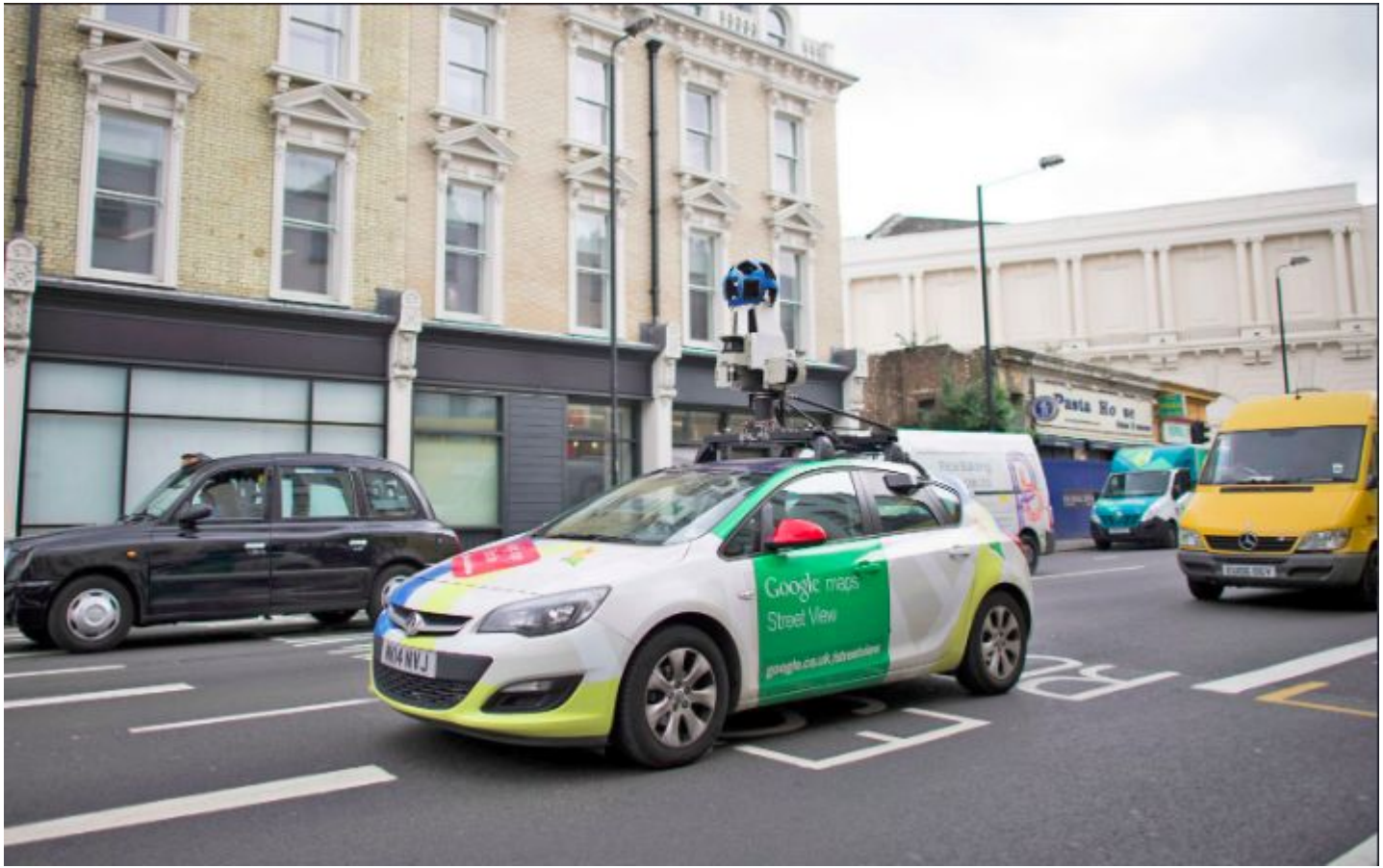
MODULE 1. INTRODUCTION

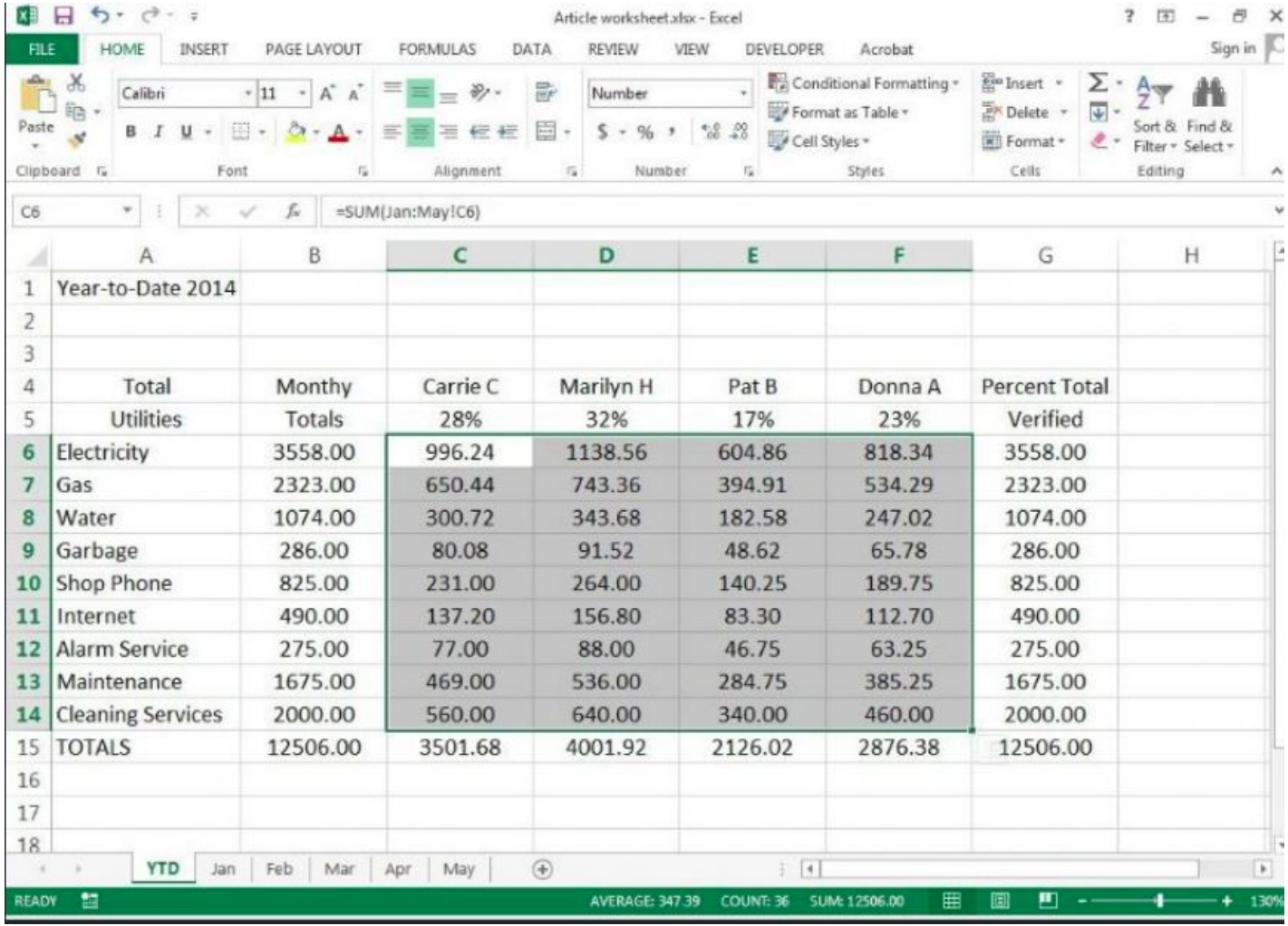
- What is AI for you?
- Examples of AI
- Machine DON’T learn
- Building datasets and models
- Terms and concepts

What is AI for you?


9:41
Tuesday
12
Mail
Calendar
Photos
Camera
Maps
Clock
Weather
News
Home
Notes
Stocks
Reminders
TV
App Store
iTunes Store
Books
Health
Wallet
Settings
Phone
Safari
Messages
Music


34 Calle Gran Vía
Madrid, Comunidad de Madrid
Google, Inc.
Street View - sept. 2017
abr. 2014
2008
2017
ZARA
TAXI
BUS
Google


Google maps
Street View



	A	B	C	D	E	F	G	H
1	Year-to-Date 2014							
2								
3								
4	Total	Monthy	Carrie C	Marilyn H	Pat B	Donna A	Percent Total	
5	Utilities	Totals	28%	32%	17%	23%	Verified	
6	Electricity	3558.00	996.24	1138.56	604.86	818.34	3558.00	
7	Gas	2323.00	650.44	743.36	394.91	534.29	2323.00	
8	Water	1074.00	300.72	343.68	182.58	247.02	1074.00	
9	Garbage	286.00	80.08	91.52	48.62	65.78	286.00	
10	Shop Phone	825.00	231.00	264.00	140.25	189.75	825.00	
11	Internet	490.00	137.20	156.80	83.30	112.70	490.00	
12	Alarm Service	275.00	77.00	88.00	46.75	63.25	275.00	
13	Maintenance	1675.00	469.00	536.00	284.75	385.25	1675.00	
14	Cleaning Services	2000.00	560.00	640.00	340.00	460.00	2000.00	
15	TOTALS	12506.00	3501.68	4001.92	2126.02	2876.38	12506.00	
16								
17								
18								

absorption coefficient to be μ = **-1.219 with** σ_μ = **0.135** and we used this data to estimate a value of E = **.70 MeV with** σ_E = **.50 MeV.** This was also in close agreement with the accepted value of 0.662 MeV.

Procedure:

