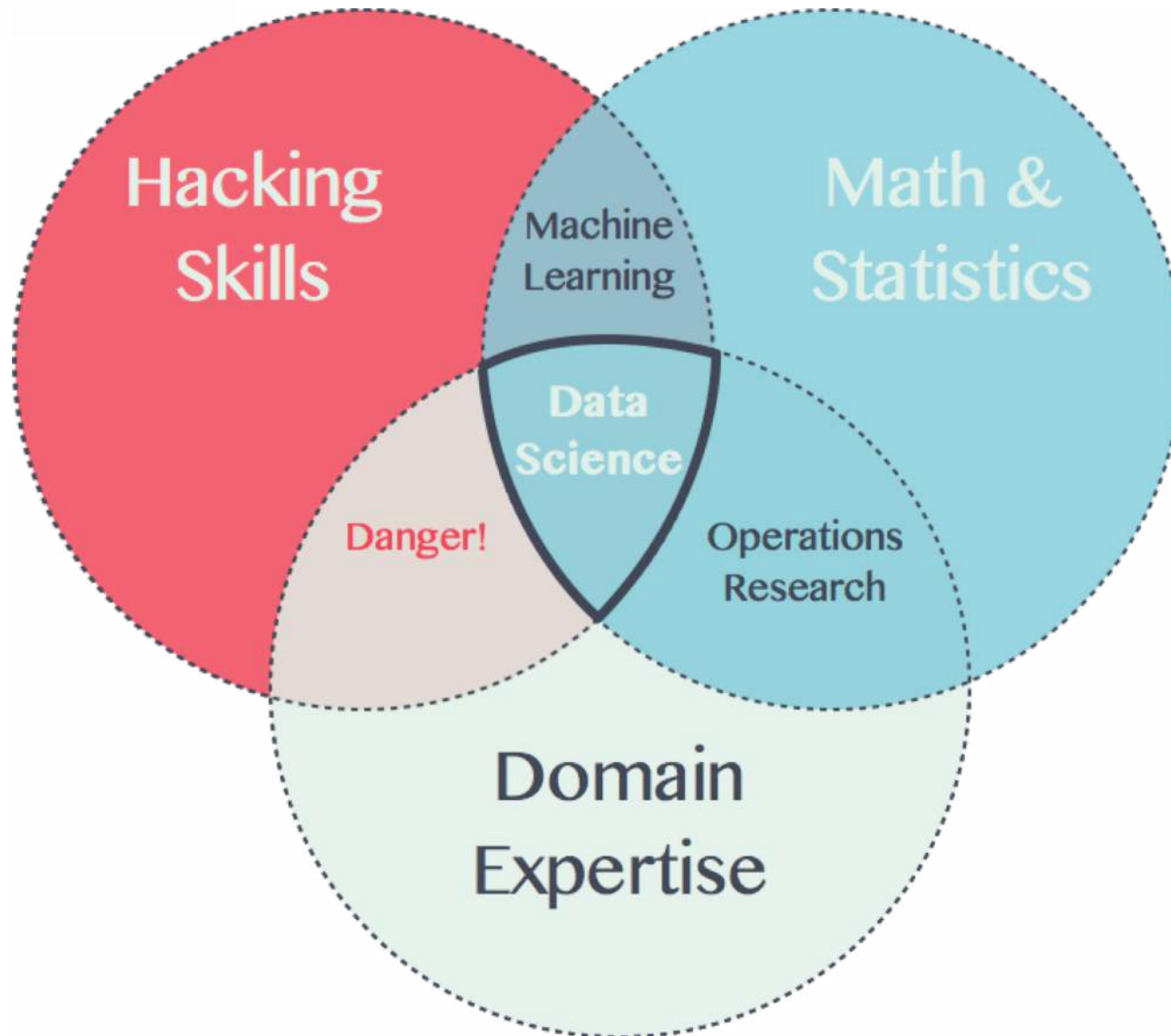
Av. João de Camargo, 510

Santa Rita do Sapucaí - MG

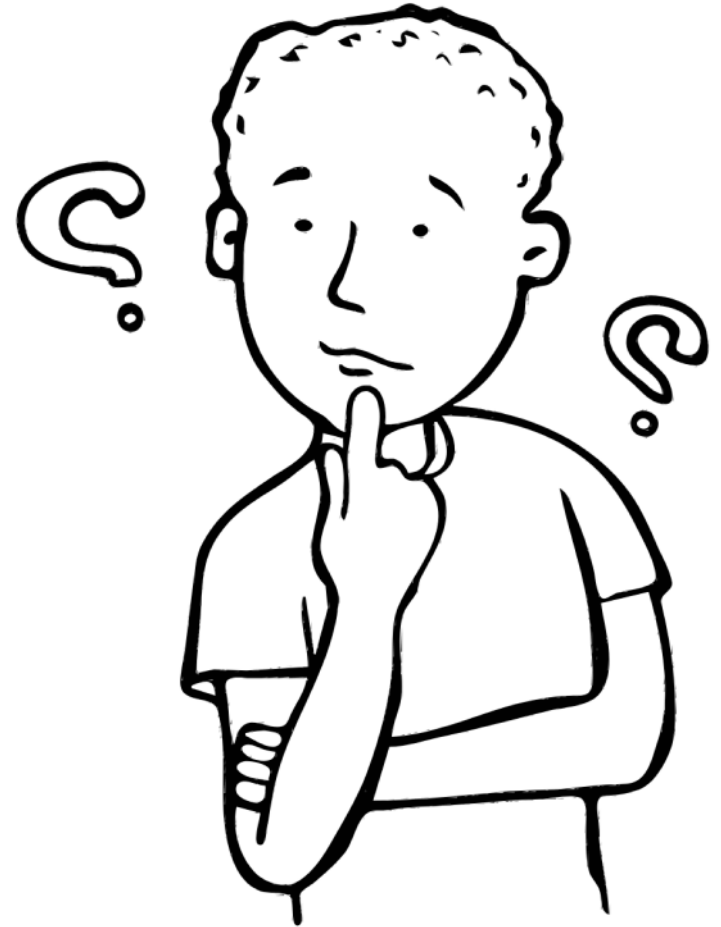
