REGRESION LOGISTICA

MACHINE LEARNING

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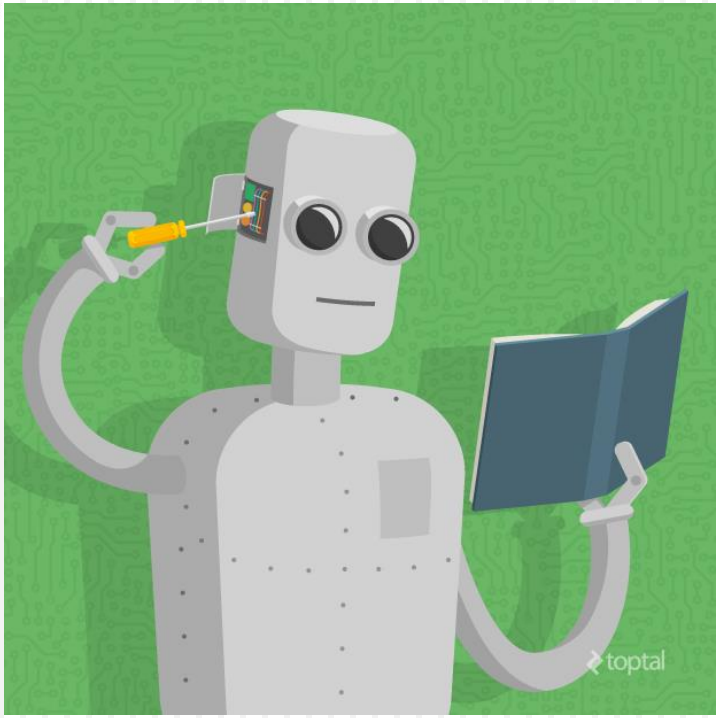
¿Qué es?


MACHINE LEARNING
DICTIONARY
NEURAL
PREVIOUSLY
PROBABILISTIC
INPUT
INTUITION
DATABASE
APPROACH
RELATIONSHIPS
UNSEEN
STATISTICAL
LEARN
LOCOMOTION
RECOGNITION
CLASSIFIER
DATUM
OVERLAP
COMPACTNESS
ACTION
UNLABELED
CONSTRAINT
VECTOR
DISCOVERY
SPARSE
ATTEMPT
PERFORMANCE
SUBSETS
DEFINED
ALGORITHM
ENVIRONMENT
LEARNER
LOGIC
DISTRIBUTION
TIME
PROVIDED
IMAGE
SPARSELY
MINING
FINDRESPECTEXPLICITLY
APPROXIMATES
THEORY
SUPERVISED
TAXONOMY
METHOD
TREE
EXPERIENCE
OBSERVATION
CONFERENCES
EMPLOY
EXAMPLES
COEFFICIENT
TERMS
METHODS
NETWORK
INFERENCE
ARTIFICIAL
VARIABLES
TRAINING
FEATURES
GRAPH
COMPUTATIONAL
IMPLAUSIBLE
CLASS
OUTPUT
UNDERLYING
BOUNDS
PREDICTION
MACHINE
ANALYSIS
OBSERVED
INDUCTIVE
KNOWLEDGE
MAPS
SET
CLASSIFICATION
CASES
ABILITY
GENERALIZE
HYPOTHESIZED
UNSUPERVISED
CLUSTER
UNKNOWN
ASSUMPTIONS


toptal

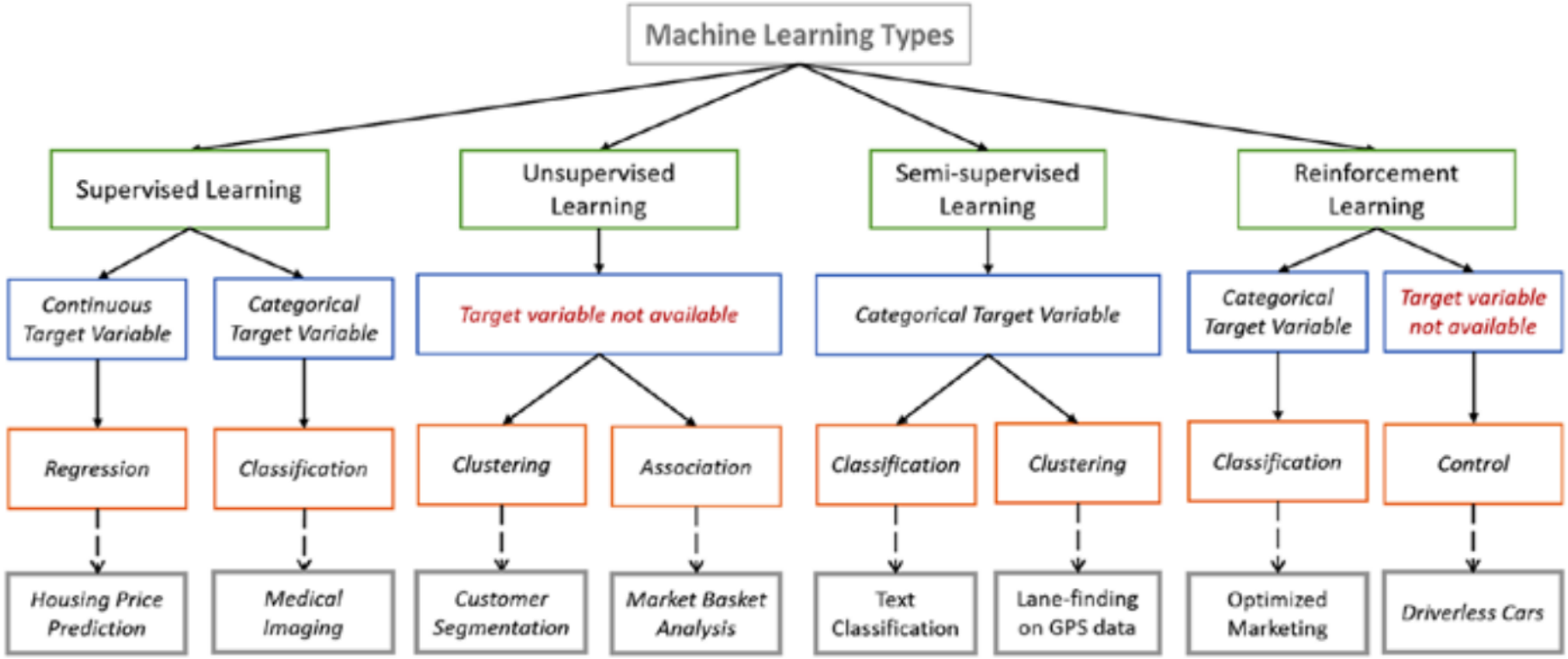
¿Magia?