To begin this experiment, we first had to calibrate the Geiger counter. We did this by adjusting the High voltage supply and taking measurements in 20V steps until the count rate raised by less than 10% for a 100 V increase. This insured that the Geiger counter was in its plateau region, and minimized the effect of HV variation on the measurements. After properly setting the HV level, we measured the amount of background radiation detected by the Geiger counter. We did this by removing all radioactive samples and shielding then with lead and measuring the count detected by the Geiger counter in 15 seconds. The equipment was set up in the following fashion:

After this, we began to measure the range of the *β* particles. To do this, we placed a Thallium-204 sample under the Geiger tube to emit *β* particles as shown below:

We conducted trials by taking measurements of the count emitted per 30 seconds, adding an additional sheet of aluminum foil absorber each trial. We did this until the rate of count was comparable to the background level we determined earlier. For the last few trials, we increased the time period to 45 seconds to lessen the effect of error.

After this, we replaced the Thallium source with a Cesium-137 sample and repeated the process to measure the absorption of *γ* rays. For this, we used lead absorbers instead of aluminum ones.

Comments

New Comment

Nelson Siu

Or was this 30 seconds? Could someone please check the instructions and make sure this was right?

Andru Roysden

Just checked: It was 15 seconds.

Nelson Siu 4/8/2014 - 4:37 PM

Reminder for me to work on the section on experimental error later on in the report.