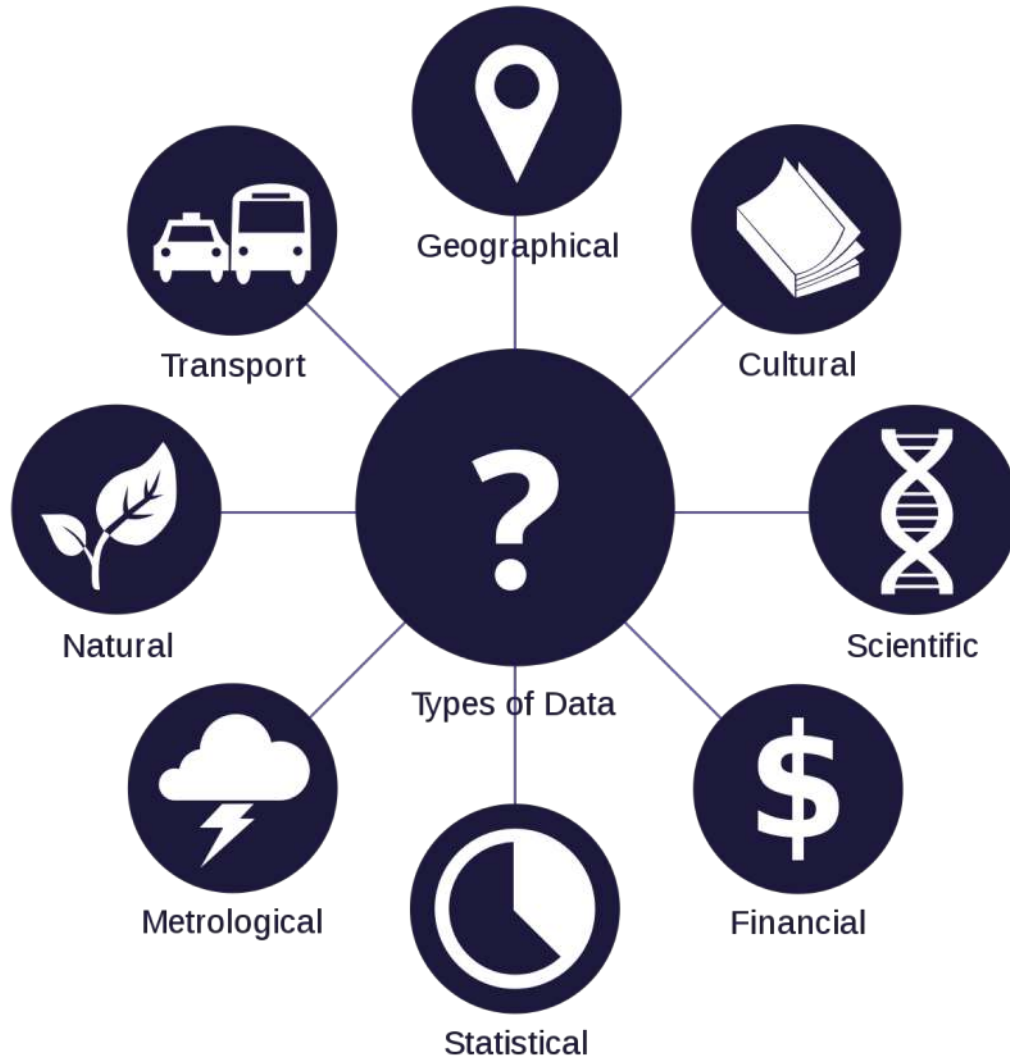
Tel: (35) 3471-9279

Fev 2018

Panorama

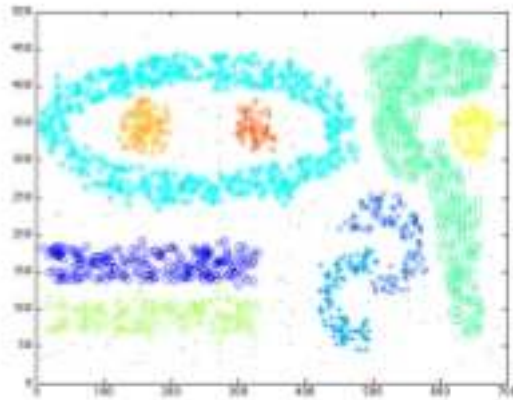


Tenho os dados, e agora?