Aplicabilidad

if x 100…

"si tiene más de 100 ifs, es inteligencia artificial, era"…

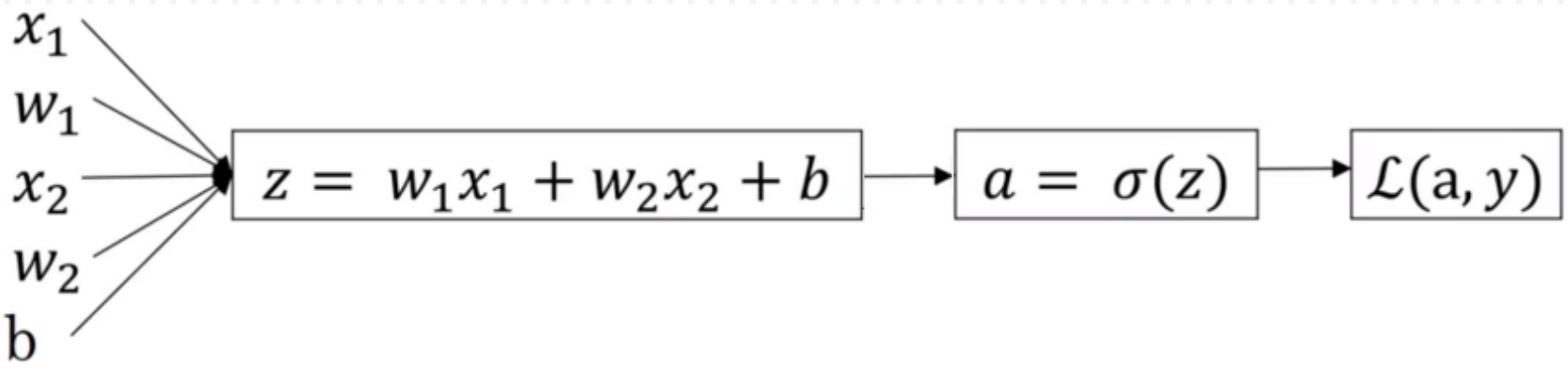
Modelos


Machine Learning Types
Supervised Learning
Unsupervised Learning
Semi-supervised Learning
Reinforcement Learning
Continuous Target Variable
Categorical Target Variable
Target variable not available
Categorical Target Variable
Categorical Target Variable
Target variable not available
Regression
Classification
Clustering
Association
Classification
Clustering
Classification
Control
Housing Price Prediction
Medical Imaging
Customer Segmentation
Market Basket Analysis
Text Classification
Lane-finding on GPS data
Optimized Marketing
Driverless Cars