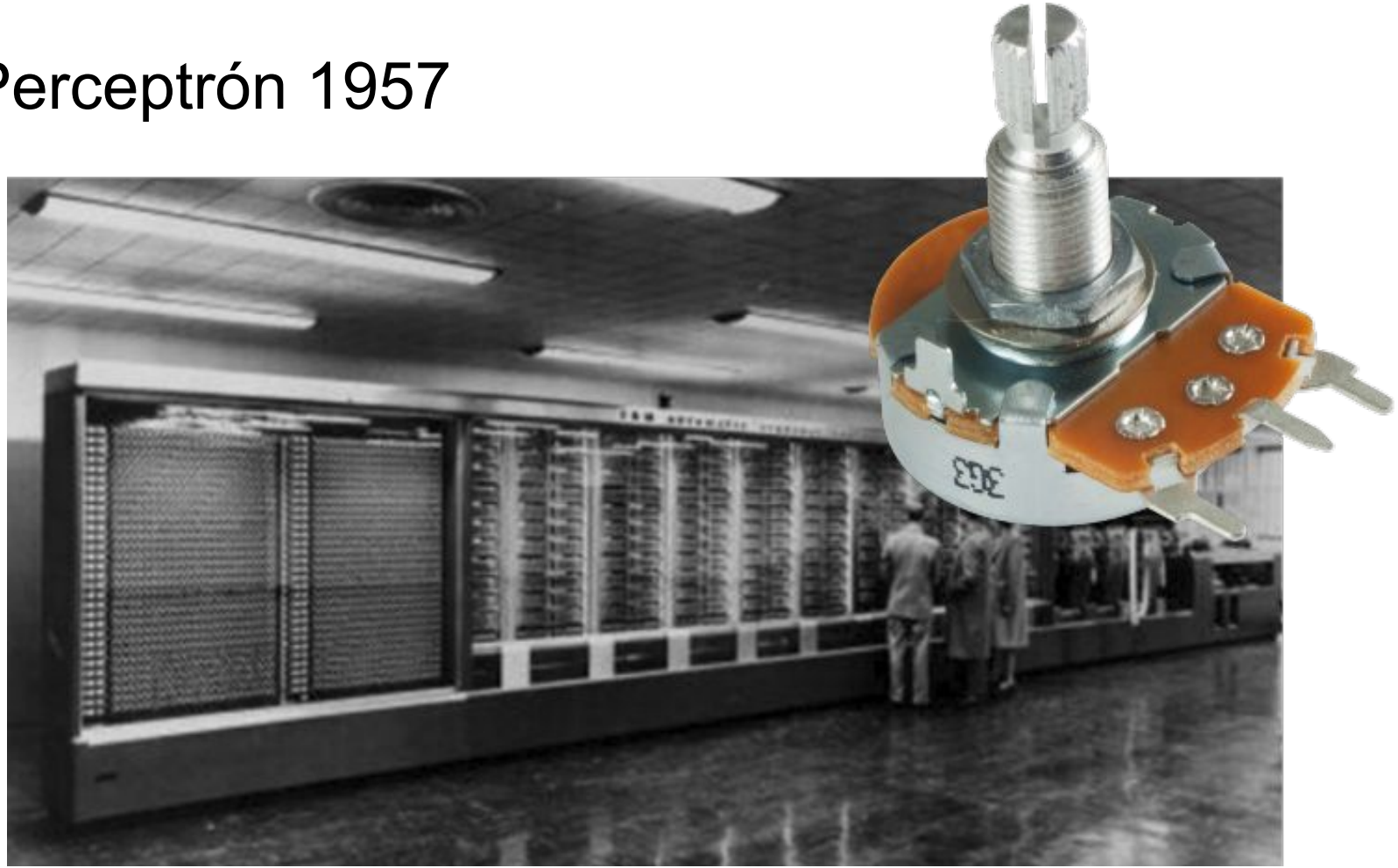

12-DIGIT
120 STEPS CHECK & CORRECT
CITIZEN CT-555N
2 POWER
CHECK
CHECK
CORRECT
AUTO REPLAY
RATE
-TAX REC
+TAX SET
MU
ON/C
MRC
M=
M±

Un poco de perspectiva

The perceptron algorithm was invented in 1957 at the Cornell Aeronautical Laboratory by Frank Rosenblatt,[3] funded by the United States Office of Naval Research.[4] The perceptron was intended to be a machine, rather than a program, and while its first implementation was in software for the IBM 704, it was subsequently implemented in custom-built hardware as the "Mark 1 perceptron". This machine was designed for image recognition: it had an array of 400 photocells, randomly connected to the "neurons". Weights were encoded in potentiometers, and weight updates during learning were performed by electric motors.[2]:193

In a 1958 press conference organized by the US Navy, Rosenblatt made statements about the perceptron that caused a heated controversy among the fledgling AI community; based on Rosenblatt's statements, *The New York Times* reported the perceptron to be "the embryo of an electronic computer that [the Navy] expects will be able to walk, talk, see, write, reproduce itself and be conscious of its existence."[4]

Perceptrón 1957



Perceptron 1957

“Sería el embrión de un computador electrónico que sería capaz de andar, hablar, ver, escribir, reproducirse y ser consciente de su propia existencia”

Inteligencia Artificial según Wikipedia

Coloquialmente, el término inteligencia artificial se aplica cuando una máquina imita las funciones «cognitivas» que los humanos asocian con otras mentes humanas, como por ejemplo: «aprender» y «resolver problemas»

En 1957?


12-DIGIT
120 STEPS CHECK & CORRECT
CITIZEN CT-555N
2 POWER
CHECK
CHECK
CORRECT
AUTO REPLAY
RATE
-TAX REC
+TAX SET
MU
7
8
9
4
5
6
1
2
3
0
00
.
+
−
=
√
%
×
÷
ON/C
MRC
M−
M+

Inteligencia Artificial según Wikipedia

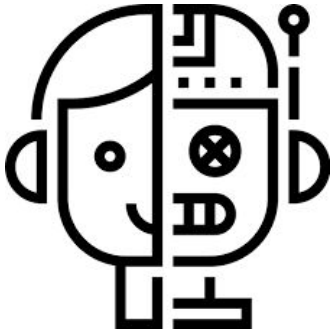
A medida que las máquinas se vuelven cada vez más capaces, tecnología que alguna vez se pensó que requería de inteligencia se elimina de la definición. Por ejemplo, el reconocimiento óptico de caracteres ya no se percibe como un ejemplo de la «inteligencia artificial» habiéndose convertido en una tecnología común.[3] Avances tecnológicos todavía clasificados como inteligencia artificial son los sistemas de conducción autónomos o los capaces de jugar al ajedrez o al Go.[4]

¿Qué entiendes por IA?