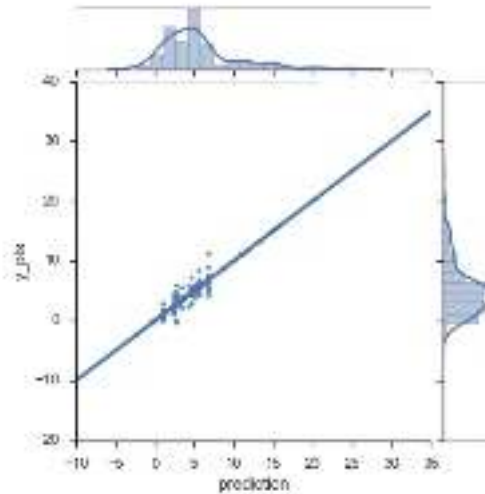
Tipos de aprendizado

Unsupervised Learning

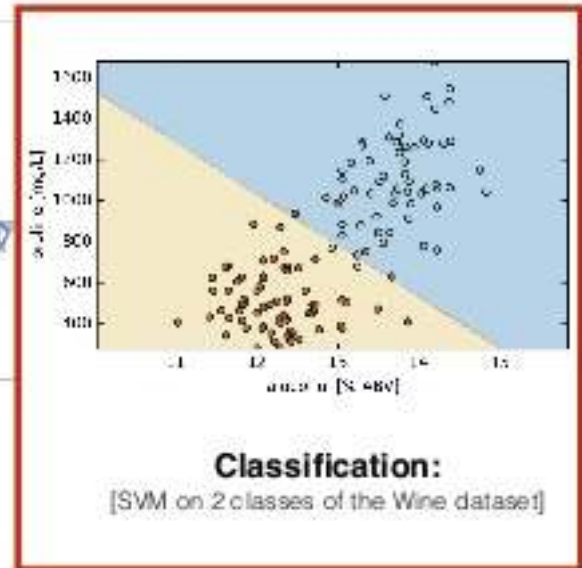


Clustering:
[DBSCAN on a toy dataset]

Supervised Learning



Regression:
[Soccer Fantasy Score prediction]

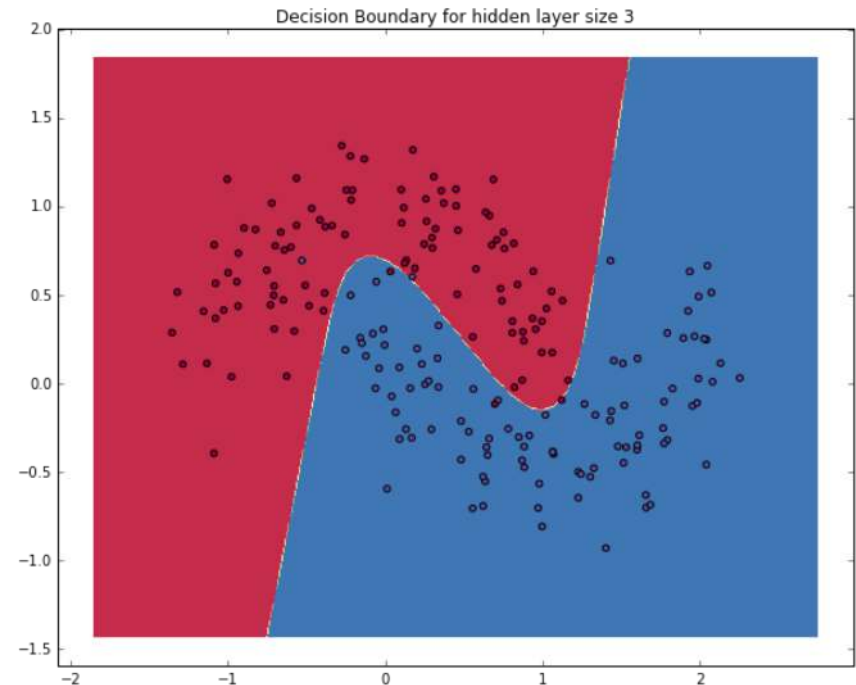
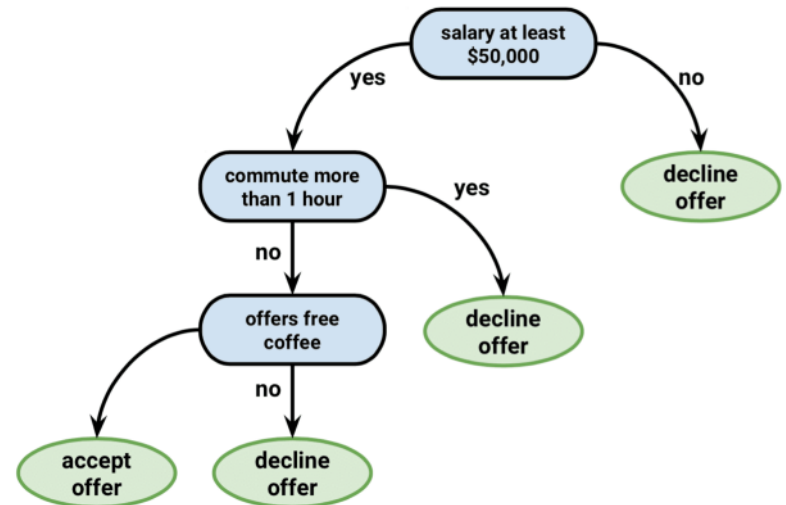
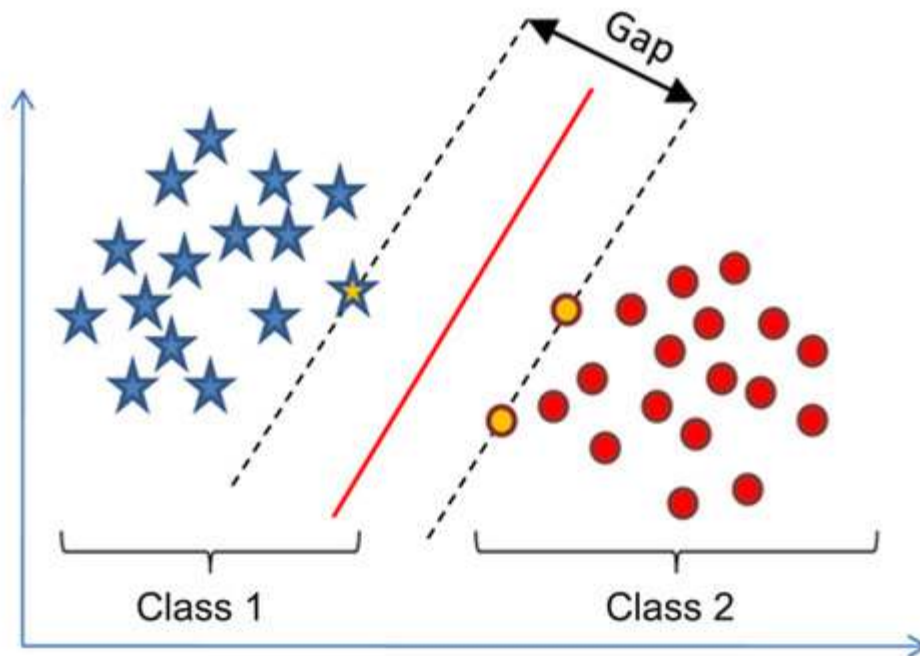