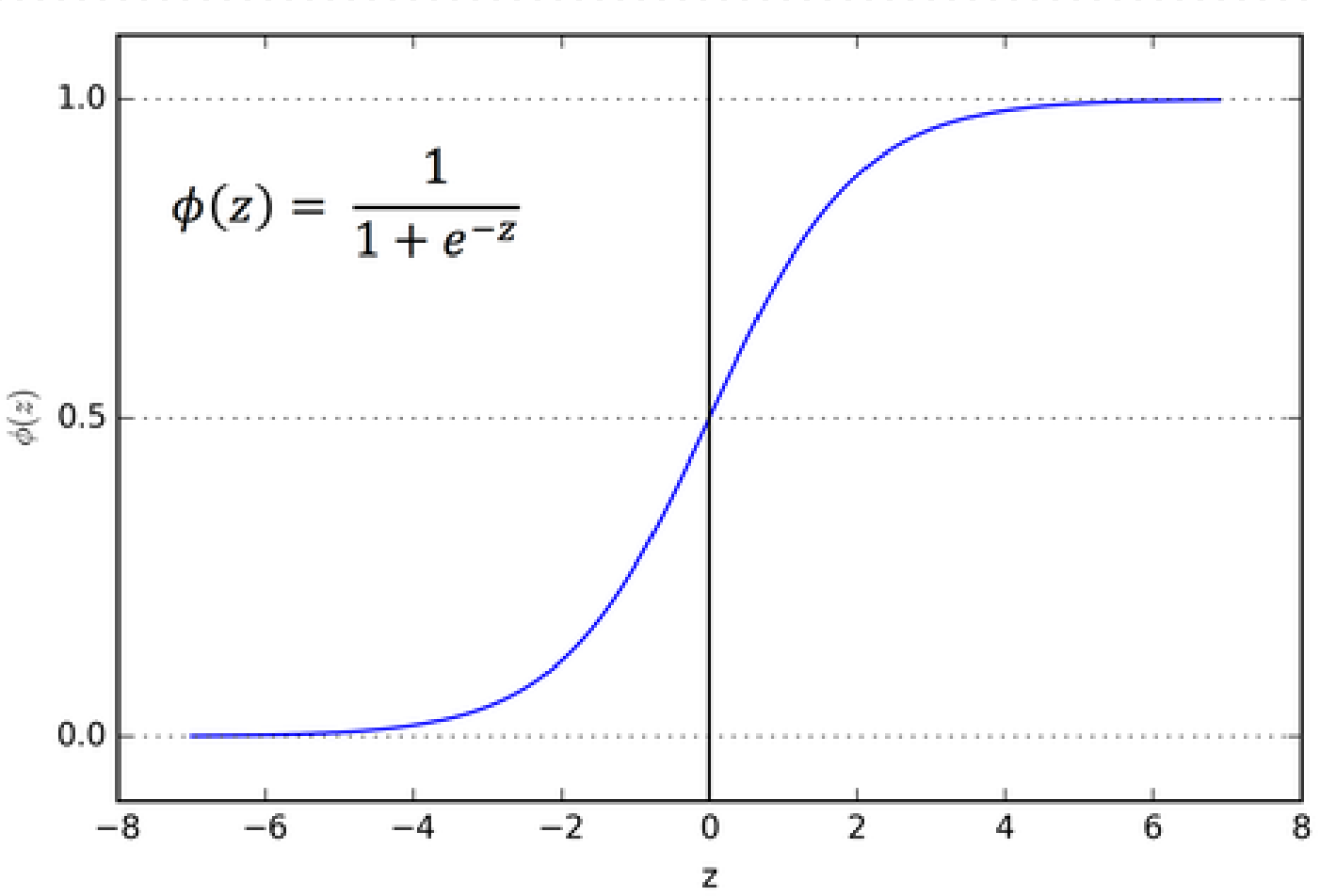
Regresión Logística

Salary	Sex	Age	Buy widget
15000	male	19	No
25000	male	33	Yes
23000	female	50	No
16000	male	40	No
200	male	10	No
30000	female	30	No
25000	male	23	Yes
18000	female	55	No
50000	male	57	Yes
51000	female	57	No