General AI

A machine capable of do what humans

Conscious machines



Narrow AI

Solve field specific problems

Take advantage of existent data

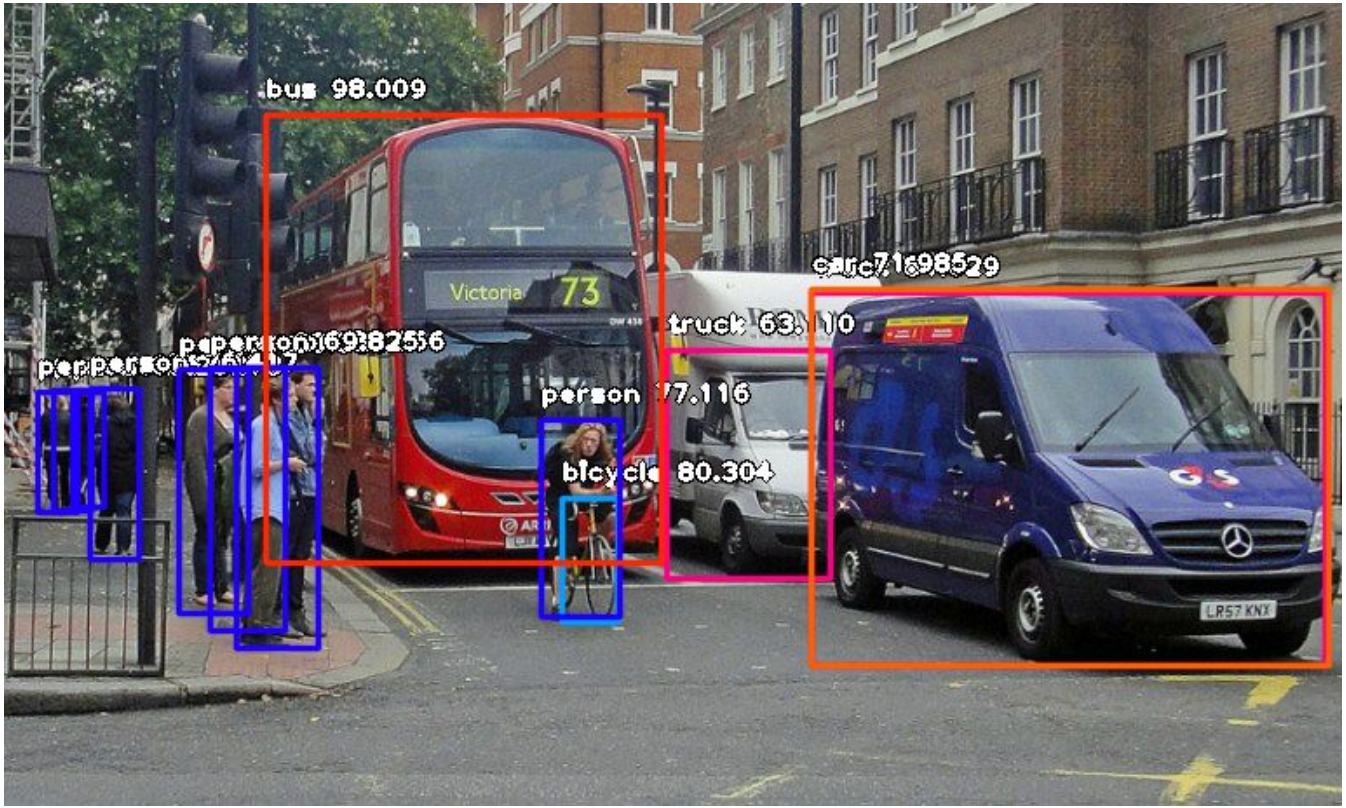
Correlate multiple sources

Combine low level and high level information

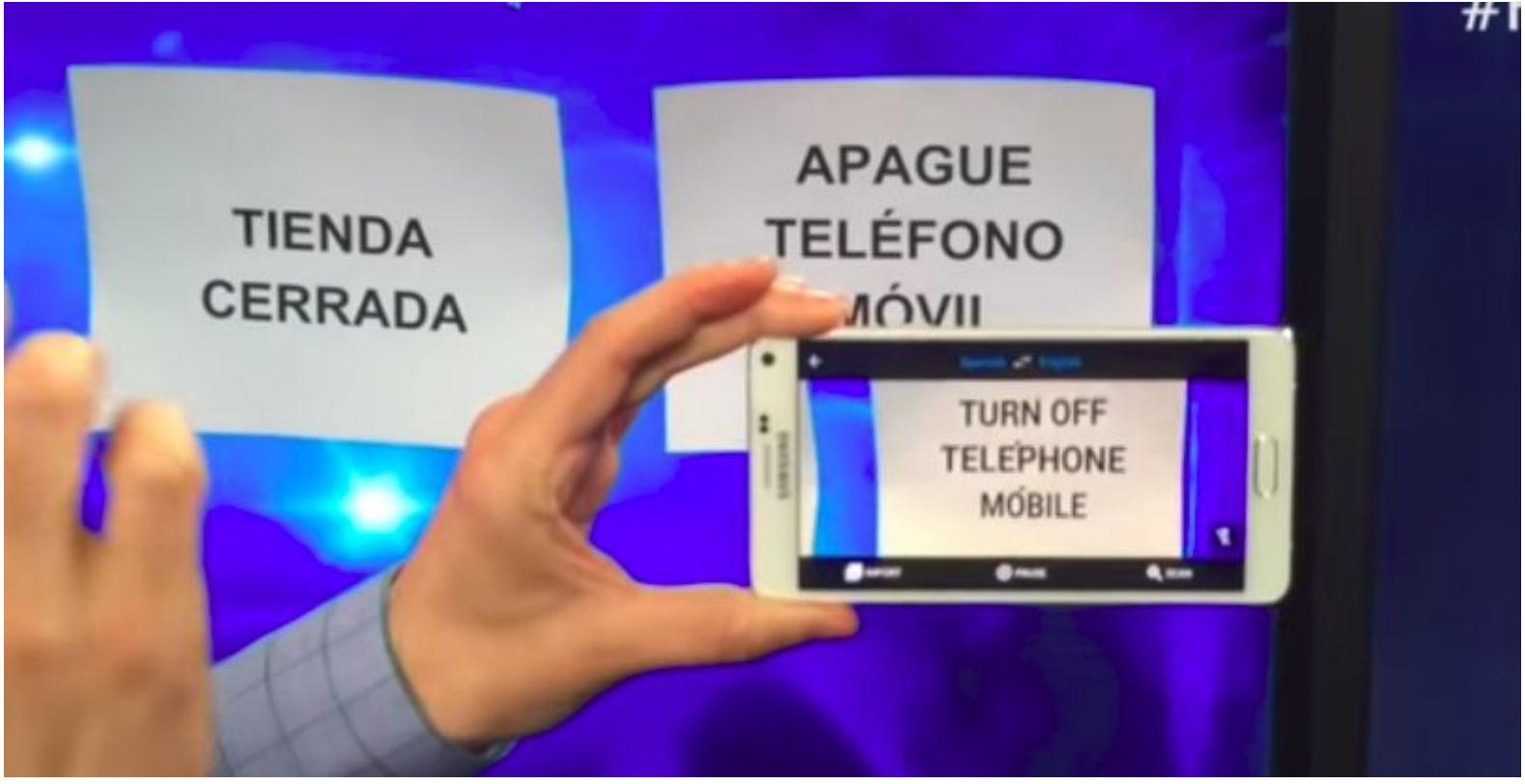
Ejemplos de IA

IA hoy

https://www.youtube.com/watch?v=_zZe27JYi8Y



IA hoy https://www.youtube.com/watch?v=Ro-HfETpzhc



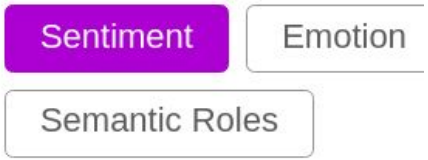
IA hoy https://www.youtube.com/watch?v=gg0F5JjKmhA

IBM Natural Language Understanding Demo

Text URL

In the rugged Colorado Desert of California, there lies buried a treasure ship sailed there hundreds of years ago by either Viking or Spanish explorers. Some say this is legend; others insist it is fact. A few have even claimed to have seen the ship, its wooden remains poking through the sand like the skeleton of a prehistoric beast. Among those who say they've come close to the ship is small-town librarian Myrtle Botts. In 1933, she was hiking with her husband in the Anza-Borrego Desert, not far from the border with Mexico. It was early March, so the desert would have been in bloom, its washed-out yellows and grays beaten back by the riotous invasion of wildflowers. Those wildflowers were what brought the Bottses to the desert, and