Classification:
[SVM on 2 classes of the Wine dataset]

Principais algoritmos

➤ Classificação:

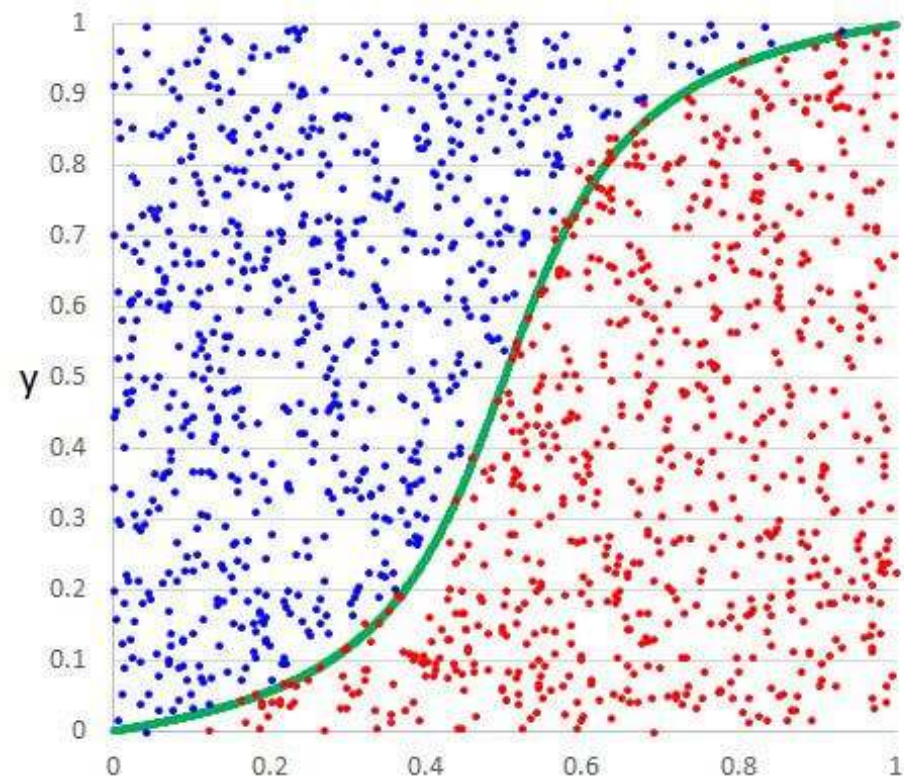
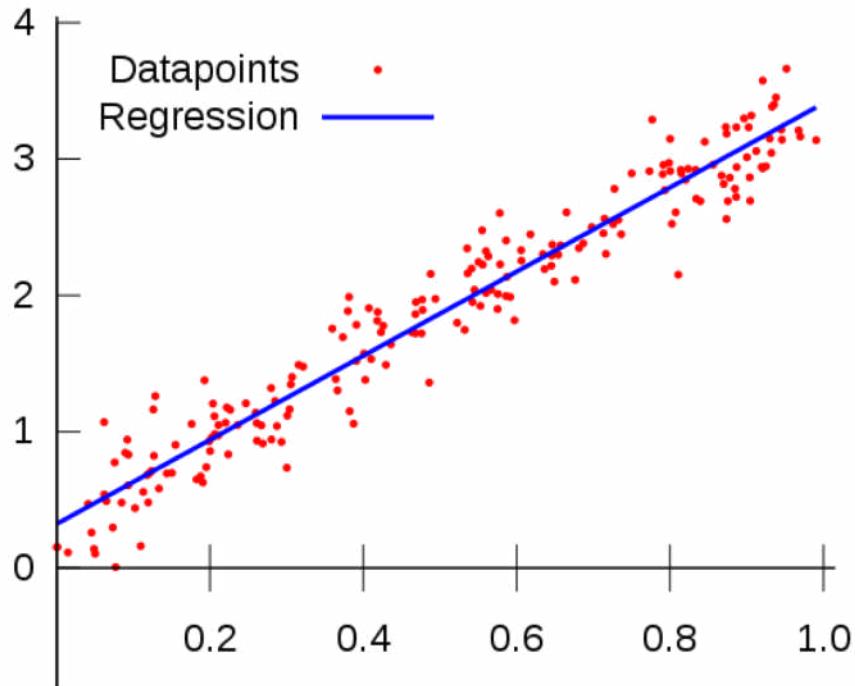
- ✓ Redes Neurais Artificiais
- ✓ Máquinas de Vetores de Suporte
- ✓ Árvores de Decisão