Estructura Dataset

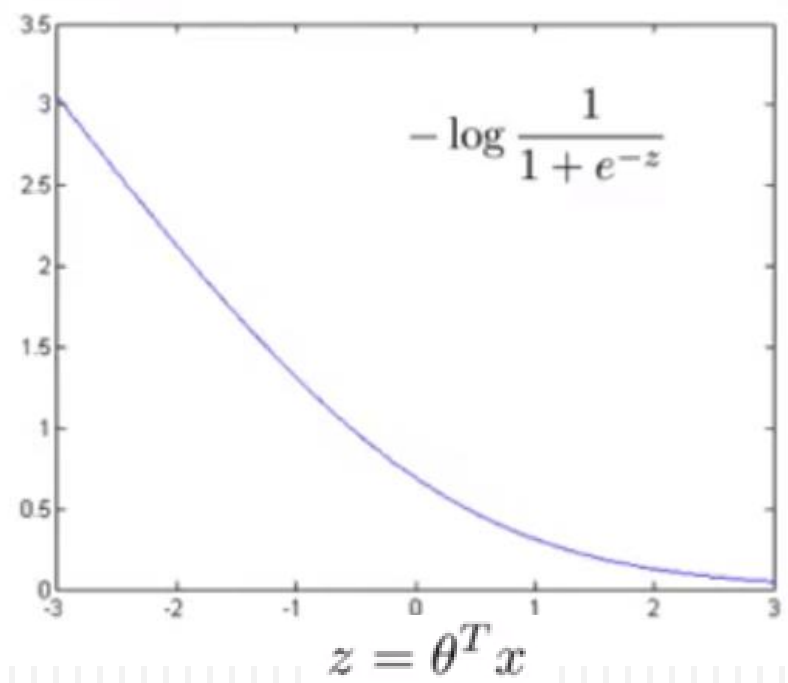


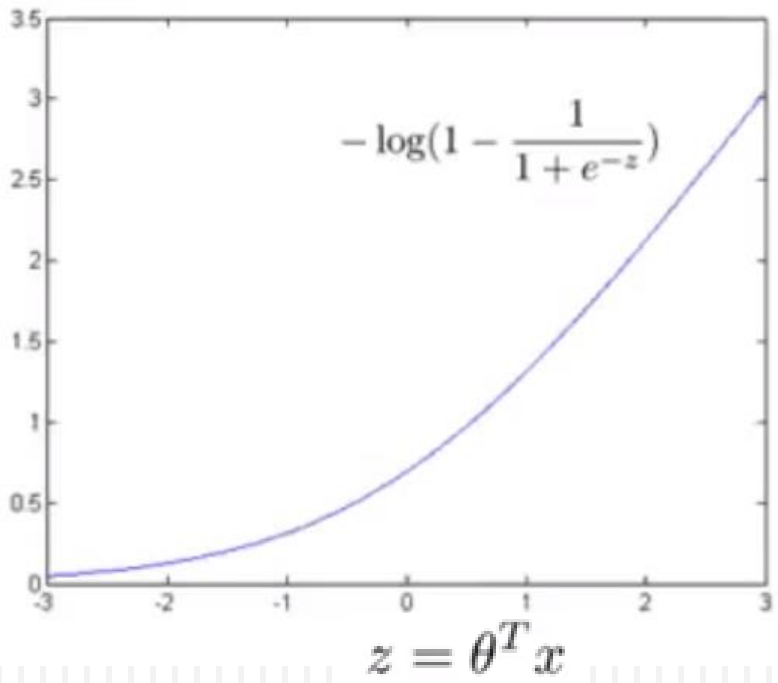
Probabilidad



Funcion de Costo (Error)

$$\text{Cost}(h_\theta(x), y) = -y \log \frac{1}{1 + e^{-\theta^T x}} - (1 - y) \log(1 - \frac{1}{1 + e^{-\theta^T x}})$$