IBM Natural Language Understanding Demo

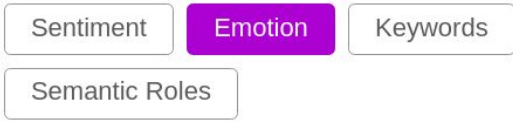


Review the overall sentiment and t

Overall Sentiment

Negative -0.48

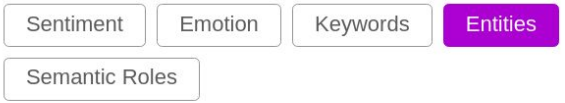
Targeted Sentiment



Analyze the overall emotion and the targeted emotion of

Overall Emotion

Joy 0.48 Anger 0.13



Extract people, companies, organizations, cities, geographic features, anc

JSON

Name	Type	Score
Anza-Borrego Desert	GeographicFeatu	0.85
Myrtle Botts	Person	0.83
Colorado Desert	GeographicFeatu	0.58
Albert S. Evans	Person	0.51

0.09

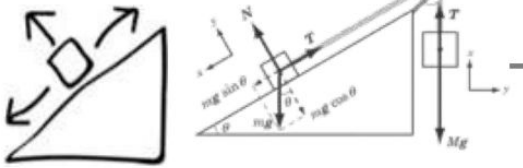
Las máquinas NO aprenden

this is about creating models

this is about creating models

observations	**predictions**
gun parameters	bullet trajectory
rocket thrust	rocket landing site
chemical mix	resulting reaction
patient image	has pathology
finance time series	value trend
customer profile	product to purchase
house description	market value
text snippet	sentiment
text in spanish	text in english

