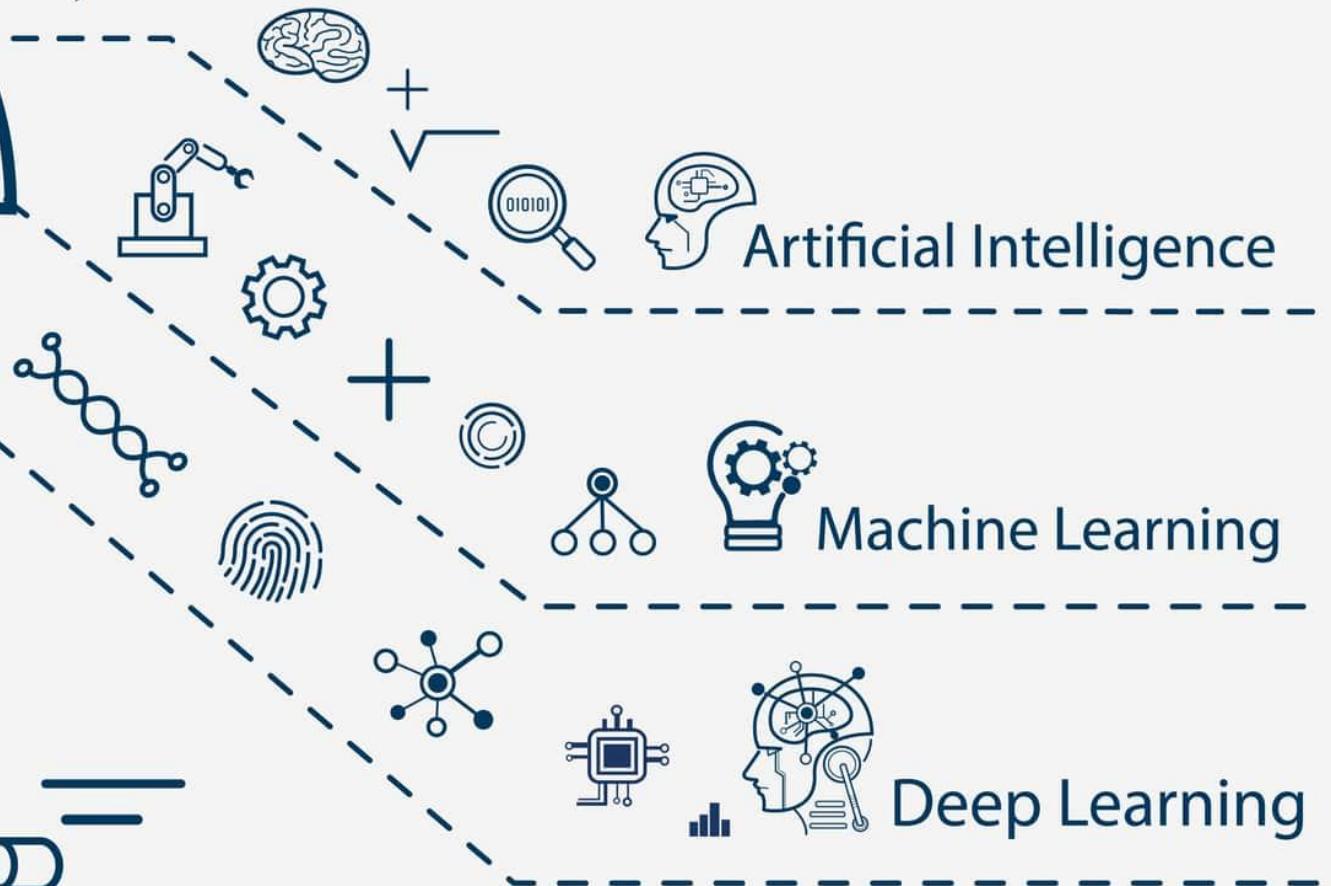
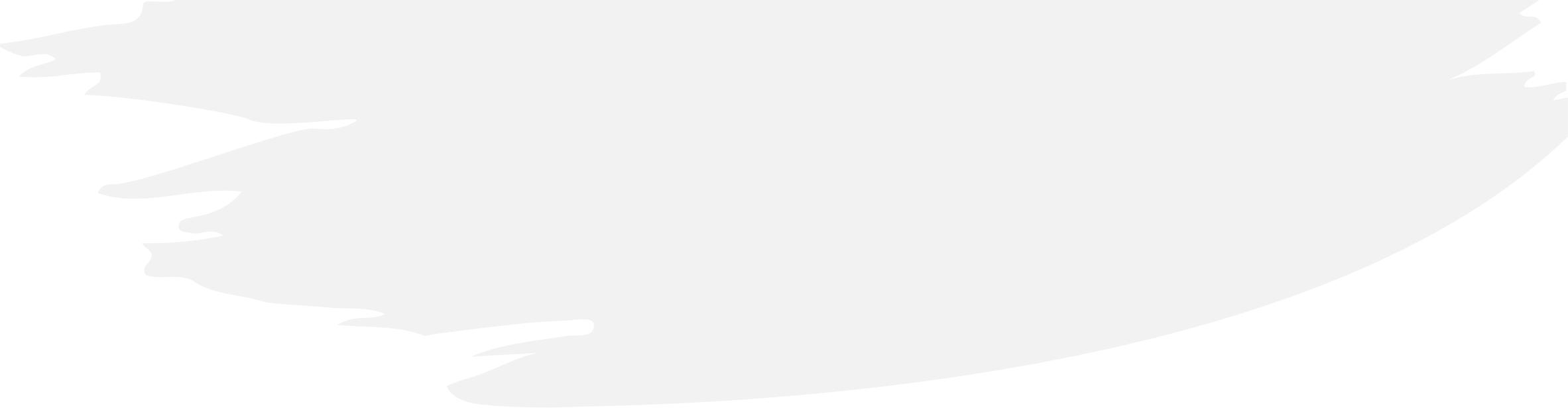


10 00 101
0101 001 --



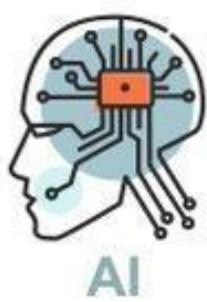
A photograph of a large lecture hall or conference room filled with rows of colorful plastic chairs. The chairs are arranged in a grid, facing towards the front of the room. The colors of the chairs include various shades of blue, green, red, orange, yellow, and grey. The perspective is from the back of the room, looking down the rows of seating.

PRESENTACIONES

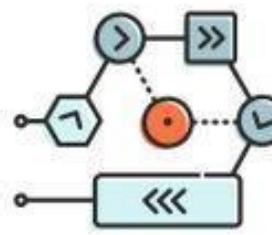
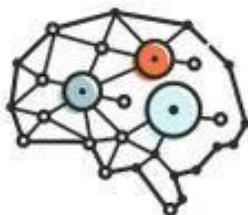


REPOSITORIO GITHUB

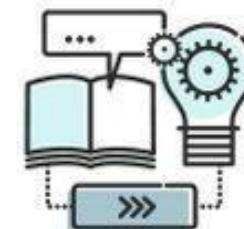
<https://github.com/jorloicono/AF-ML-IMPELIA>



DEEP LEARNING



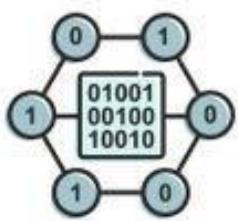
ALGORITHM



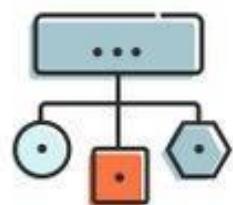
LEARNING



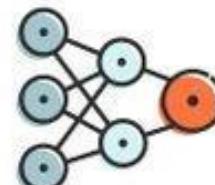
IMPROVES



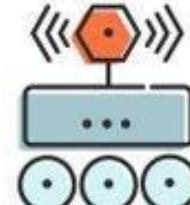
DATA MINING



CLASSIFICATION



NEURAL NETWORKS

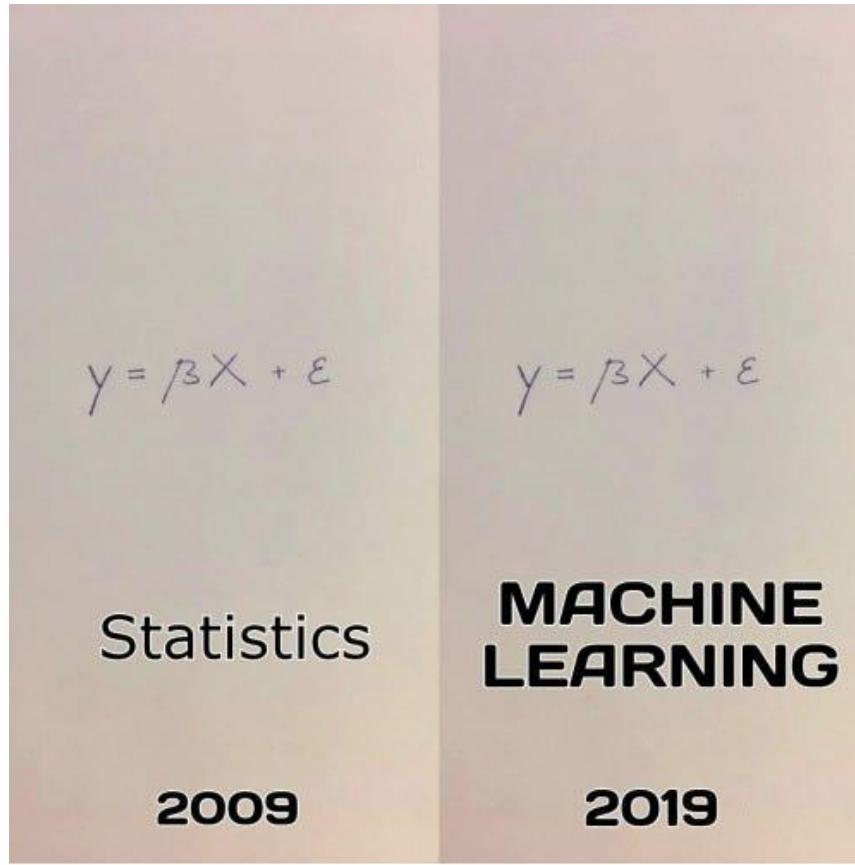


AUTONOMUS

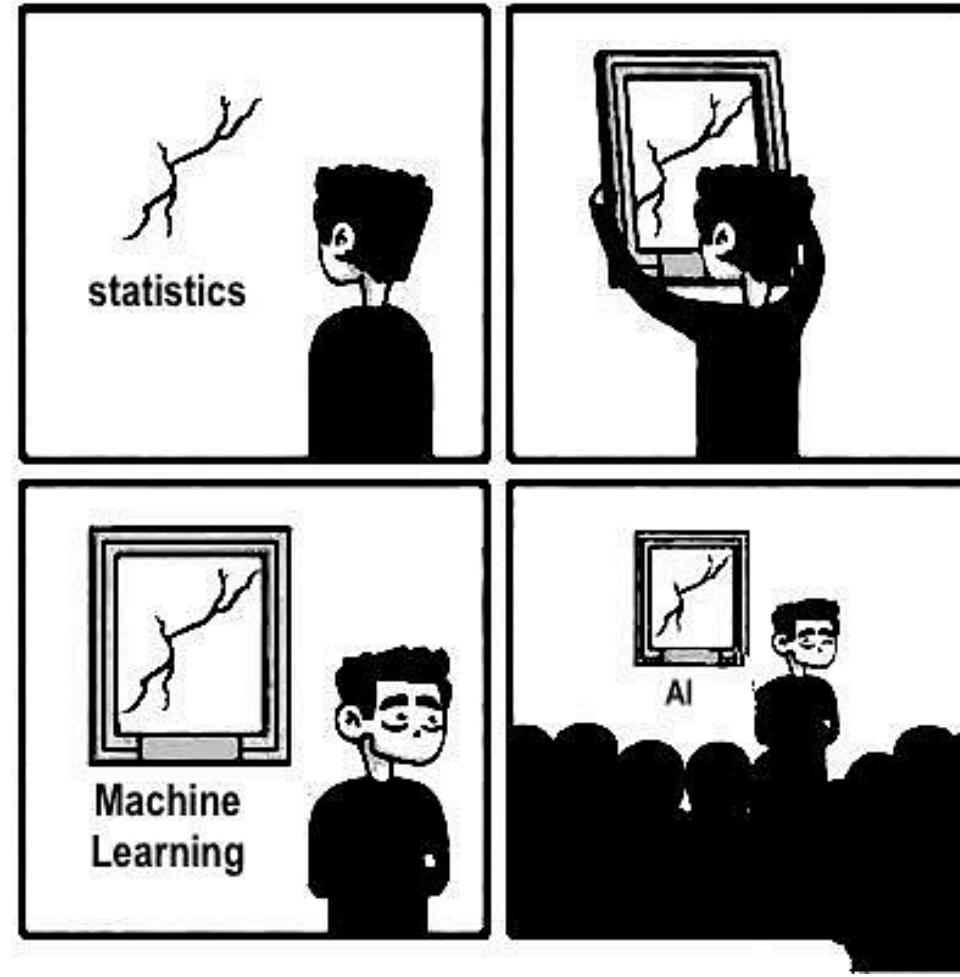


ANALYZE

MACHINE LEARNING



#10yearchallenge



MACHINE LEARNING O ESTADÍSTICA

La creación de datos, a punto de explotar

Cantidad real y prevista de datos generados en todo el mundo (en zettabytes)