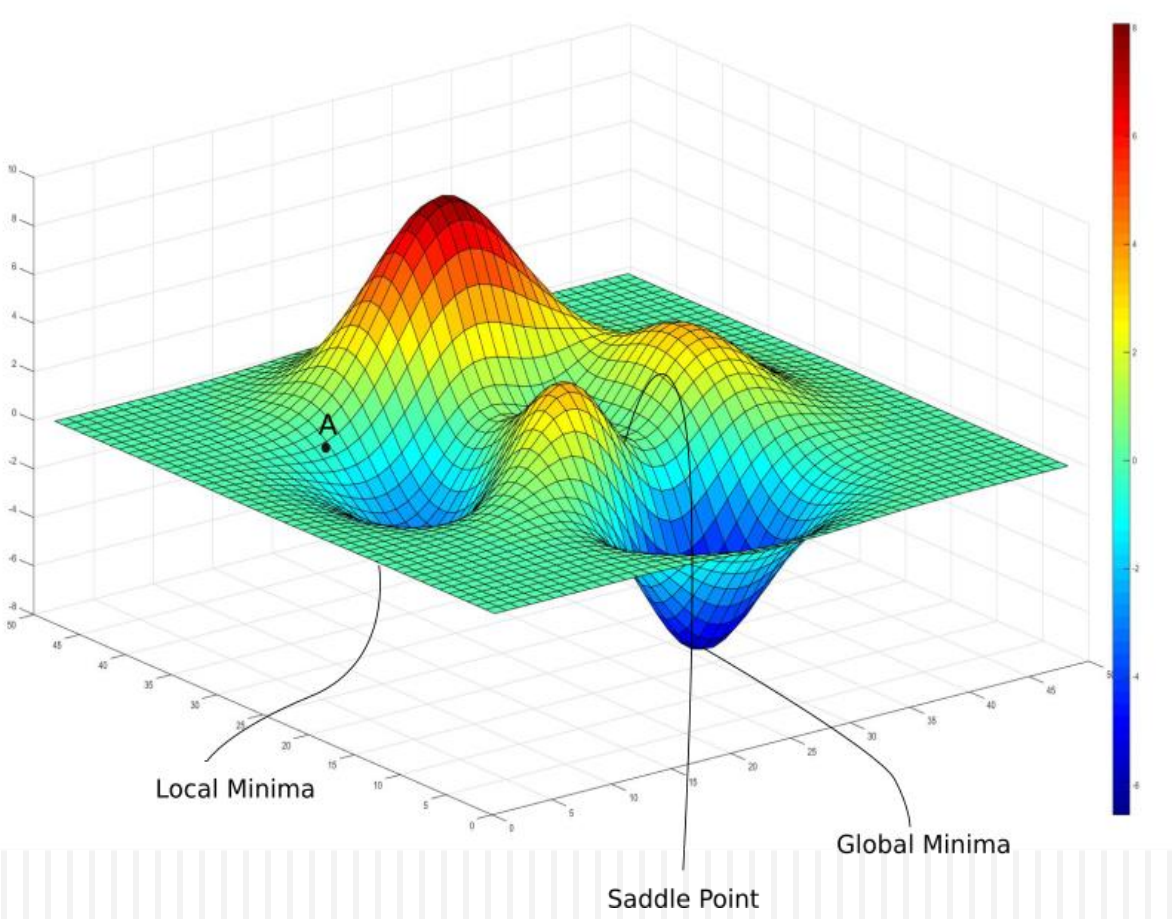


Gradiente Descendente

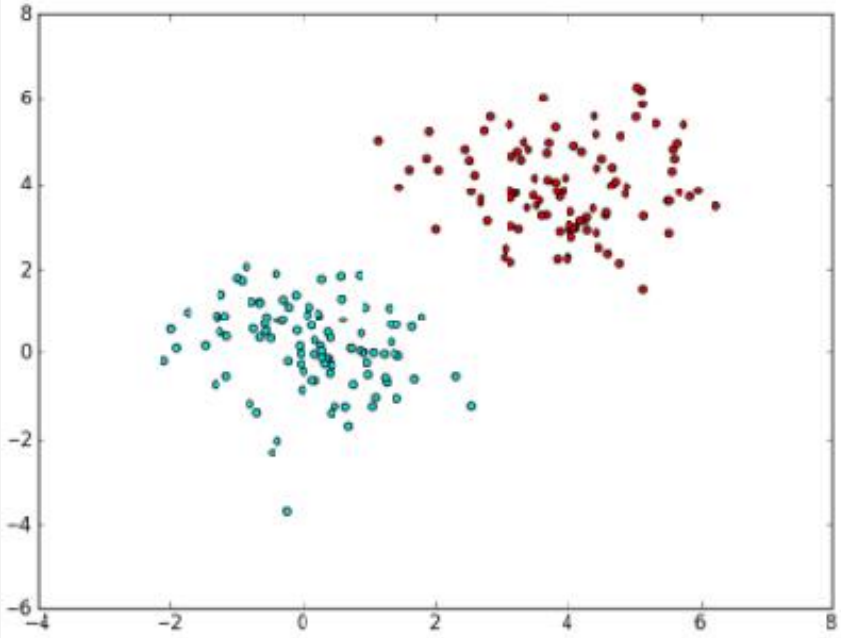
Repeat until convergence {

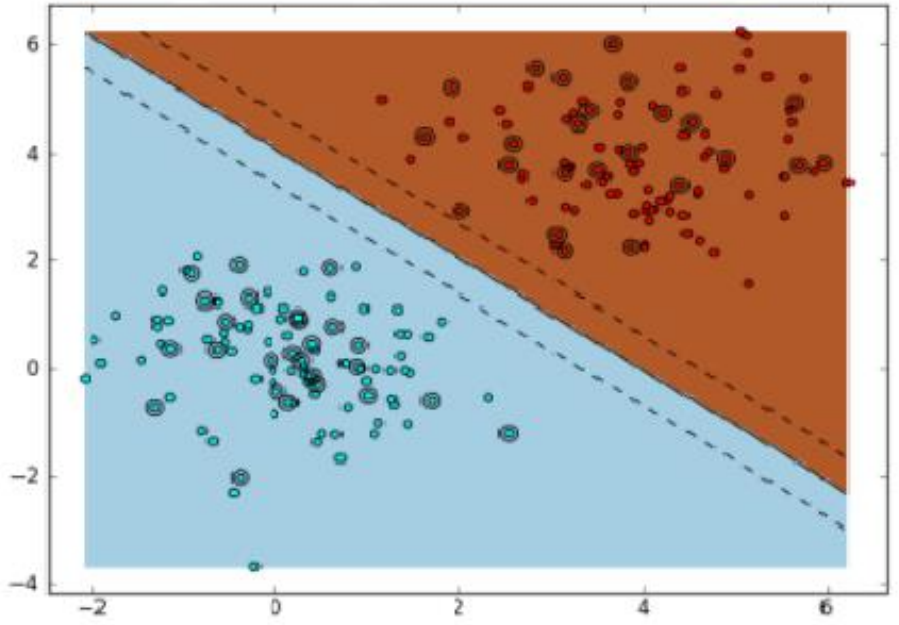
$$\theta_j \leftarrow \theta_j - \alpha \frac{\partial}{\partial \theta_j} J(\theta)$$