Principais algoritmos

➤ Regressão:

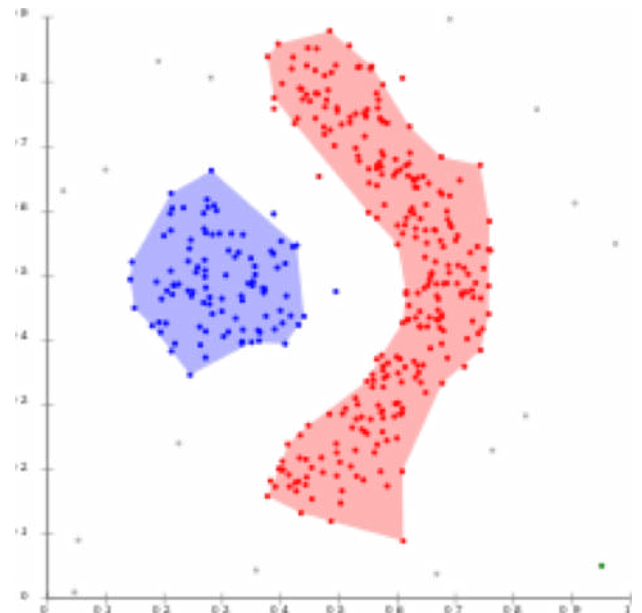
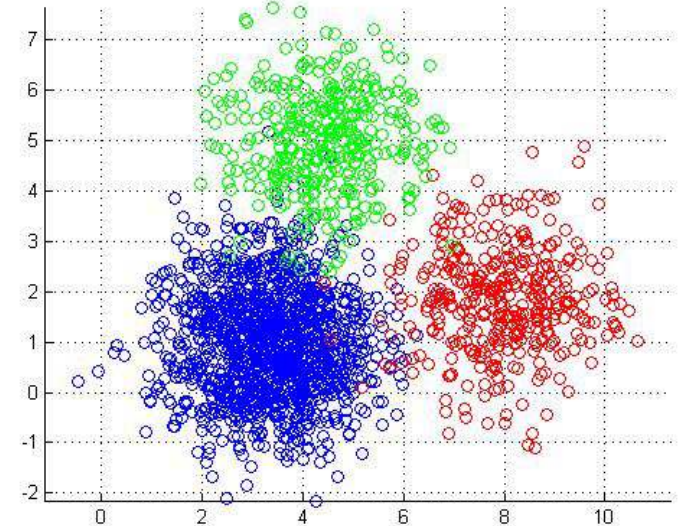
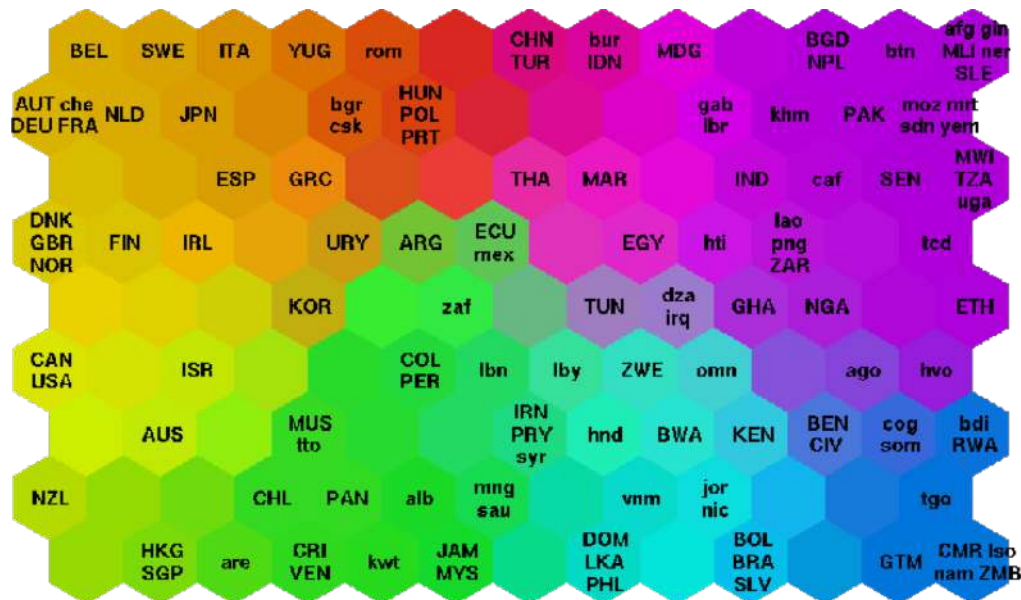
- ✓ Regressão Linear
- ✓ Regressão Logística