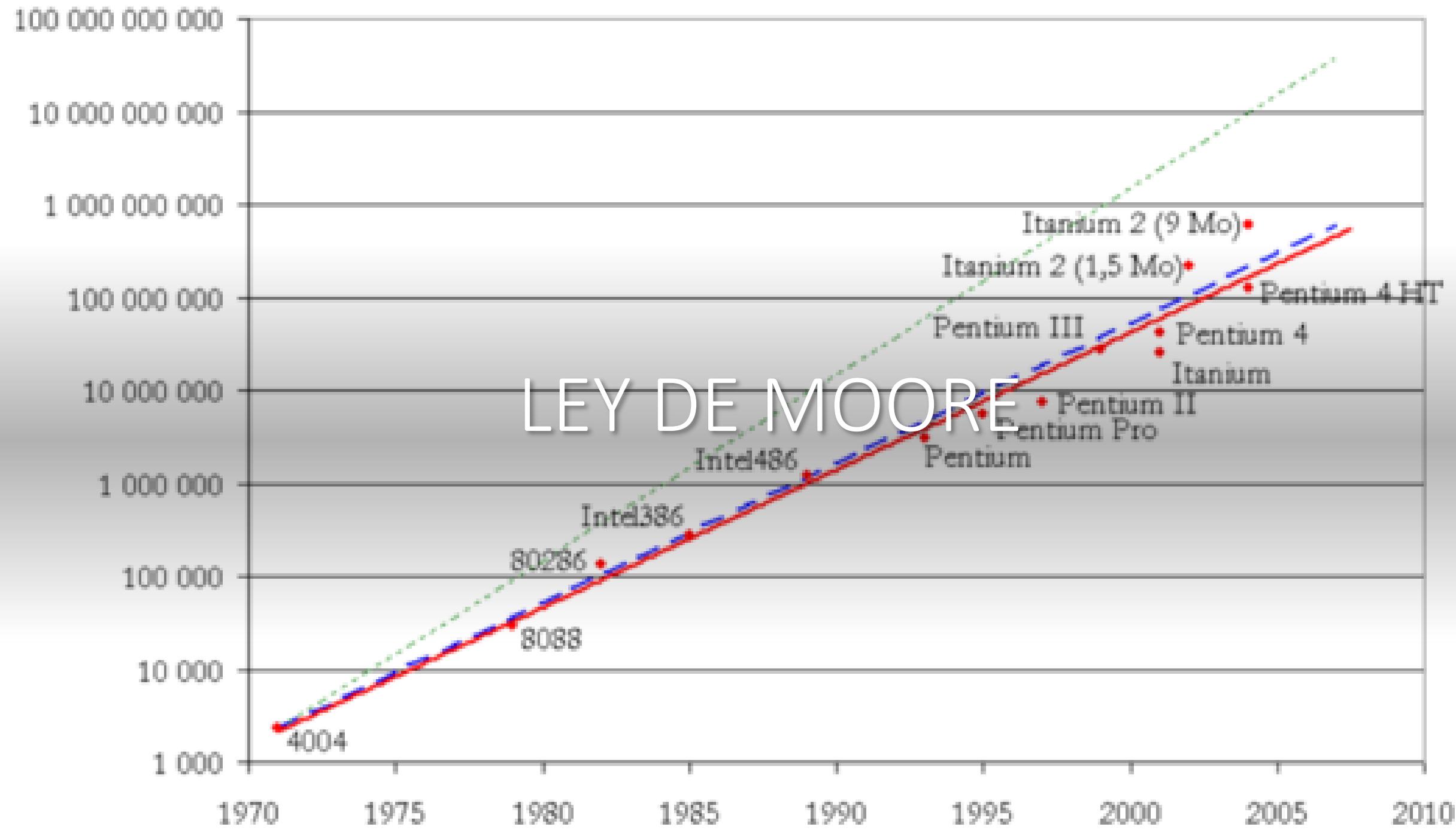


@Statista_ES

Fuente: Statista Digital Economy Compass 2019

statista

transistores



Uber

Coca-Cola

NETFLIX





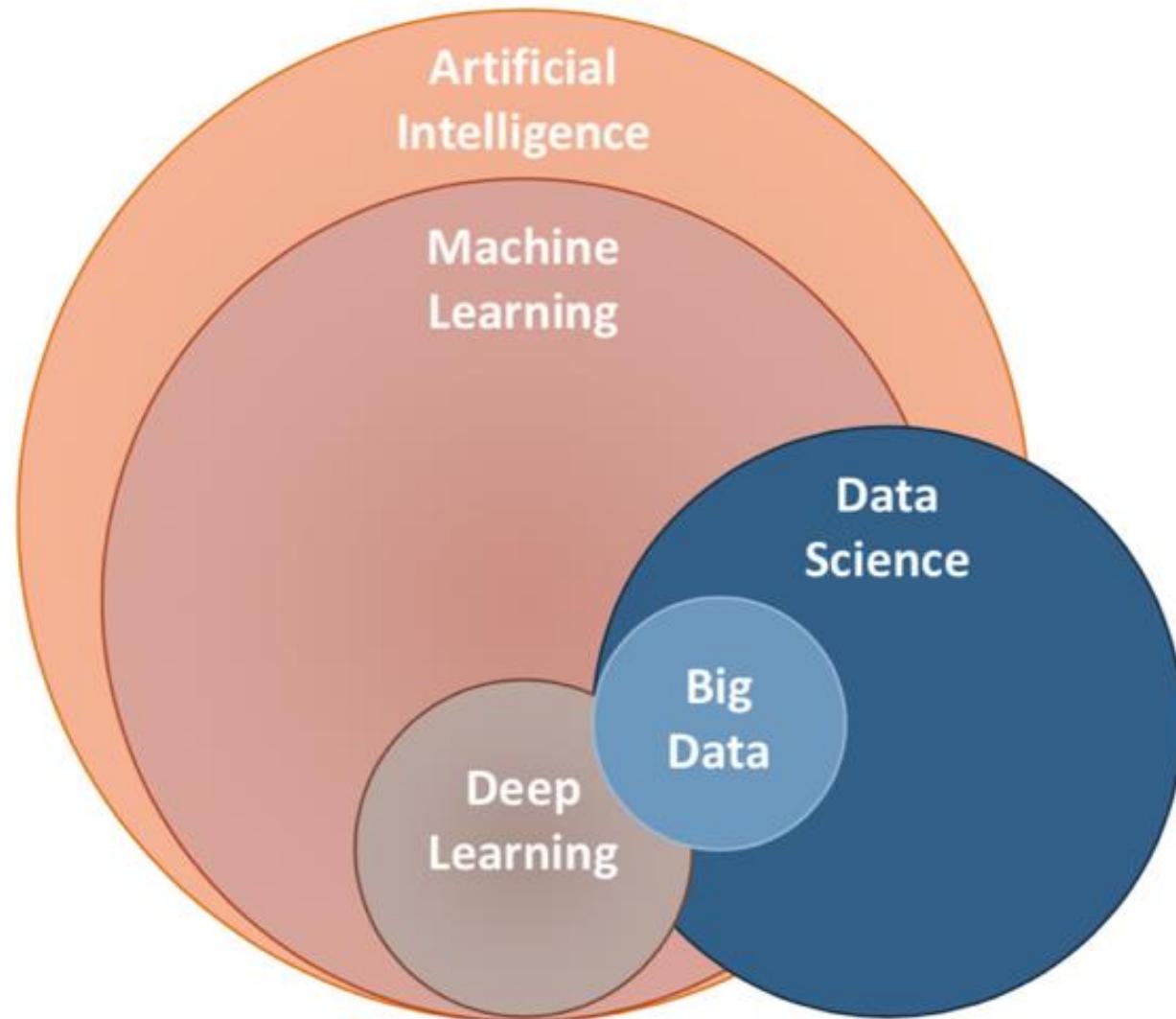
el HORMIGUERO 3.0

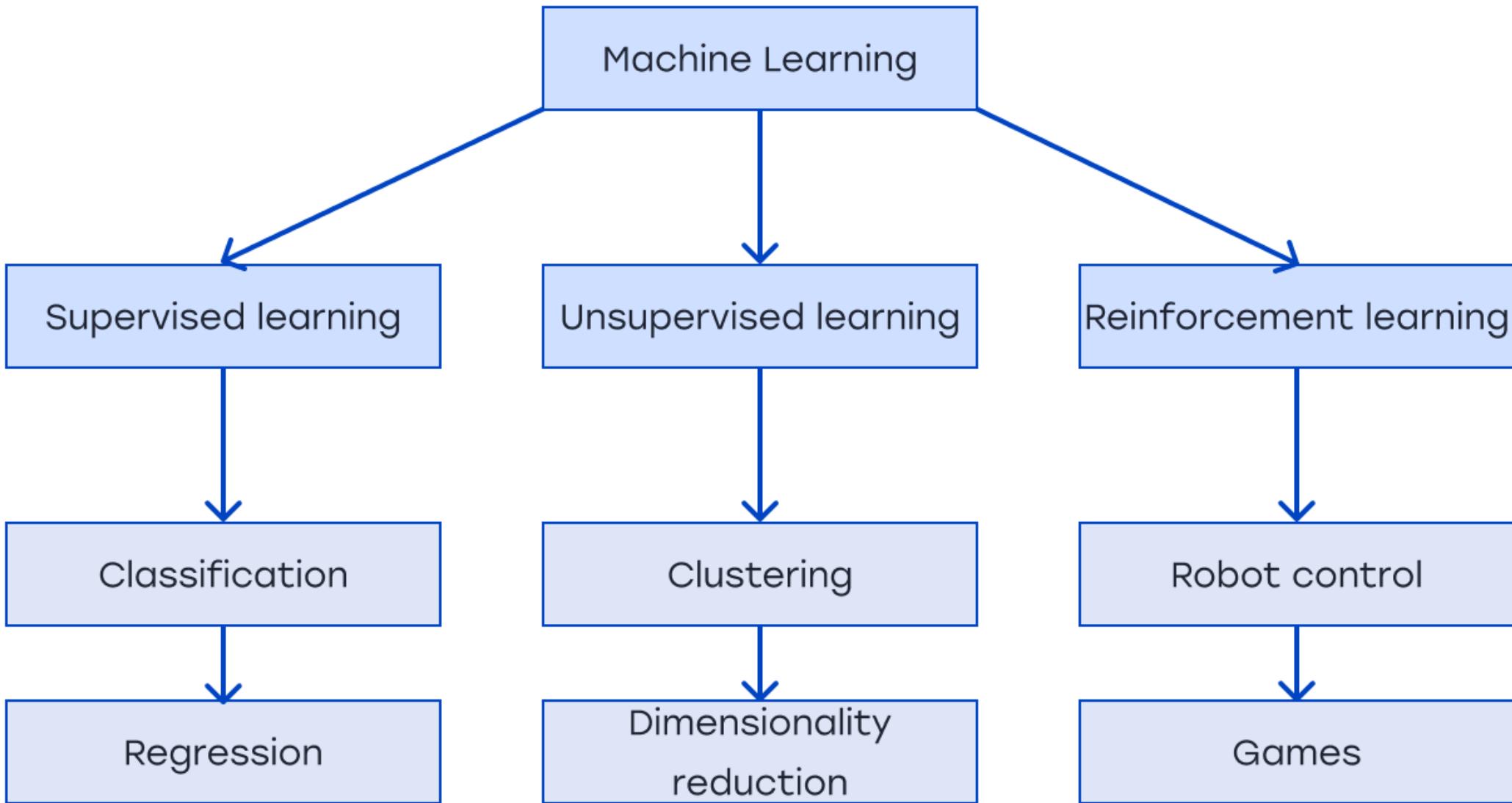


ROBOT HUMANOIDE SOPHIA









3 stages of AI



Narrow AI

Dedicated to assist
with or take over
specific tasks



General AI

Takes knowledge from
one domain, transfers
to other domain



Super AI

Machines that are an
order of magnitude
smarter than humans

Credit: Chris Noessel

¿NOS VA A QUITAR
EL TRABAJO?