}

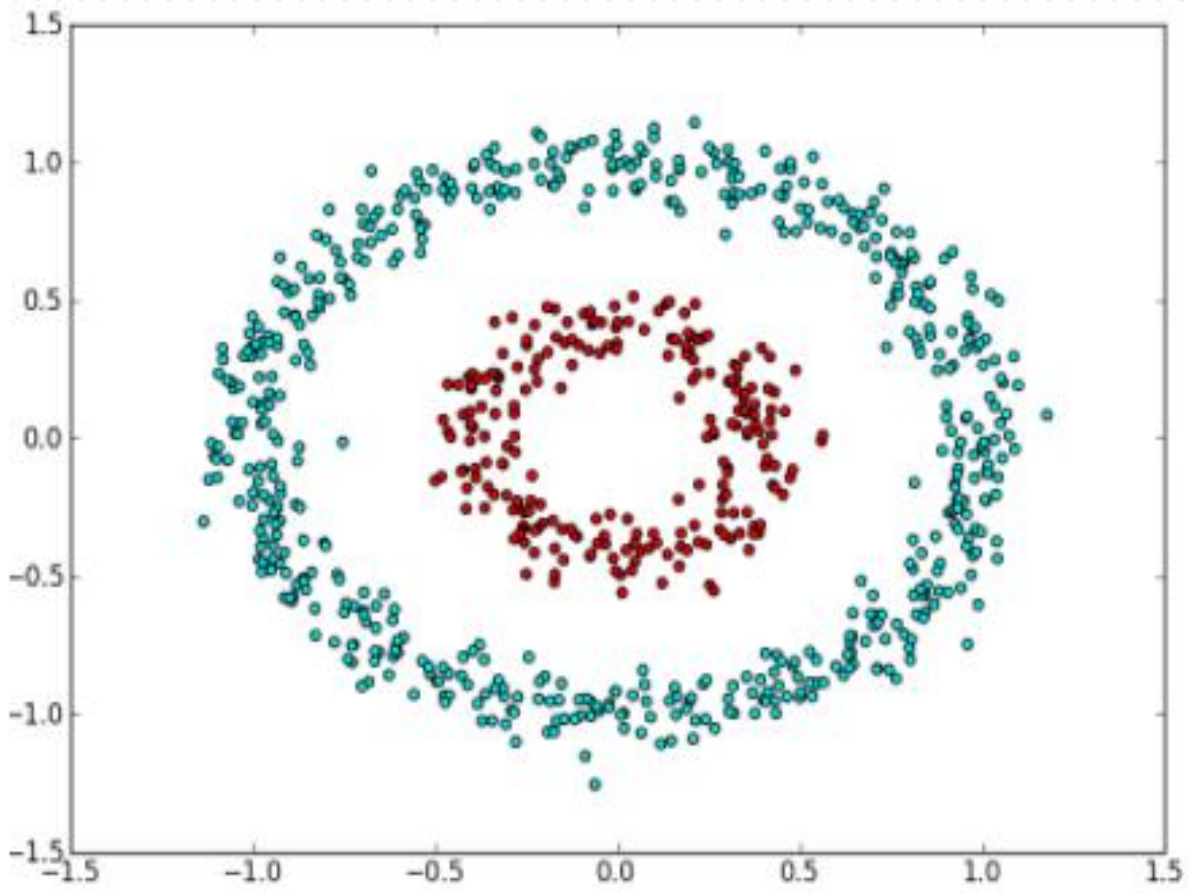


Separación de Clases



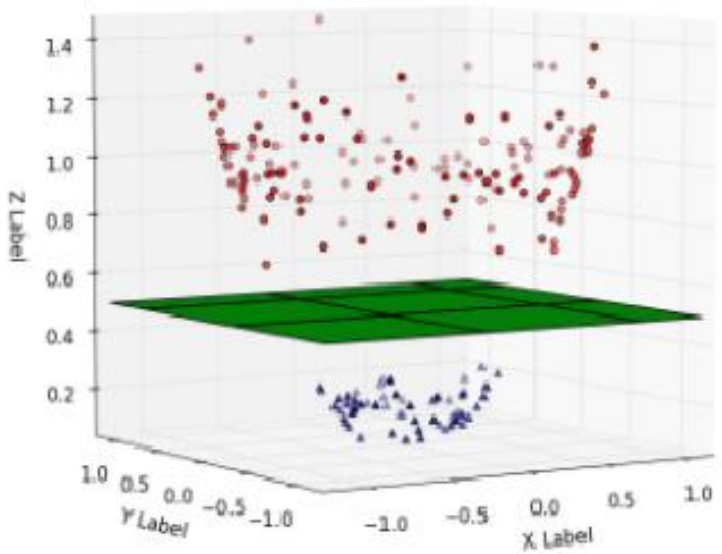


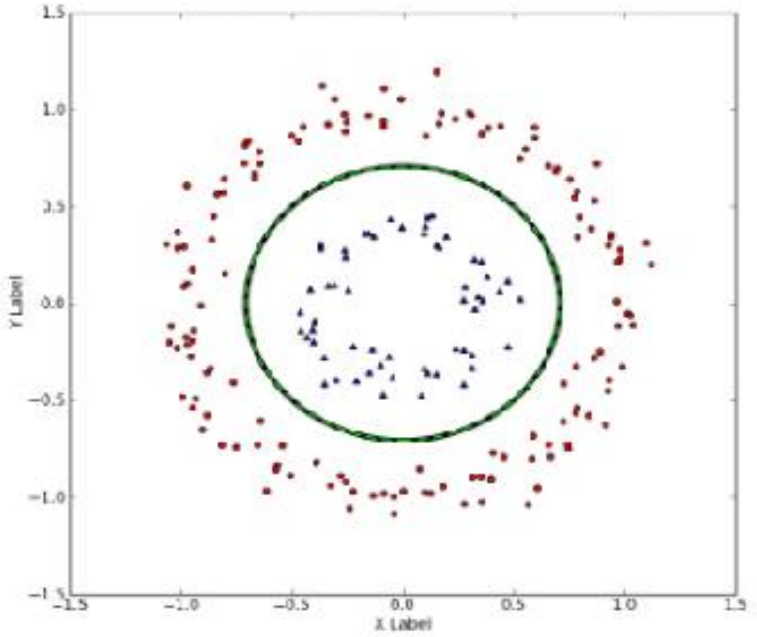
Que???