Principais algoritmos

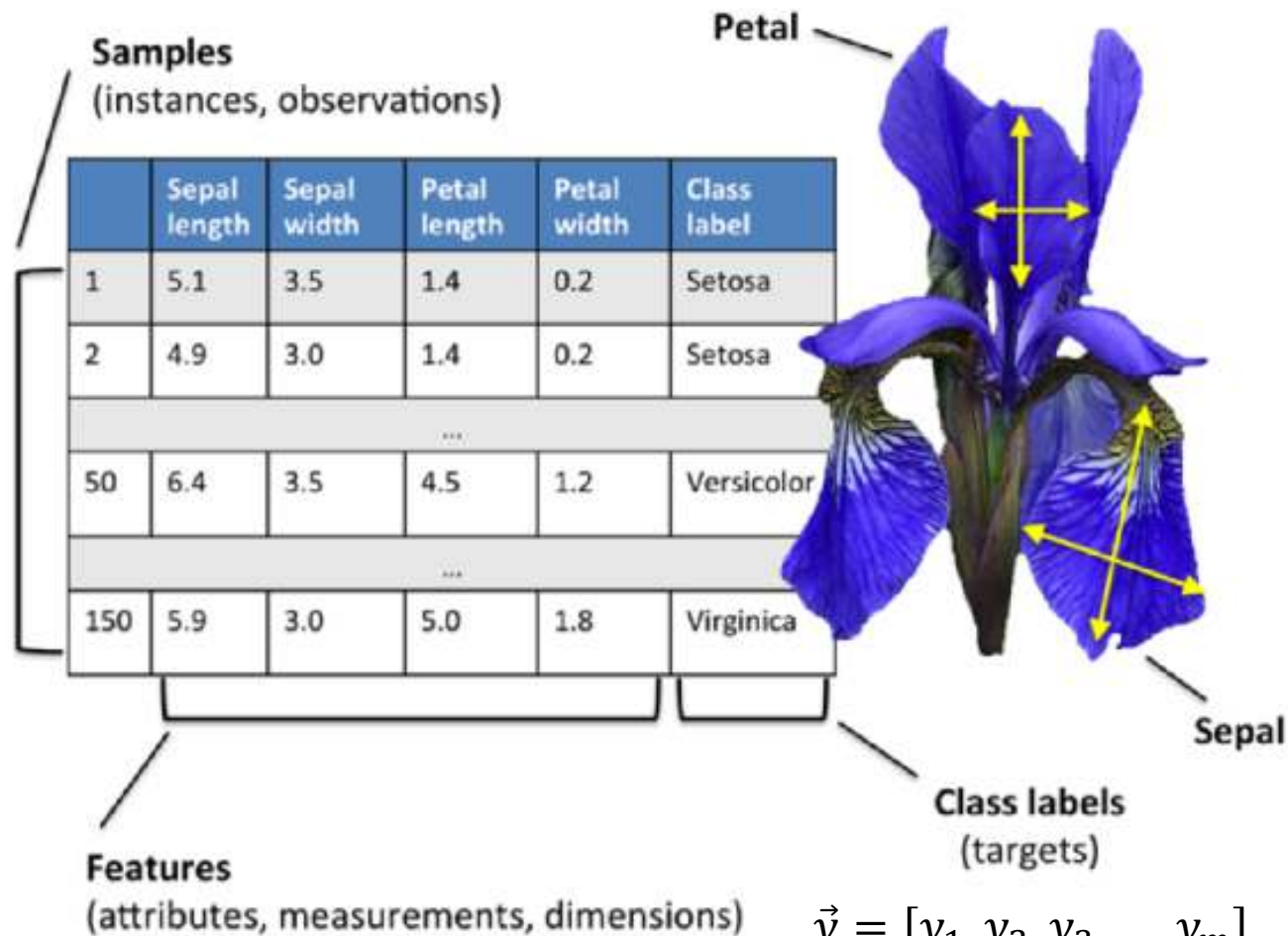
➤ Agrupamento:

- ✓ K-Means
- ✓ Mapas Auto-Organizáveis
- ✓ DBSCAN / OPTICS



Nomenclatura

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



$$\vec{x} = \begin{bmatrix} x_1^1 & \dots & x_k^1 \\ \vdots & \ddots & \vdots \\ x_1^m & \dots & x_k^m \end{bmatrix}$$

Procedimento

<http://oliviaklose.com/machine-learning-11-algorithms-explained/>

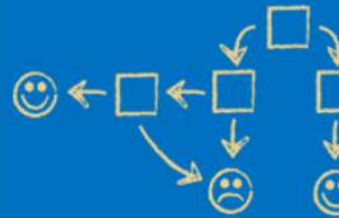
Get Raw Data



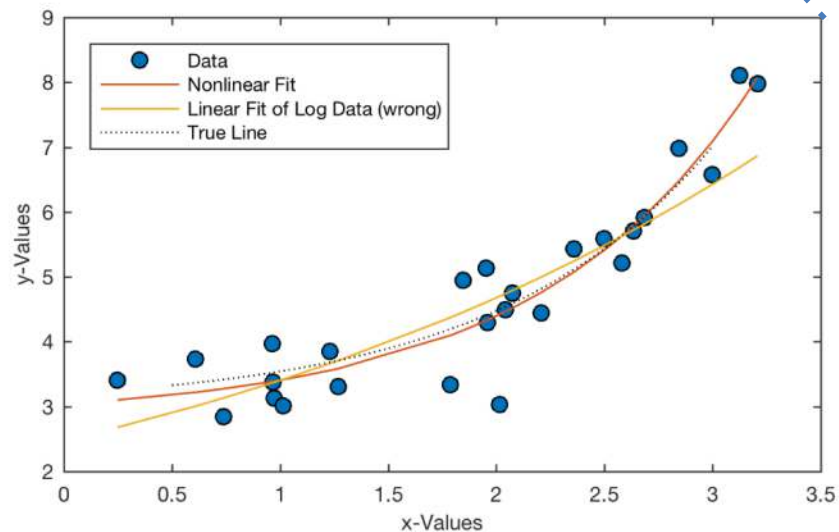
Clean Data

$$\begin{bmatrix} X + Y = Z \\ A + B = C \\ X + A = Z \\ B + Y = ? \end{bmatrix}$$