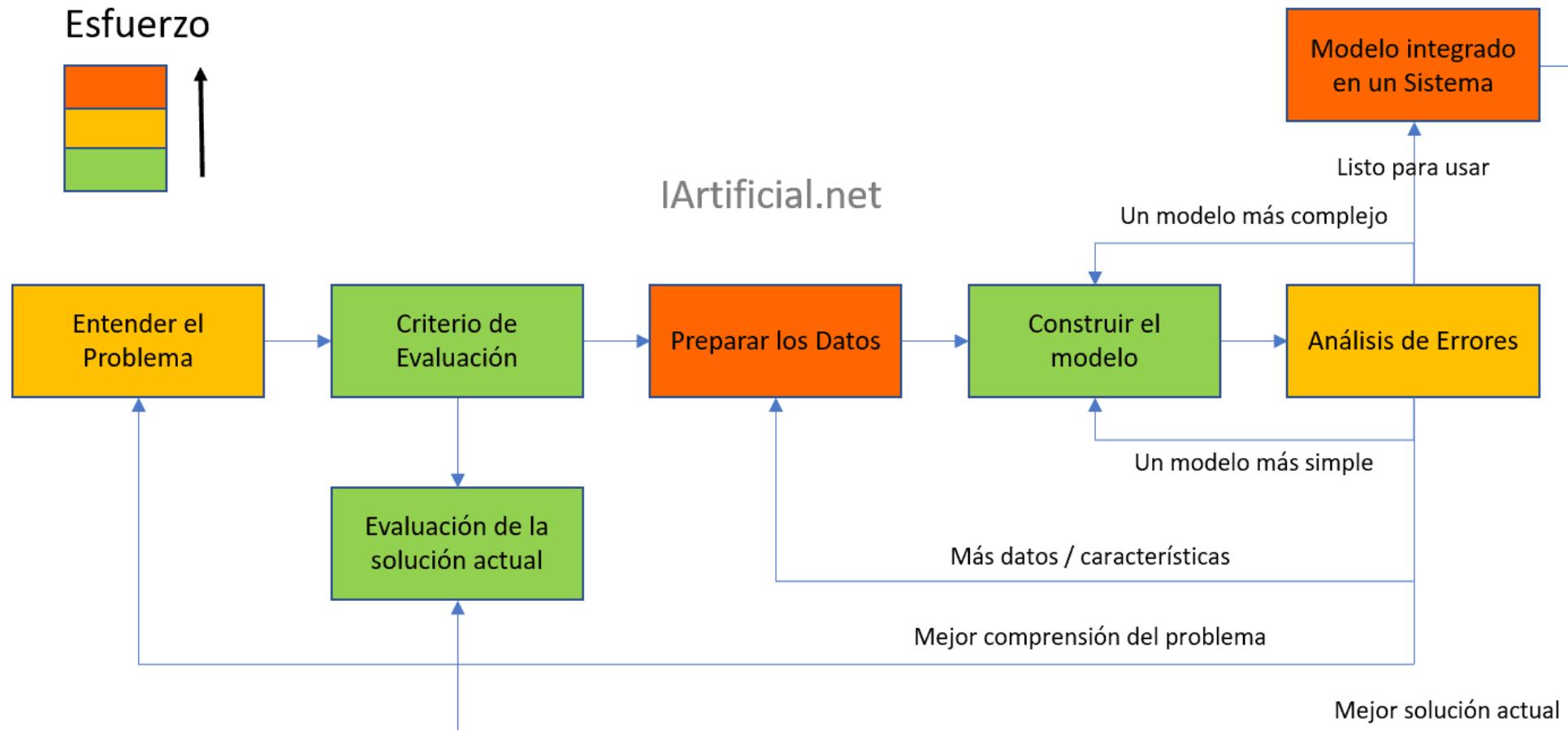




Gemini



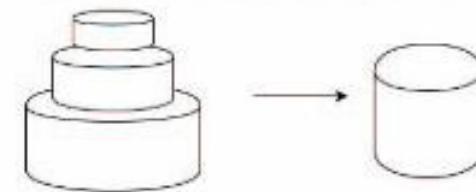
PASOS DE UN PROYECTO DE ML



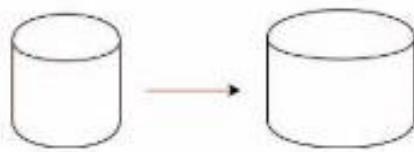
Limpieza de datos



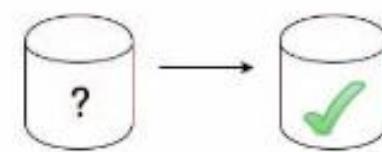
Normalización de datos



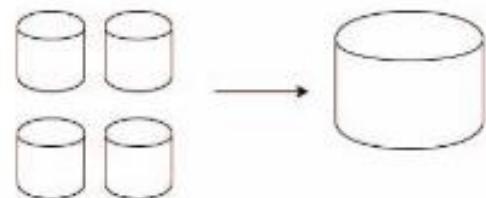
Transformación de datos



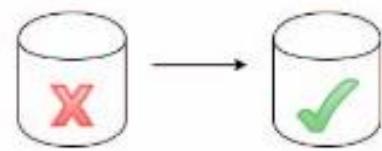
Imputación de valores perdidos



Integración de datos



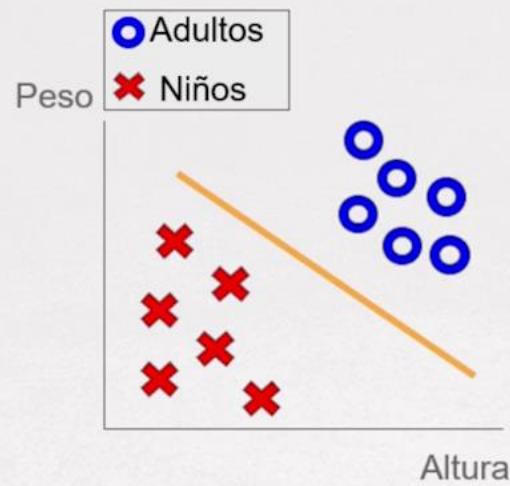
Identificación de ruido



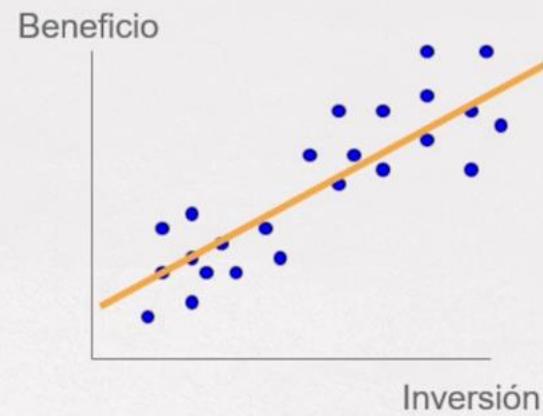
PROBLEMAS EN LOS DATOS

Técnicas de Machine Learning

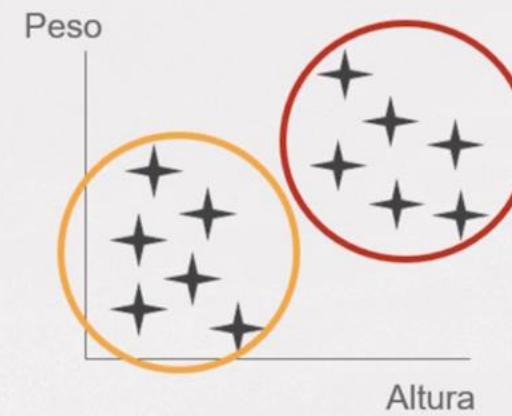
Clasificación



Regresión

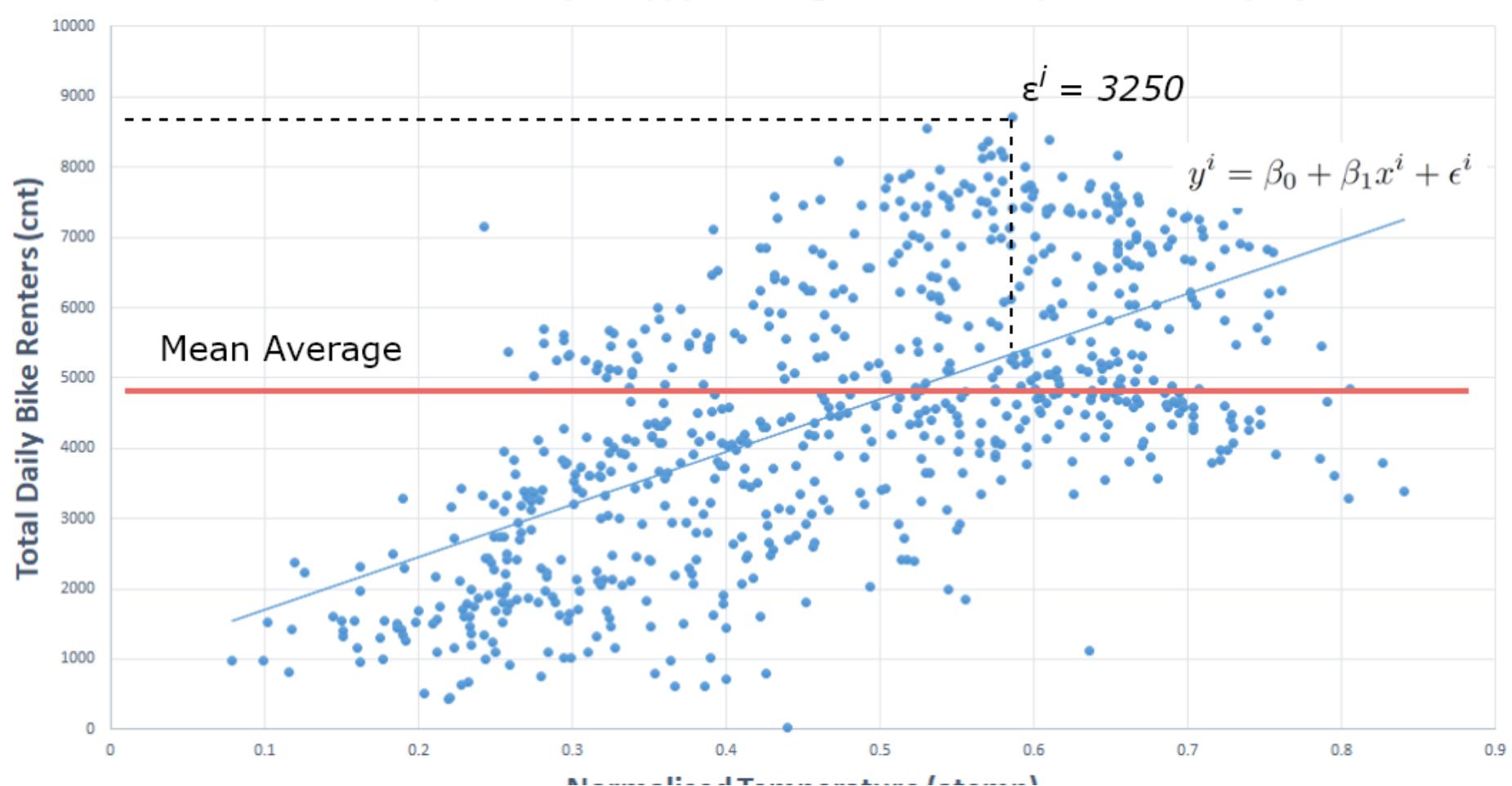


Agrupación (*clustering*)



APRENDIZAJE SUPERVISADO

APRENDIZAJE NO SUPERVISADO



REGRESIÓN LINEAL

FÓRMULAS

$$SSE = (\epsilon_1)^2 + (\epsilon_2)^2 + \dots + (\epsilon_n)^2$$

$$R^2 = 1 - \frac{SSE}{SST}$$

$$y^i = \beta_0 + \beta_1 x_1^i + \beta_2 x_2^i + \dots + \beta_k x_k^i + \epsilon^i$$

CORRELACIÓN



SOLÍA CREER QUE LA CORRELACIÓN IMPLICA CAUSALIDAD.



LUEGO DI UNA ASIGNATURA DE ESTADÍSTICA Y DEJÉ DE CREERLO.



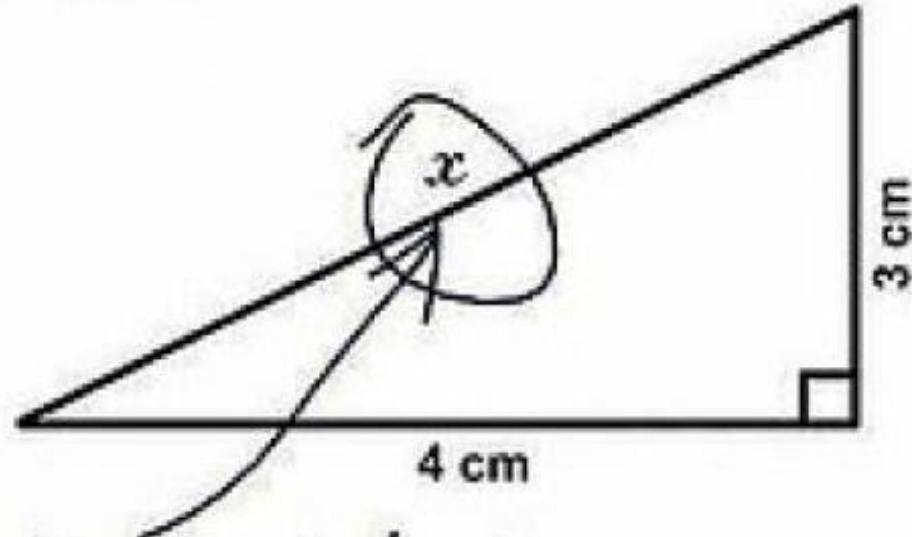
PARECE QUE ESA CLASE TE AYUDÓ.