Espacio de Hilbert

$$T(\,[x_1, x_2]\,) = [x_1, x_2, {x_1}^2 + {x_2}^2]$$



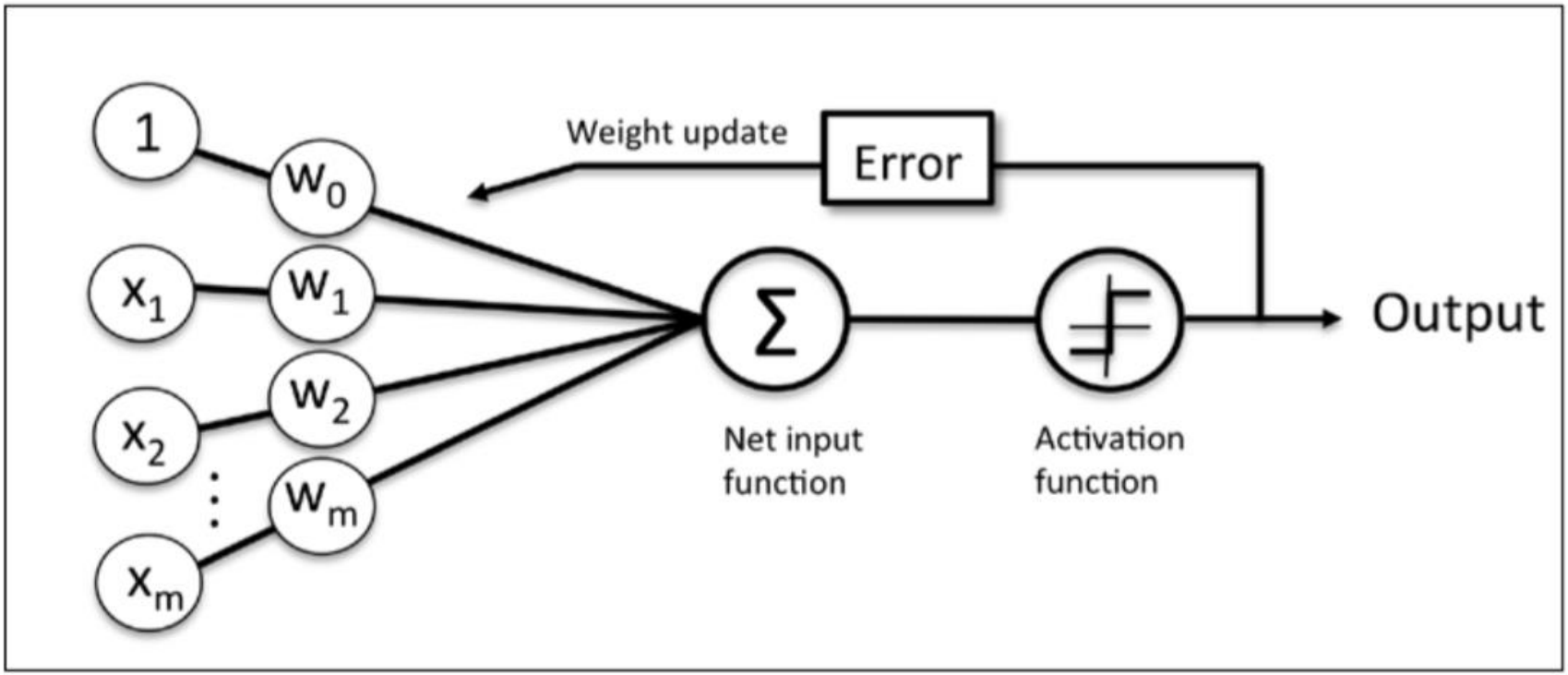


¿Para que Sirve?

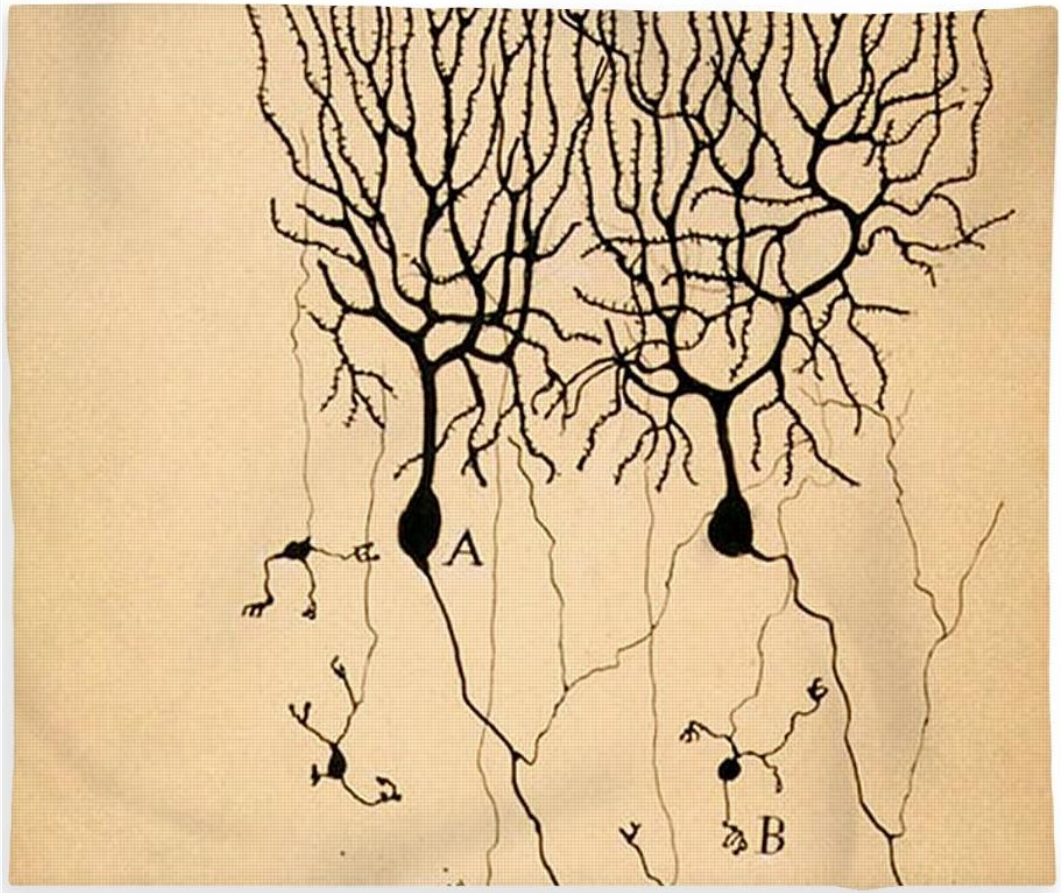
- Predecir con antelación si un cliente que solicita un préstamo a un banco va a ser un cliente moroso.
- Predecir si una empresa va a entrar en bancarrota.
- Predecir de antemano que un paciente corra riesgo de un infarto.