Build Model

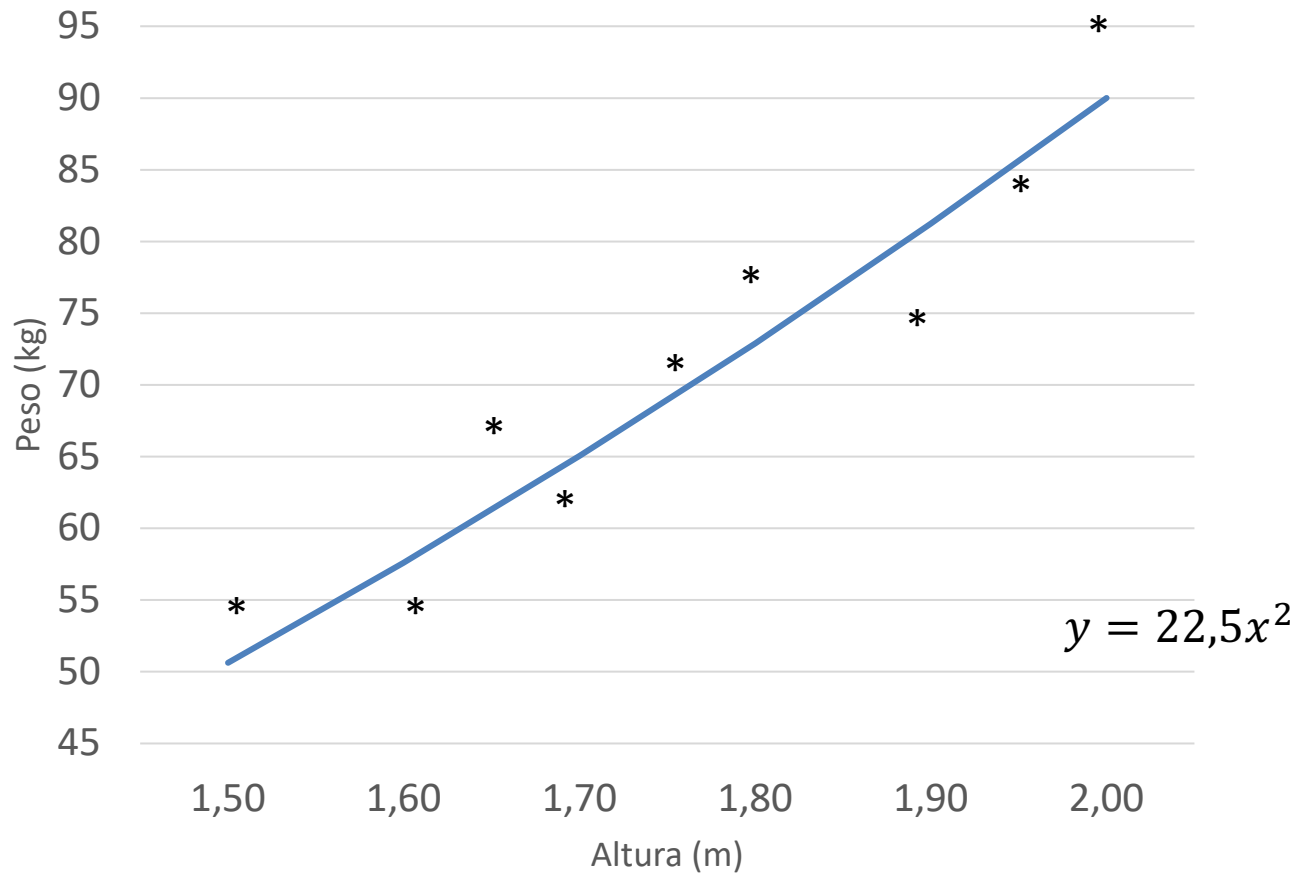


Predict

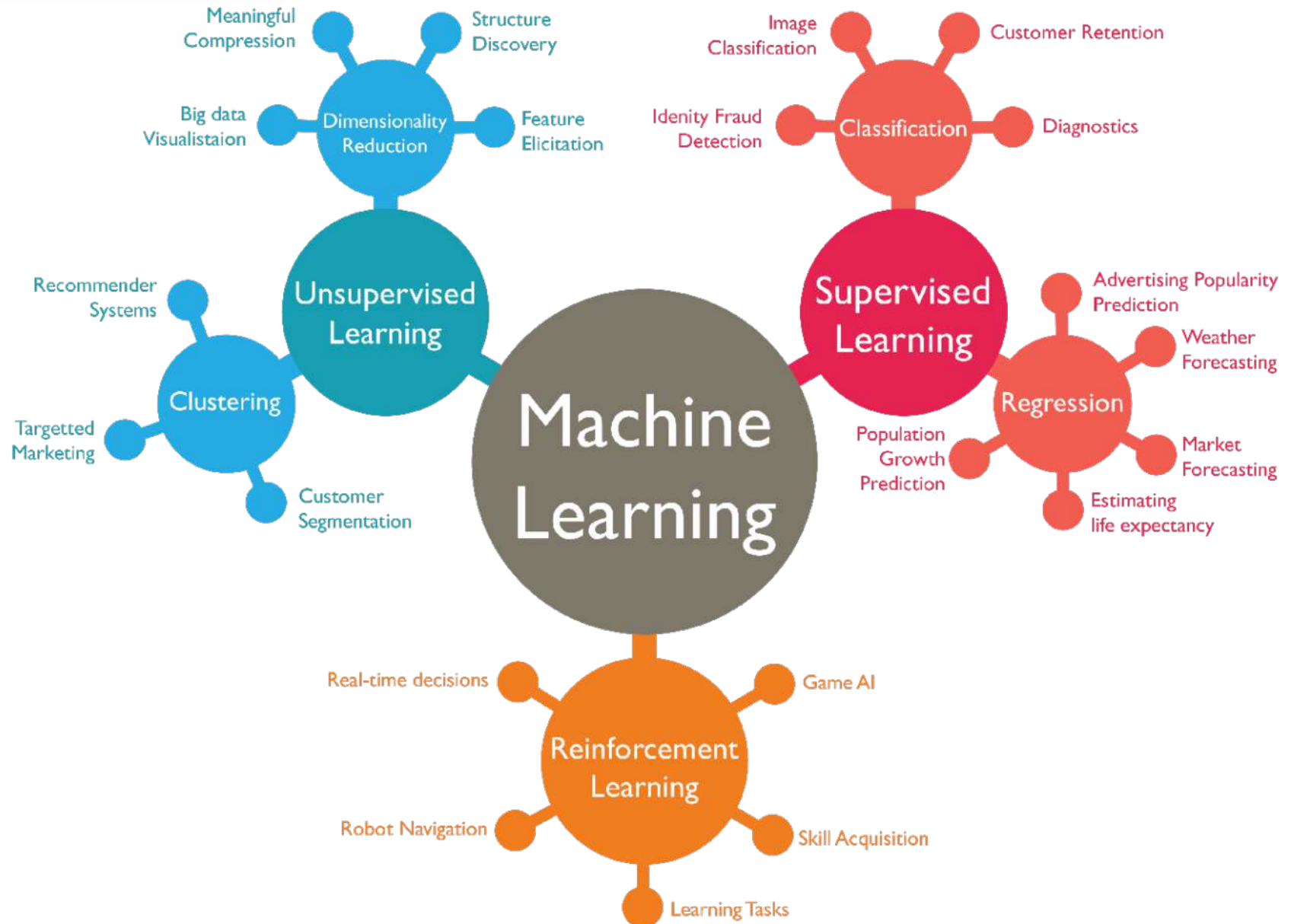


Objetivo do aprendizado

- Obter o modelo matemático que representa o problema



Exemplo





Inatel
Instituto Nacional de Telecomunicações

FIM

Marcelo Vinícius C. Aragão
marcelovca90@inatel.br