BUENO, QUIZÁ.

PRINCIPIO DE PARSIMONIA

3. Find x.



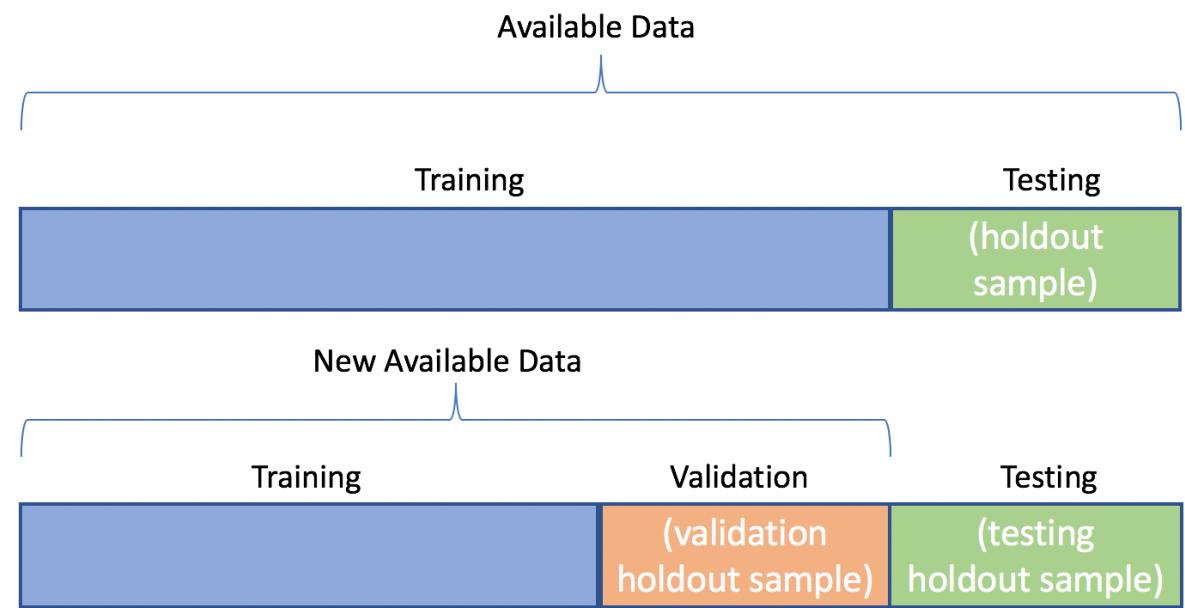
Here it is

desmotivaciones.es

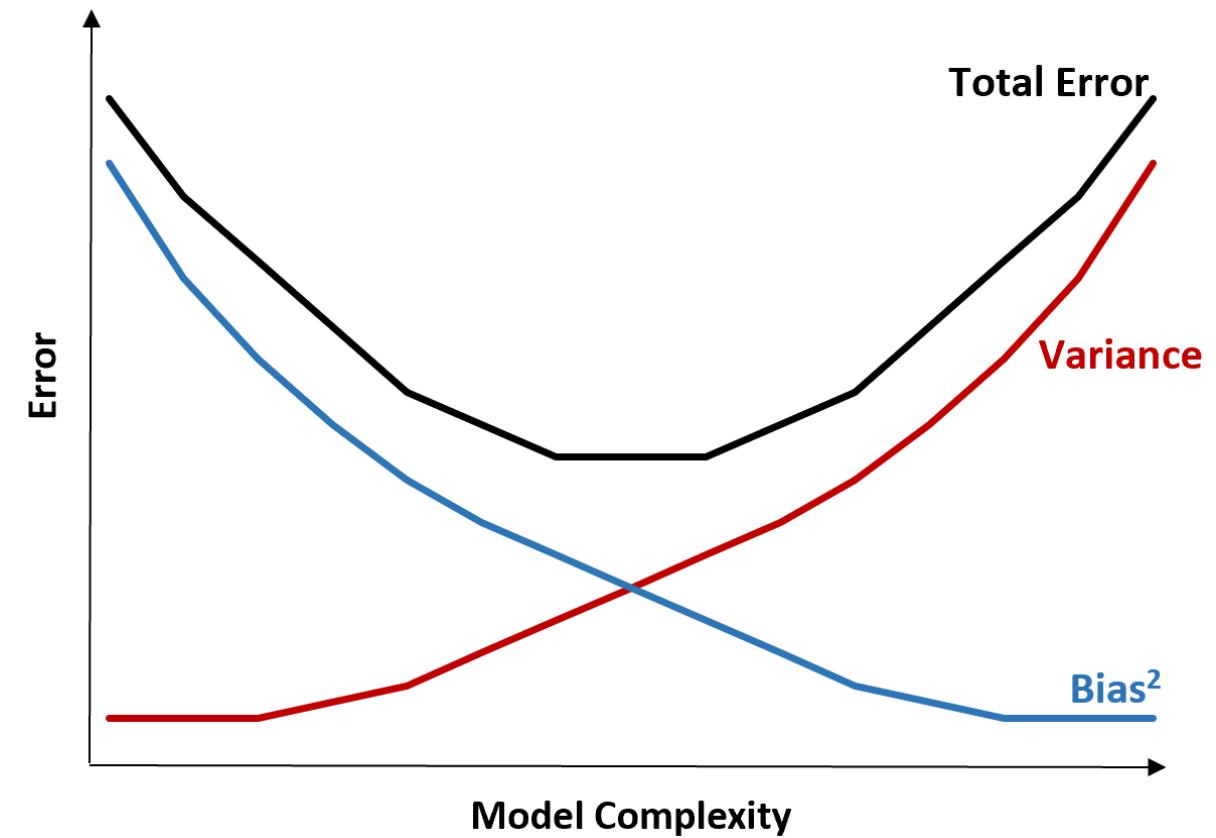
Principio de parsimonia

la solución más simple suele ser la mejor.