Modelos analíticos



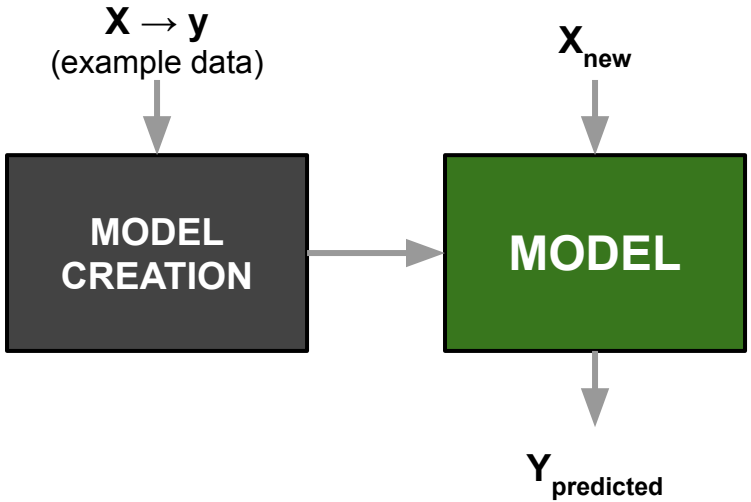
X
observations

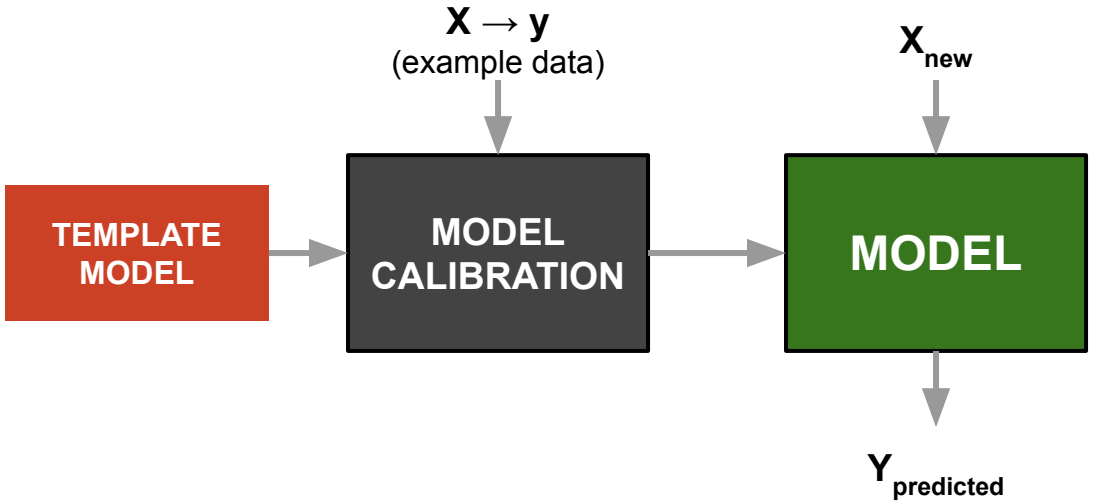
$$\frac{1}{2}Mv^2 + \frac{1}{2}mv^2 - Mgh + mgh\sin\theta = 0$$

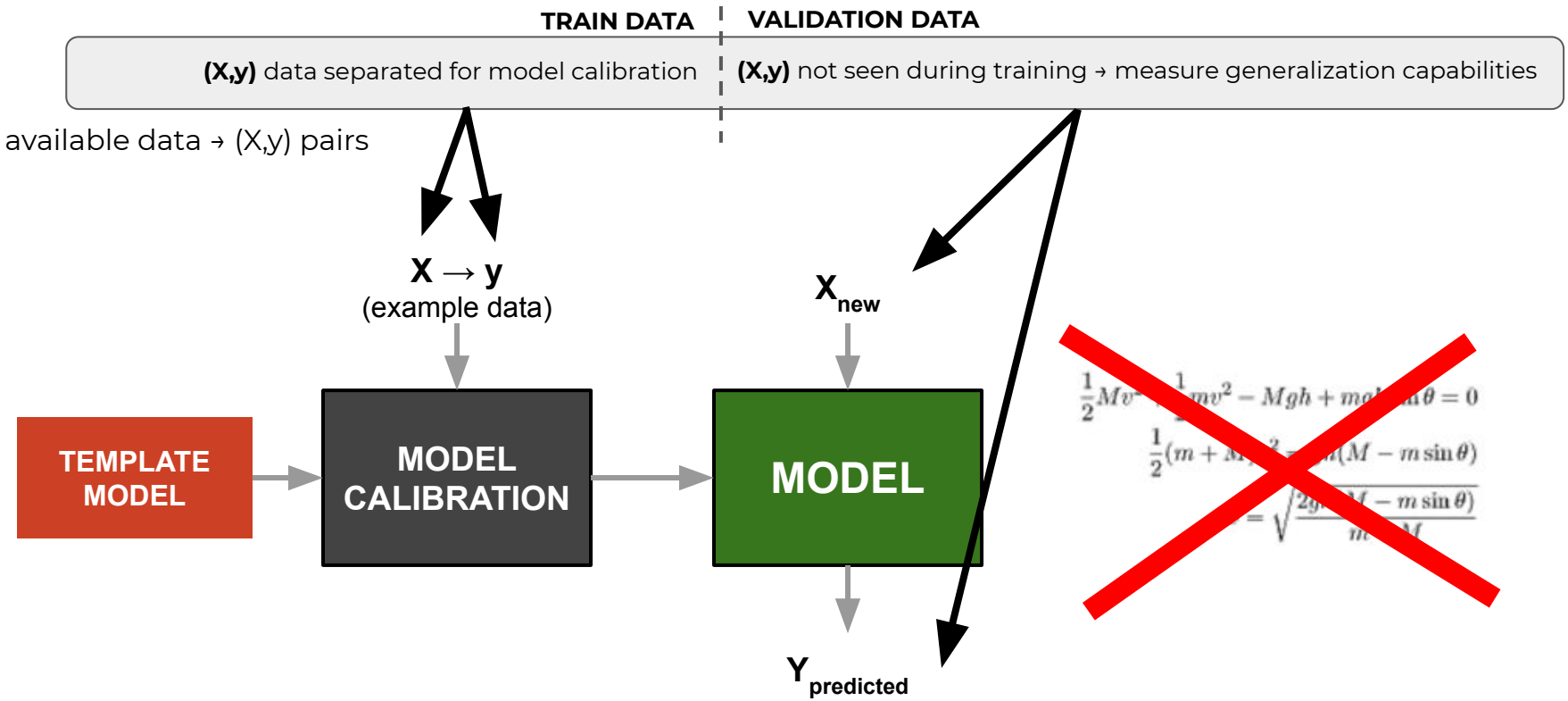
$$\frac{1}{2}(m+M)v^2 = gh(M - m\sin\theta)$$