Hands On

Recuento

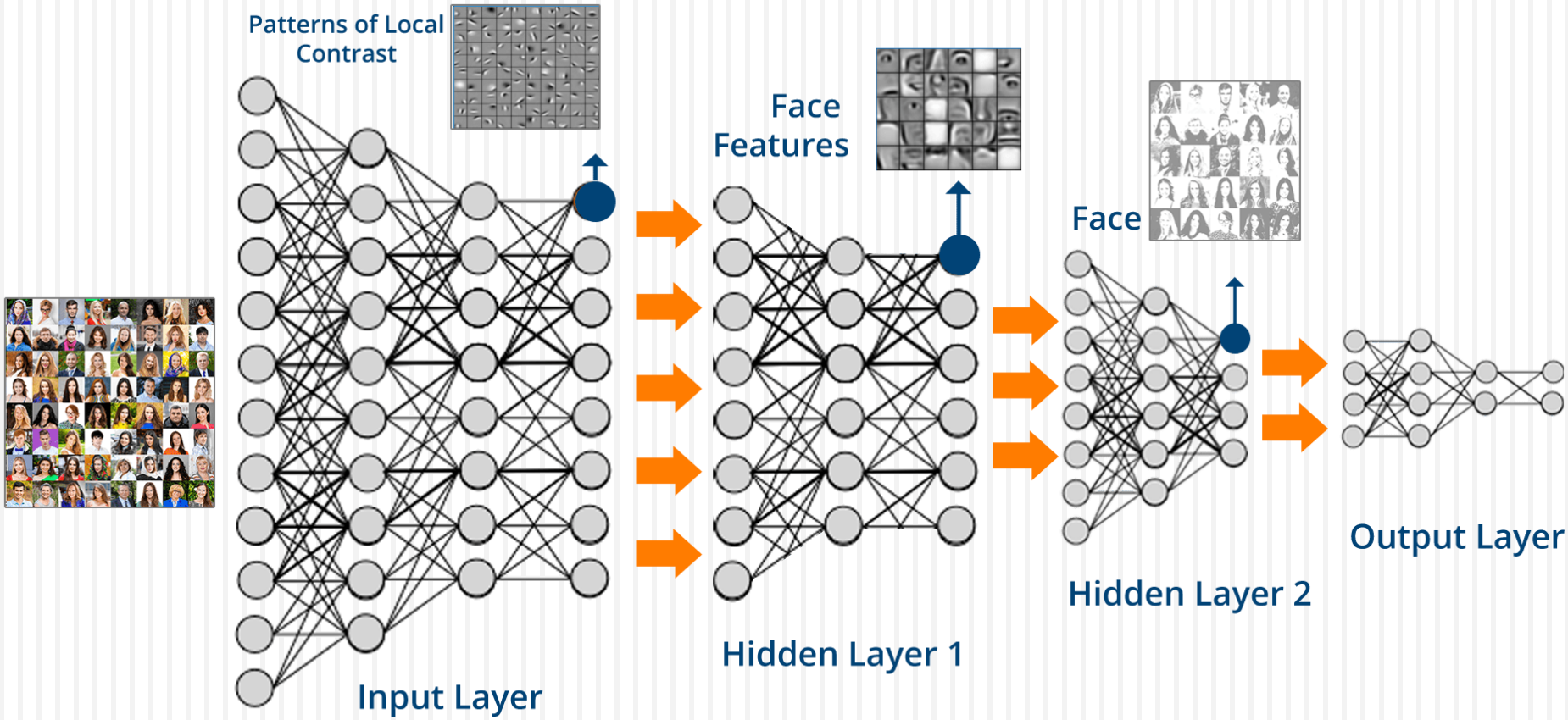

1
w_0
x_1
w_1
w_2
x_2
w_m
x_m
Weight update
Error
Σ
Net input function
Activation function
Output

Neurona Biológica



Modelo Neuronal - Santiago Ramon y Cajal (1906)

Deep Learning



https://github.com/luisorellana777/DataScience.git