TRAIN Y TEST

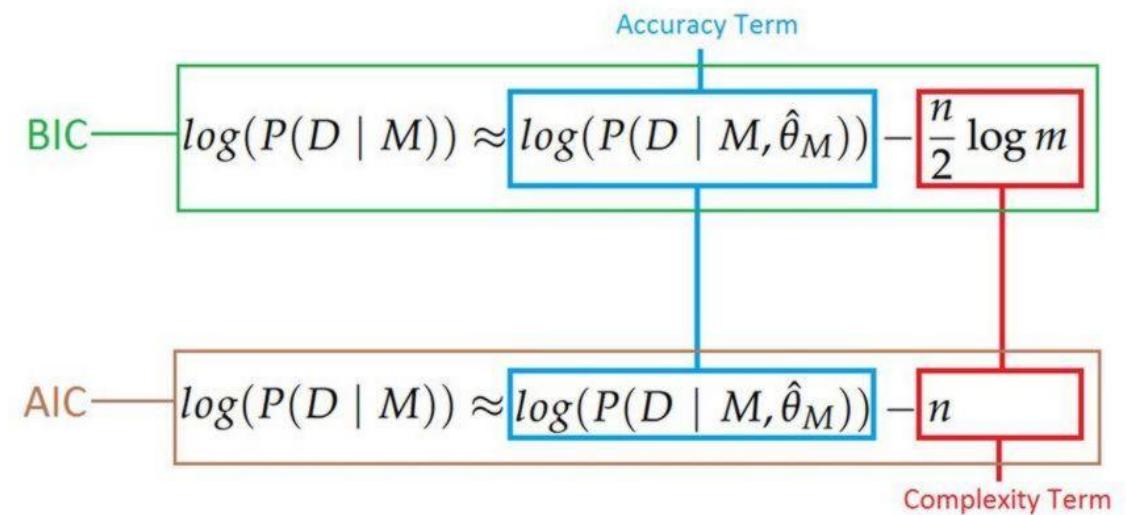


TRADE OFF SESGO Y VARIANZA

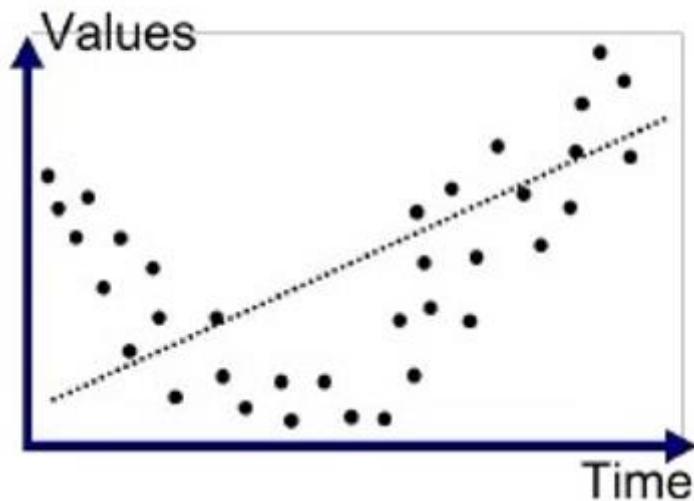


AIC VS BIC

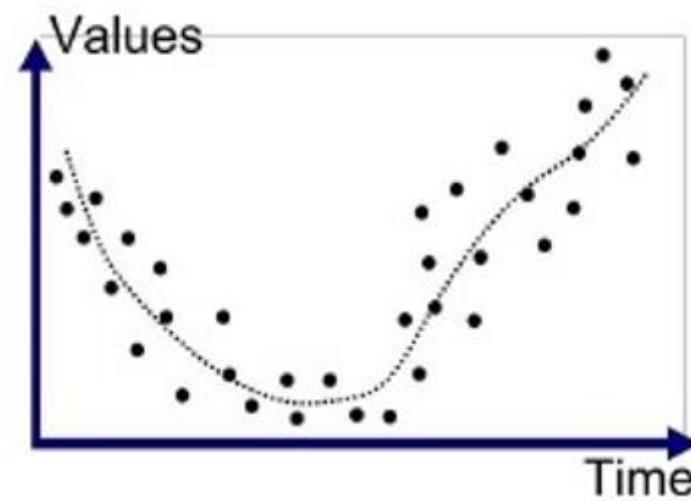
AIC vs BIC



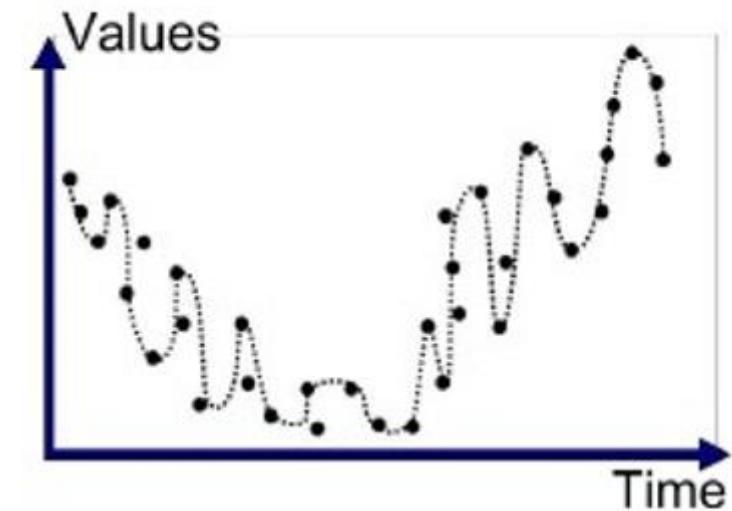
LASSO, RIDGE Y ELASTIC NET



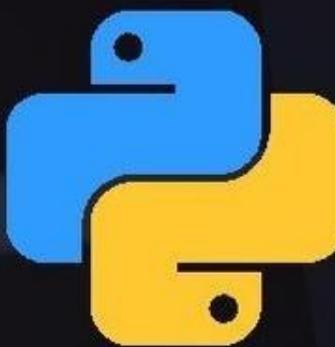
Underfitted



Good Fit/Robust



Overfitted



python



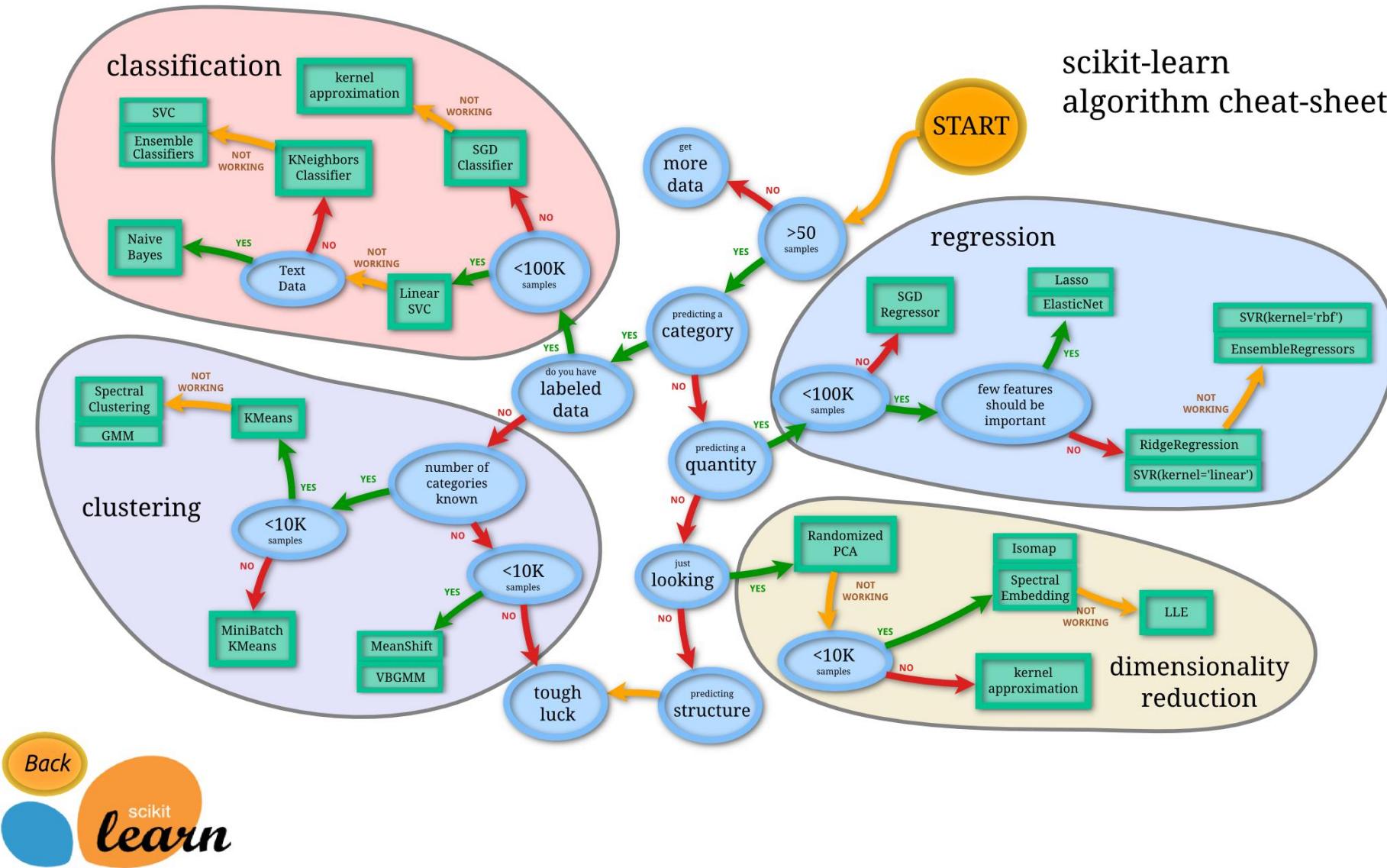
pandas

150x Faster pandas with Zero Code Change

(DuckDB Data Benchmark, 5 GB)



scikit-learn algorithm cheat-sheet



Initialize the
LinearRegression
model



```
my_linear_regressor = LinearRegression(...)
```

```
my_linear_regressor.fit(X_train, y_train)
```

```
my_linear_regressor.predict(X)
```

Train the
model on
the training
data



Predict an output,
on the basis of a
new input X value(s)

DEMO

```
    for object to mirror
        mirror_mod.mirror_object

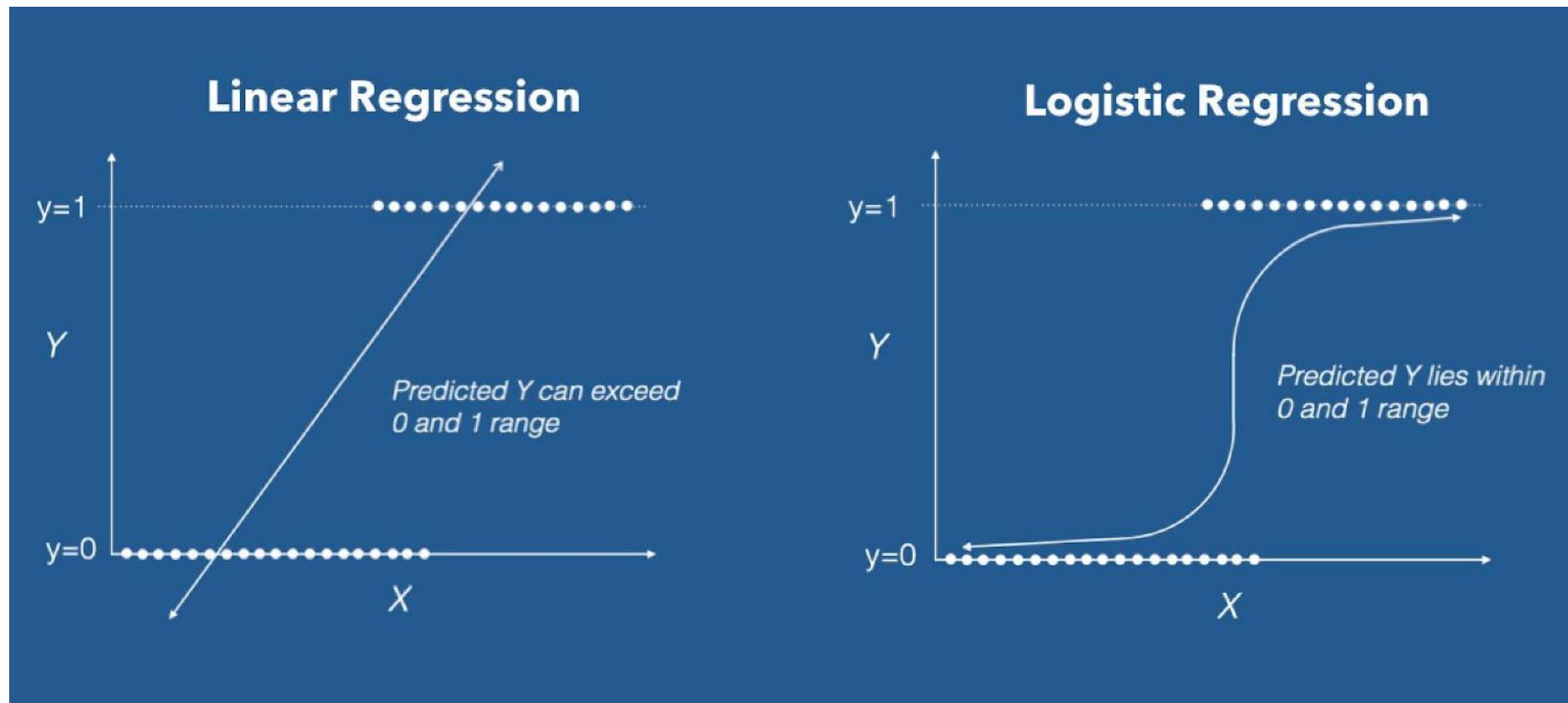
    operation == "MIRROR_X":
        mirror_mod.use_x = True
        mirror_mod.use_y = False
        mirror_mod.use_z = False

    operation == "MIRROR_Y":
        mirror_mod.use_x = False
        mirror_mod.use_y = True
        mirror_mod.use_z = False

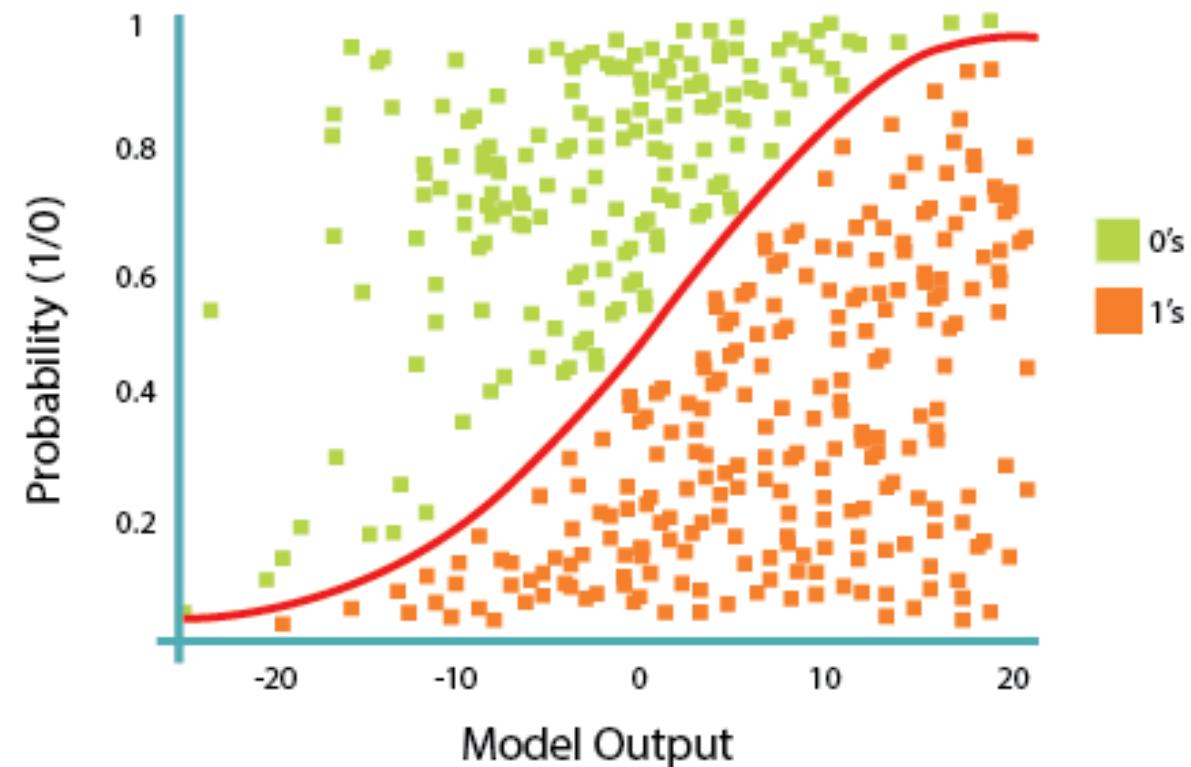
    operation == "MIRROR_Z":
        mirror_mod.use_x = False
        mirror_mod.use_y = False
        mirror_mod.use_z = True

    selection at the end -add
    mirror_ob.select= 1
    mirror_ob.select=1
    context.scene.objects.active = one
    ("Selected" + str(modifier))
    mirror_ob.select = 0
    bpy.context.selected_objects.append(data.objects[one.name].sele
    print("please select exactly one object")
    - OPERATOR CLASSES -
types.Operator):
    X mirror to the selected
    object.mirror_mirror_x"
    for X"
```

REGRESIÓN LOGÍSTICA



FUNCTION SIGMOIDE

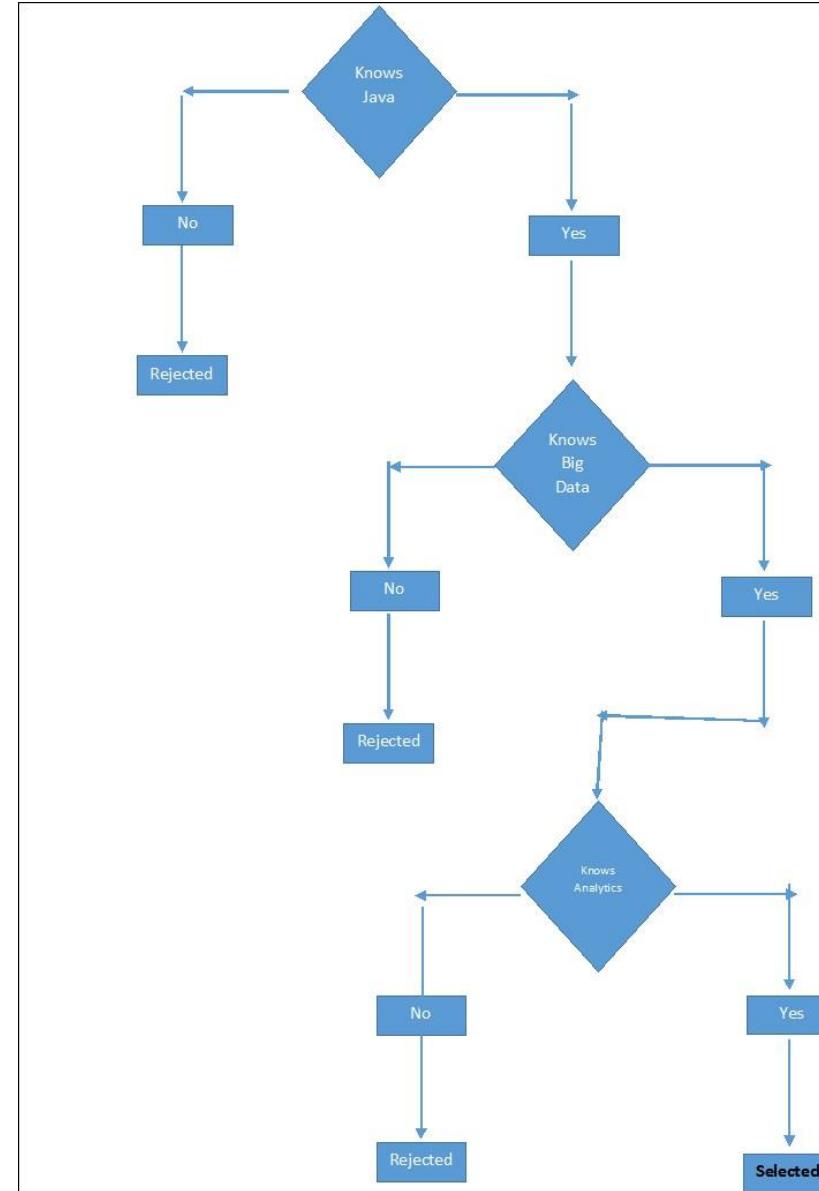


THRESHOLD

		Reality	
		True	False
Measured or Perceived	True	Correct 	Type 1 error False Positive
	False	Type 2 error False Negative	Correct 