$$v = \sqrt{\frac{2gh(M - m\sin\theta)}{m+M}}$$

Y
predictions


X → y
(example data)
X new
MODEL CREATION
MODEL
Y predicted


X → y
(example data)
X new
TEMPLATE MODEL
MODEL CALIBRATION
MODEL
Y predicted

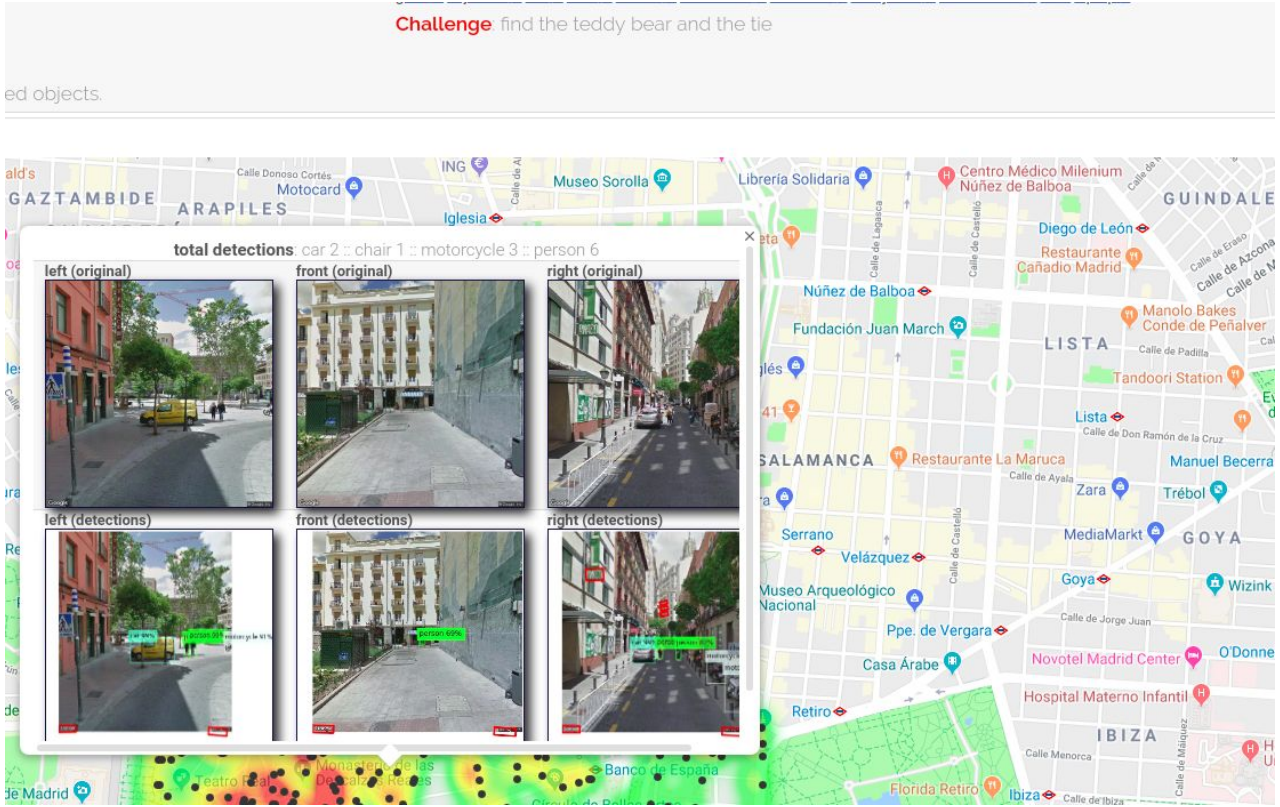


Performance in train (calibration)	GOOD	GOOD	BAD
Performance in validation (generalization)	**GOOD**	**BAD**	**BAD**

GOAL: build up evidence to backup data decisions

Construcción de datasets y modelos

Anotación de datos



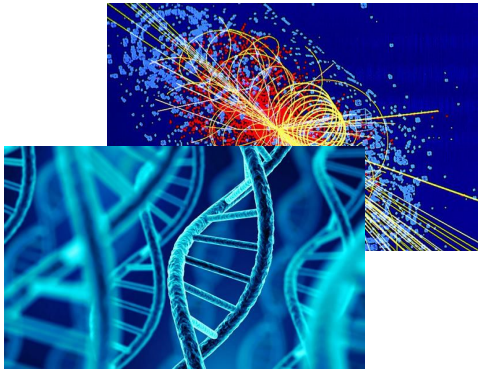
IA hoy https://www.youtube.com/watch?v=B3omChYHaoo

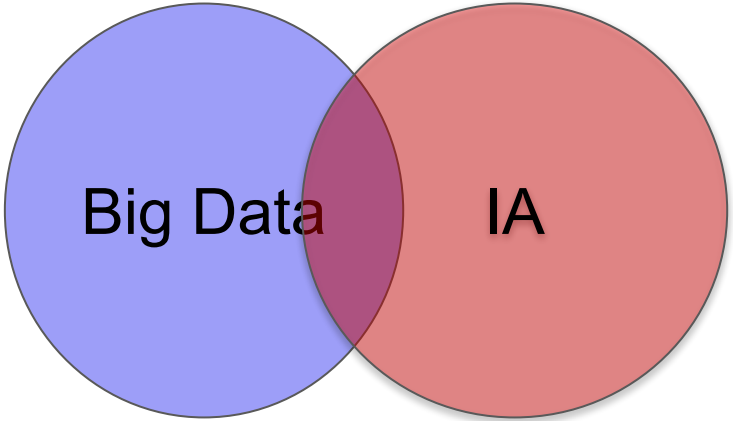
a group of people sitting at a table with a cake.