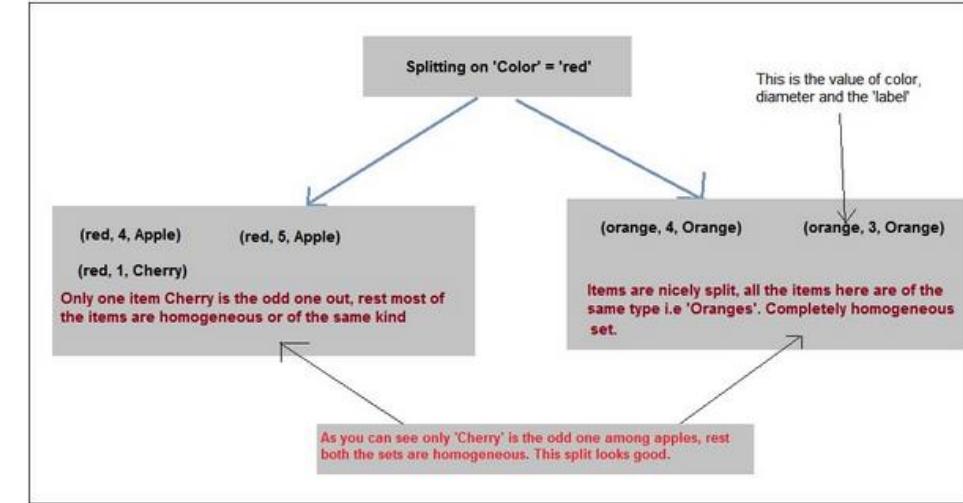
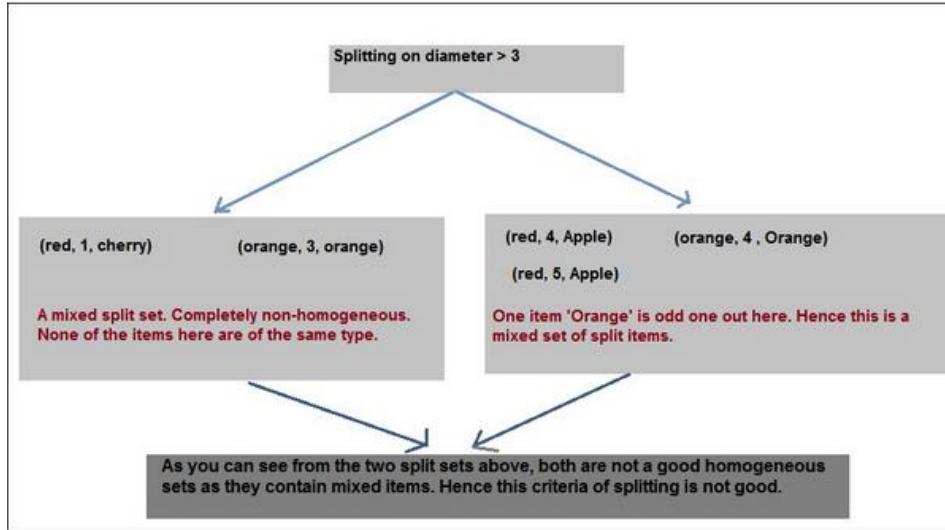
Matriz de confusión		Estimado por el modelo			
		Negativo (<i>N</i>)	Positivo (<i>P</i>)		
Real	Negativo	a: (TN)	b: (FP)		
	Positivo	c: (FN)	d: (TP)	Precisión <i>("precision")</i> Porcentaje predicciones positivas correctas:	$d/(b+d)$
		Sensibilidad, exhaustividad <i>("Recall")</i> Porcentaje casos positivos detectados	Especificidad <i>(Specificity)</i> Porcentaje casos negativos detectados	Exactitud <i>("accuracy")</i> Porcentaje de predicciones correctas <small>(No sirve en datasets poco equilibrados)</small>	
		$d/(d+c)$	$a/(a+b)$	$(a+d)/(a+b+c+d)$	

ARBOLES DE DECISIÓN



EJEMPLO DE ARBOL DE DECISIÓN

Color	Diámetro	Fruta
Rojo	4	Manzana
Naranja	4	Naranja
Rojo	1	Cereza
Rojo	5	Manzana
Naranja	3	Naranja

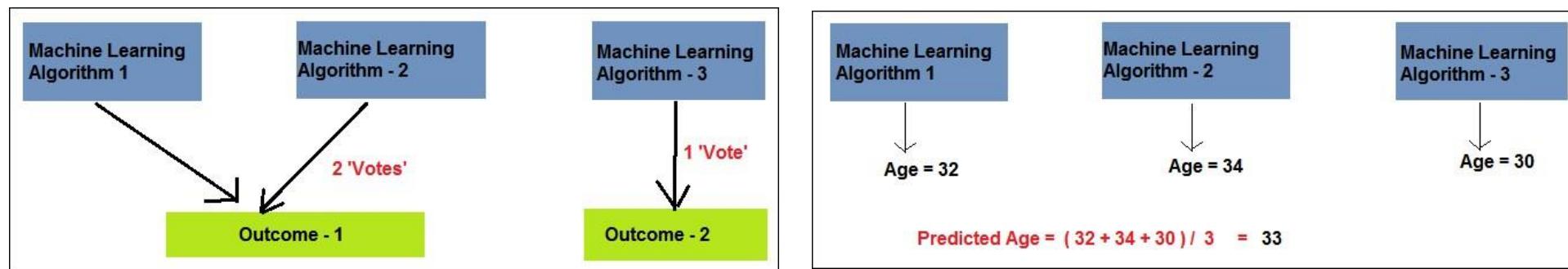


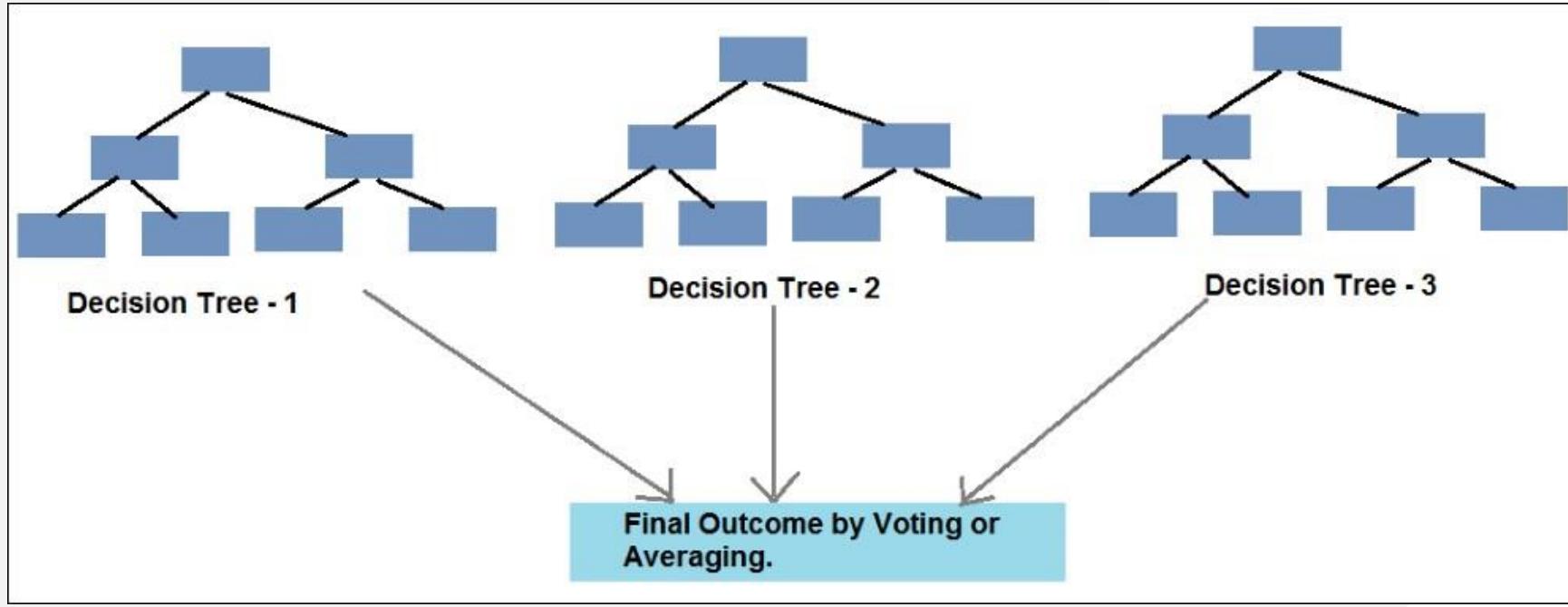
COMPARANDO DIVISIONES

ENSEMBLING



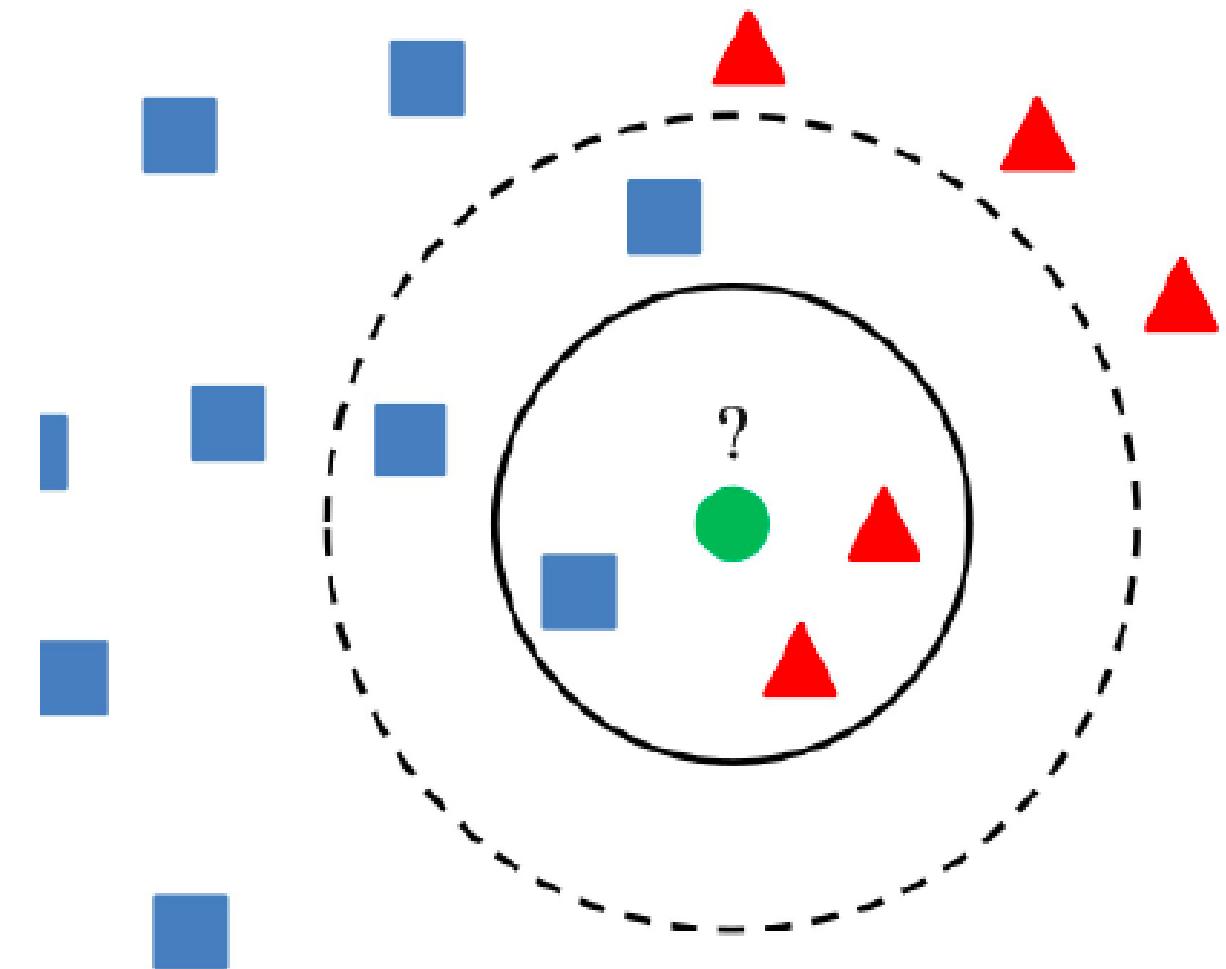
ENFOQUES



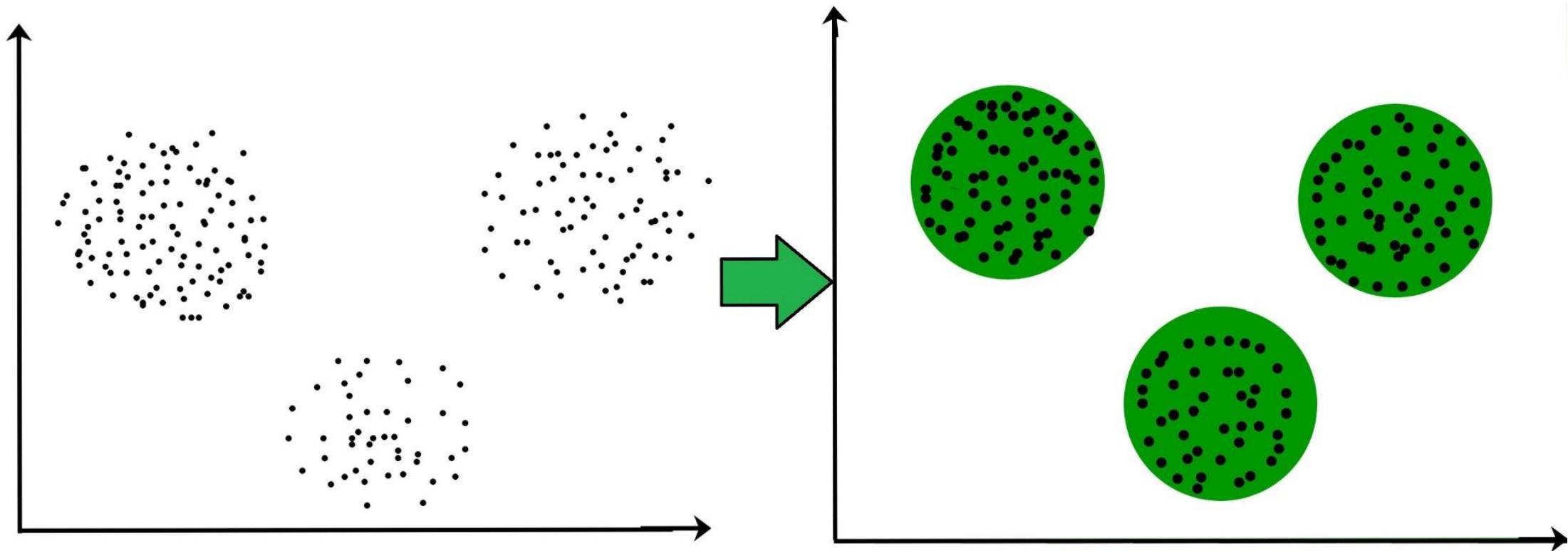


RANDOM FOREST

KNN



CLUSTERING



CASOS DE USO

All Departments 

1-16 of 6,153 results for "car"

Show results for

Automotive >

- Automotive Interior Accessories
- Cleaners
- Passenger Car Tires
- Bumper Stickers, Decals & Magnets
- Seat Cover Accessories

Toys & Games >

- Ride-On Toys
- Kids' Electronics
- Hobbies
- Children's Die-Cast Vehicles
- Hobby RC Cars

Apps & Games >

- Simulation Games
- Racing Games
- Action Games

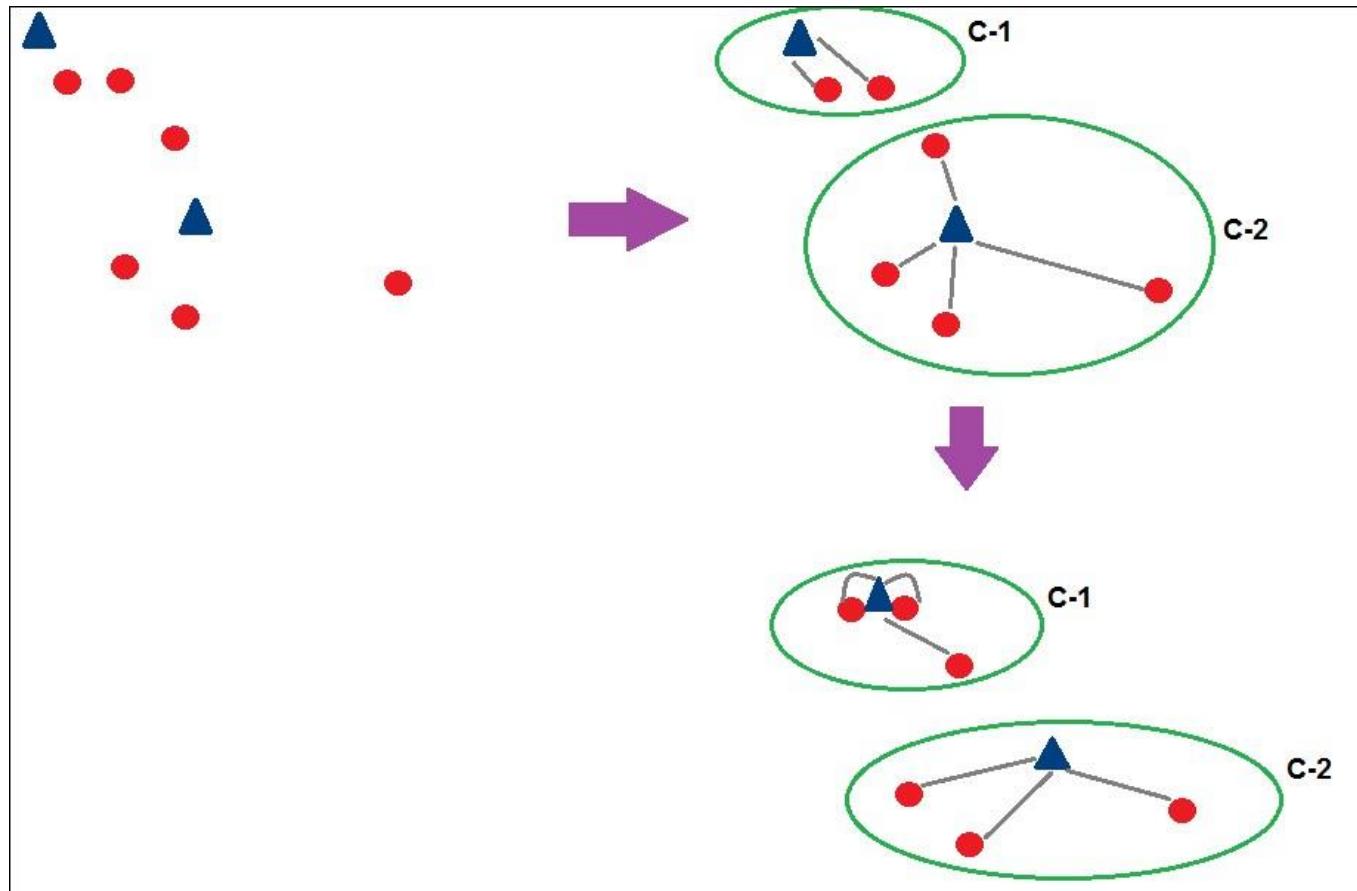
Electronics >

Searched for 'CAR'

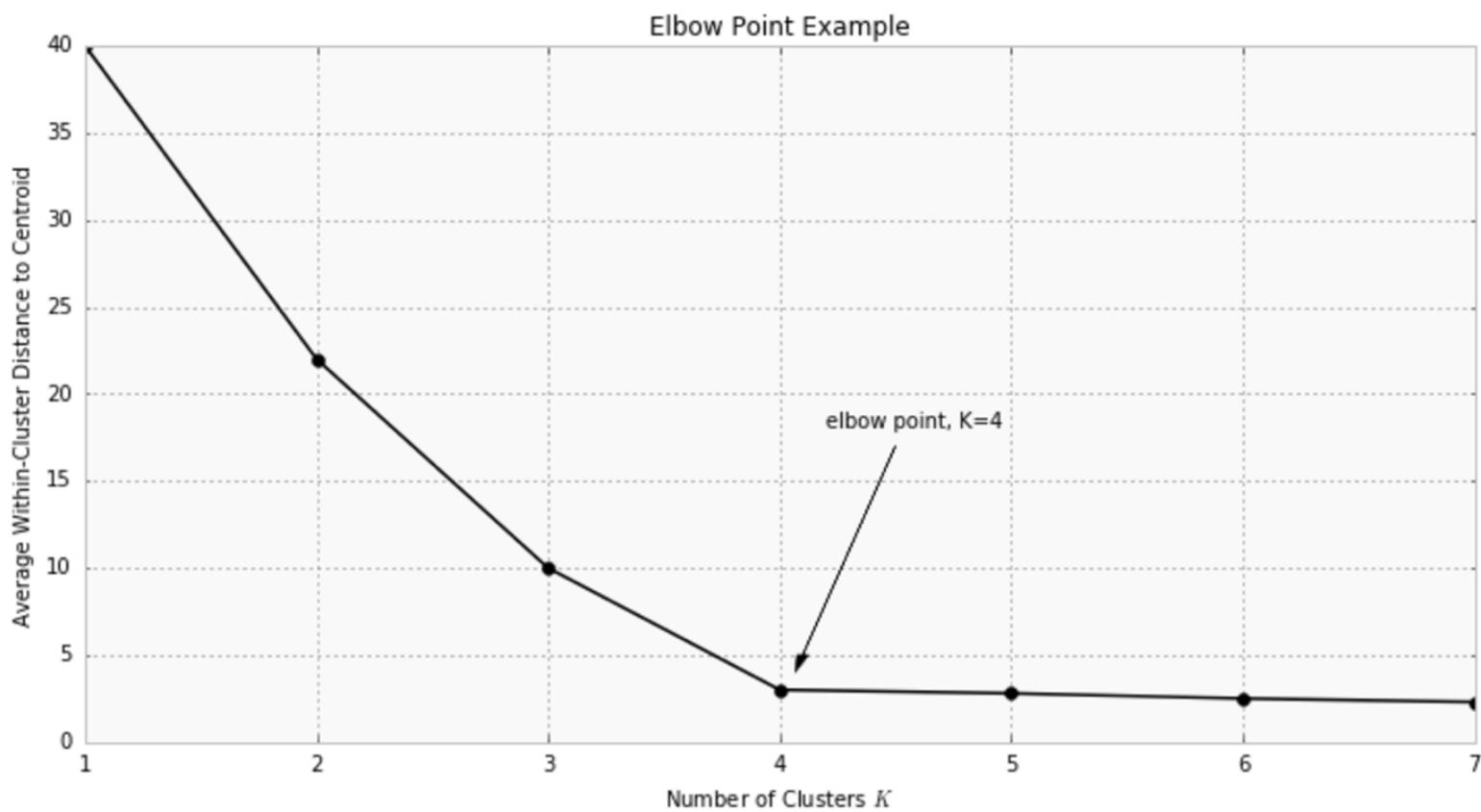
Clustering on the word 'CAR' to figure out individual categories.