Términos y conceptos

Términos y conceptos

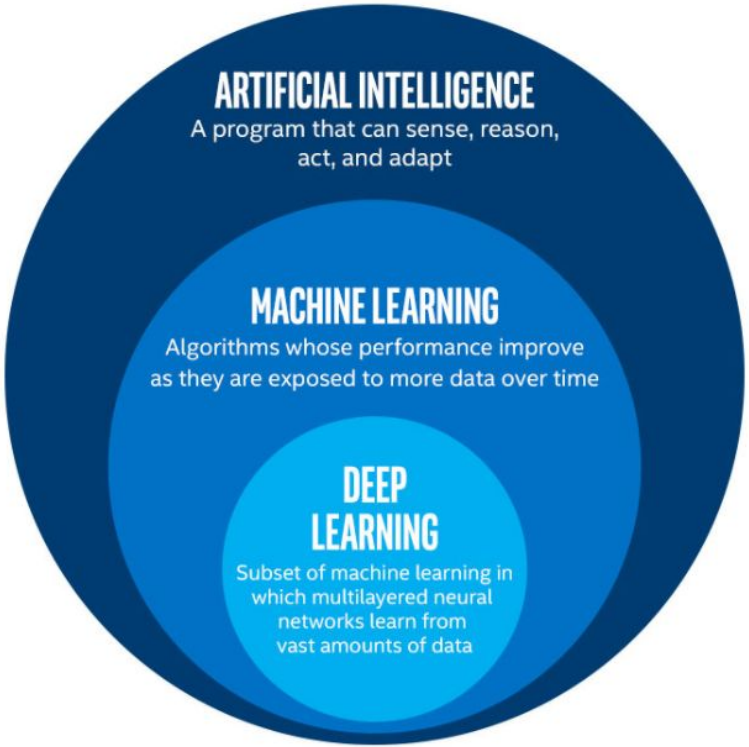
DATA SCIENCE



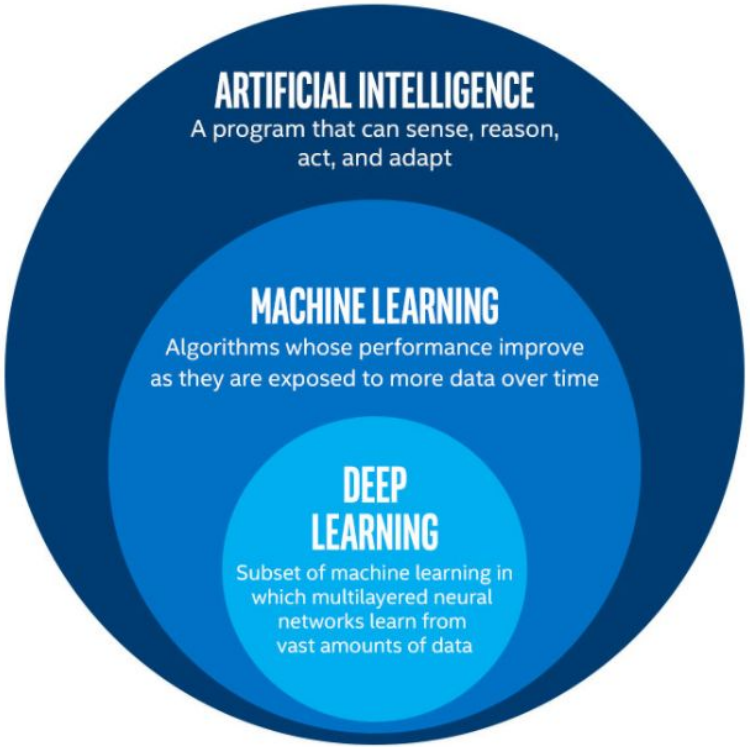


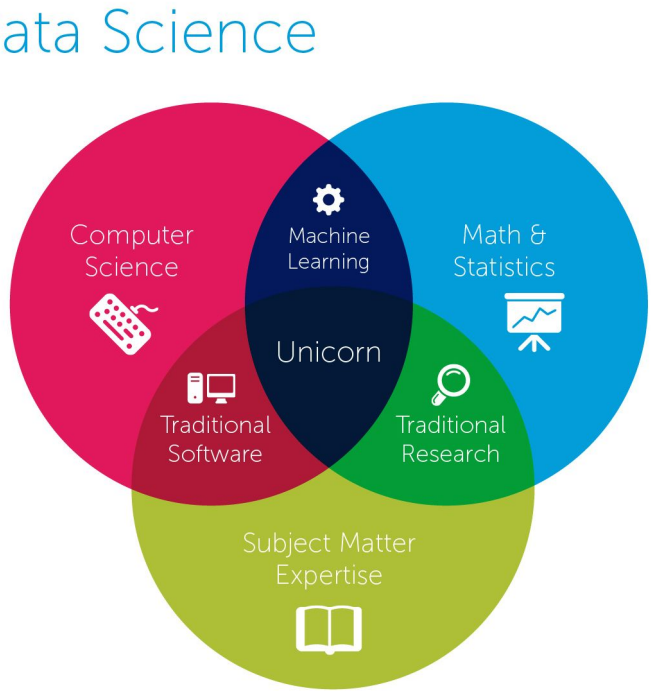
Business Intelligence / Dashboards / Visualization

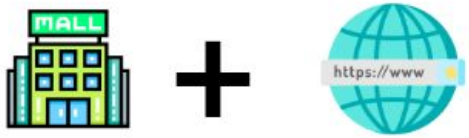
Términos y conceptos



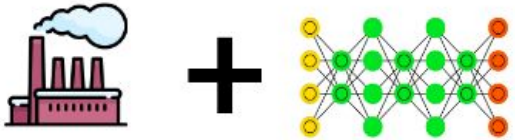
Términos y conceptos







Not internet company



Not AI industry

Data Engineer

Data Labeller

Machine Learning Engineer

Data Scientist

Data Product Manager