 Save Now on Swiffer

 Haktoys HAK139 UTV SSV ATV 1:12 Scale RC Car with Lights

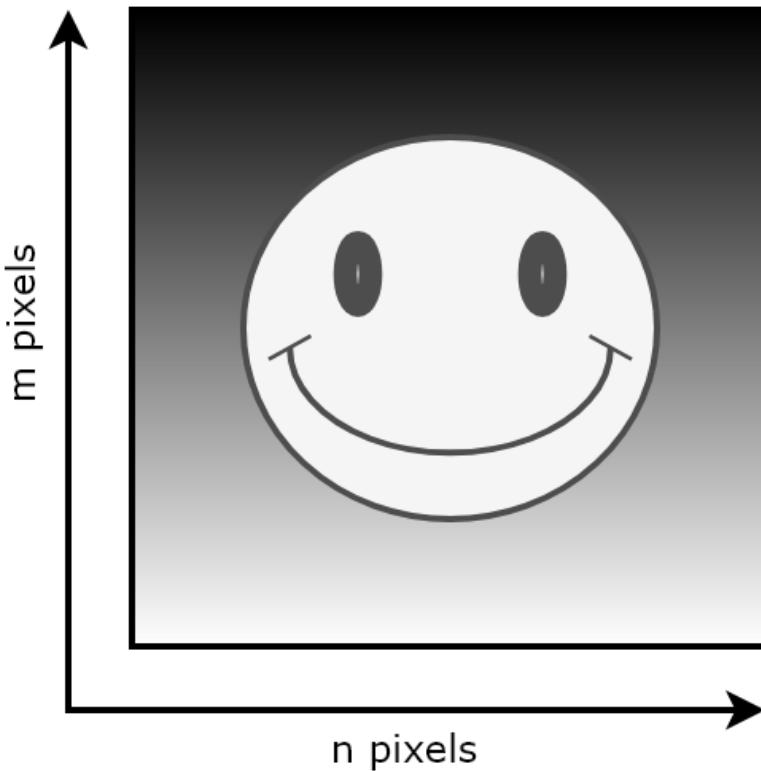


K-MEDIAS



ELBOW METHOD

Image of $m \times n$ pixels



Matrix of $m \times n$ pixel intensity values

0.0	0.0	0.0	...
0.2	0.3	0.4	...
0.3	0.4	0.5	...
...
...

IMAGEN = MATRIZ

SISTEMAS DE RECOMENDACIÓN



What to Watch

My Subscriptions

Music



Last Week Tonight with John
Oliver: Online Harassment...
by LastWeekTonight
2,895,113 views • 1 week ago



BASTILLE feat. Ella - No
Angels (HD)
by dancenationedm
5,836,404 views • 2 years ago



Bill Maher with Cha
by Darklordabc
88,923 views • 8 mor



START! Walking at Home
American Heart Associa...
by Leslie Sansone's Walk at Home
1,863,839 views • 7 months ago



The 5 Best Shia Labeouf "DO
IT" Motivation Videos
by The VGC
1,390,971 views • 4 weeks ago

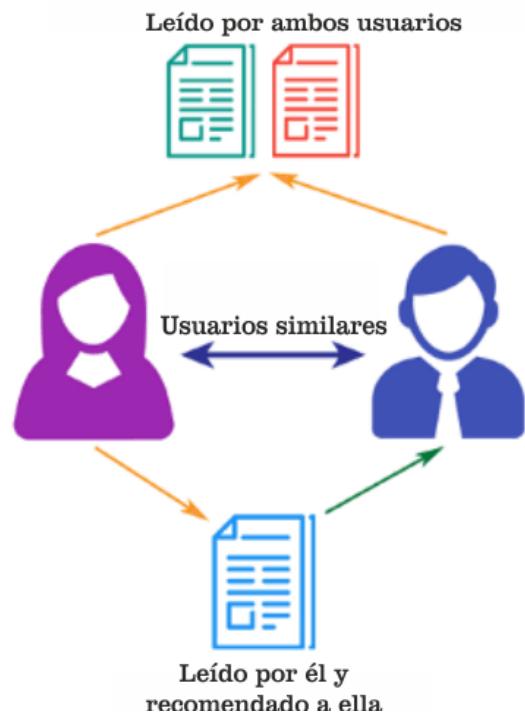


Elon Musk and I
discuss AI, entertain...
by Every Elon Mus
105,539 views • 2

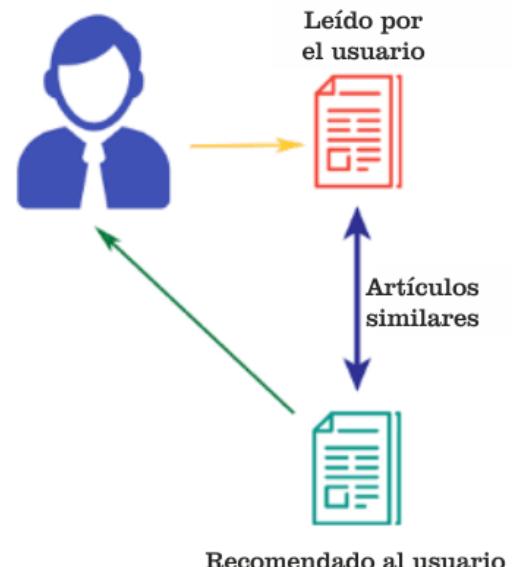
CASOS DE USO

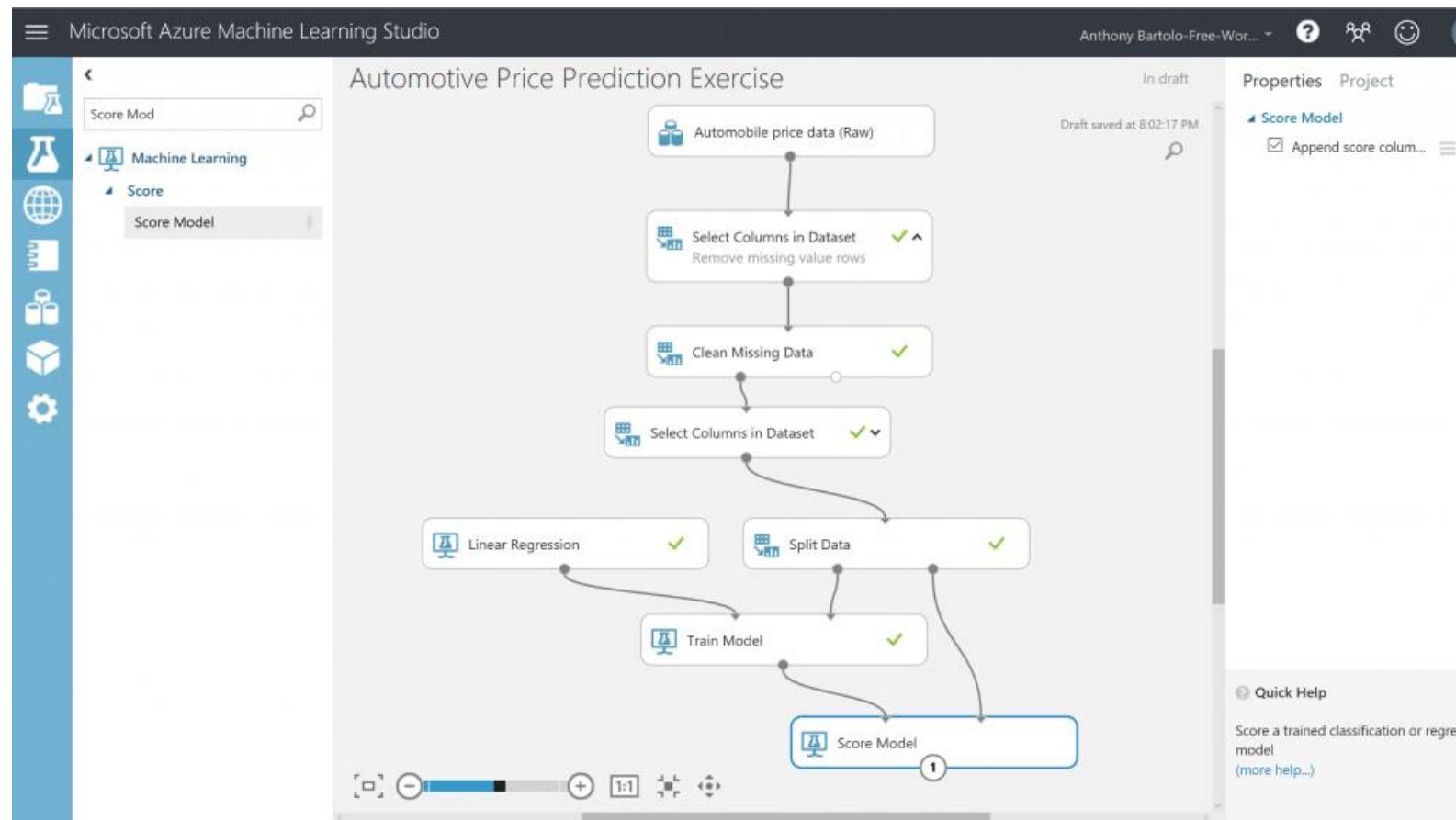
TIPOS DE SISTEMAS DE RECOMENDACIÓN

Filtro colaborativo

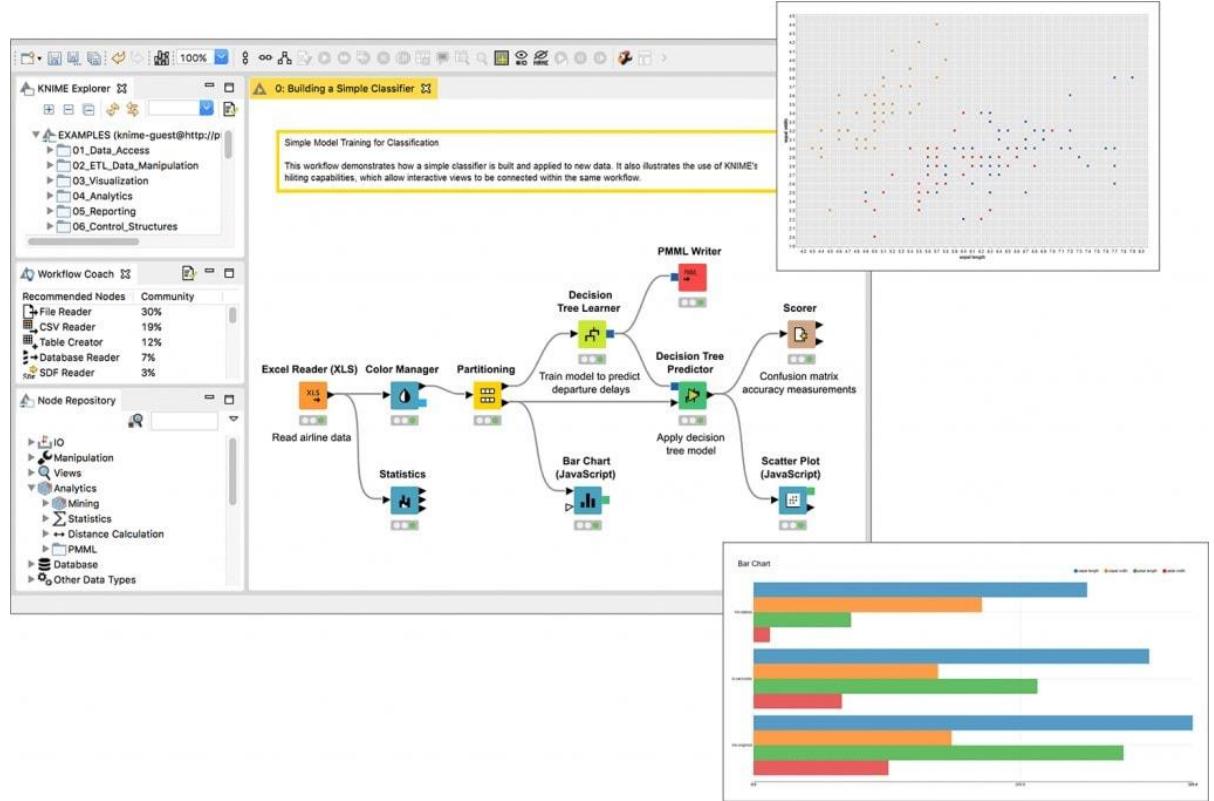


Filtro basado en contenido

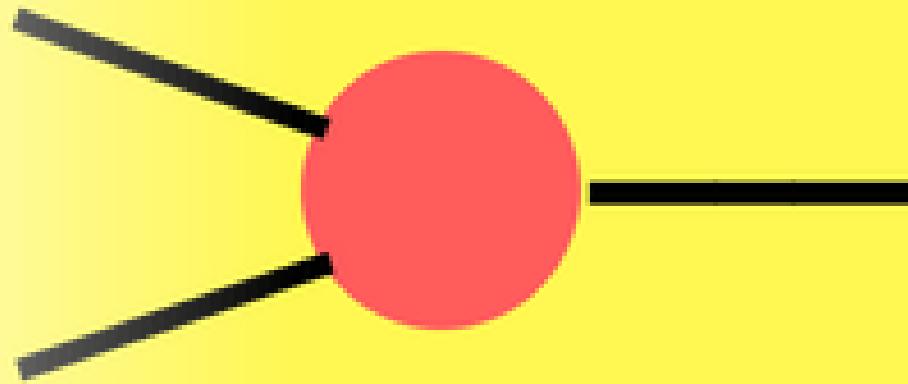




KNIME



EL INICIO DE TODO: PERCEPTRON



RED NEURONAL ARTIFICIAL

