

# Detección de anomalías en trenes



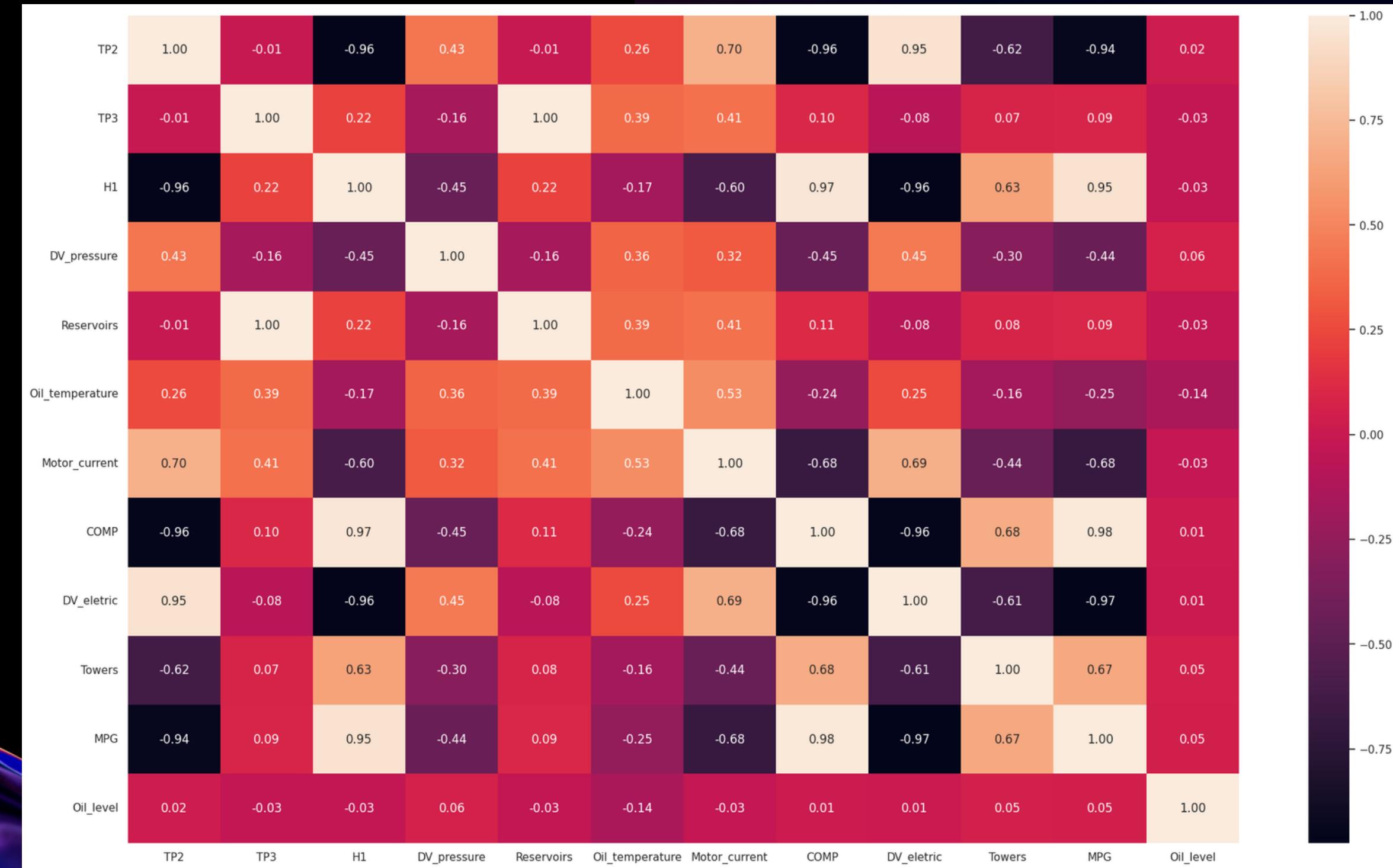
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Juan Sebastian Suarez  
Andrey Felipe Leguizamo

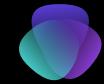
# DATA SET

	TP2	TP3	H1	DV_pressure	Reservoirs	oil_temperature	Motor_current	COMP	DV_electric	Towers	MPG	oil_level
520779	-0.012	8.828	8.818	-0.022	8.830	57.725	0.0425	1.0	0.0	1.0	1.0	1.0
599167	-0.012	9.094	9.080	-0.022	9.096	57.400	0.0425	1.0	0.0	1.0	1.0	1.0
950841	8.712	8.242	-0.024	-0.022	8.240	57.800	5.7800	0.0	1.0	1.0	0.0	1.0
1012723	-0.012	8.262	8.250	-0.020	8.264	61.375	0.0425	1.0	0.0	1.0	1.0	1.0
570409	8.984	8.822	-0.008	1.992	8.822	73.225	5.7575	0.0	1.0	0.0	0.0	1.0

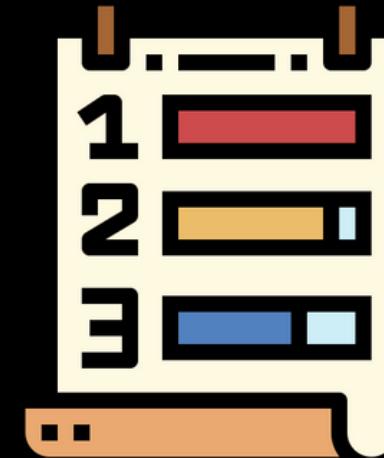


# MATRIZ DE CORRELACIÓN





# MÉTODOS



## Clasificación

Decision Tree

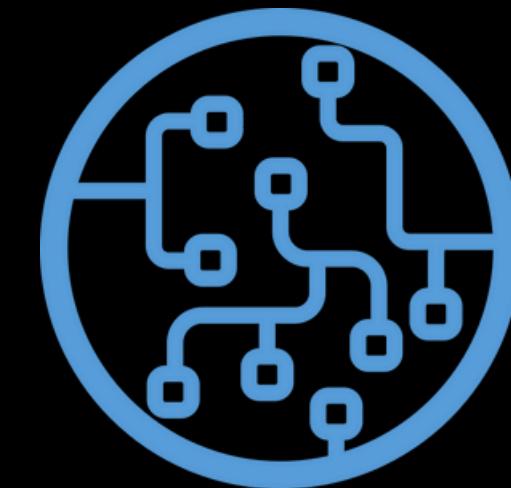
Random Forest Tree

Support Vector Machine



## Aprendizaje no Supervisado

PCA



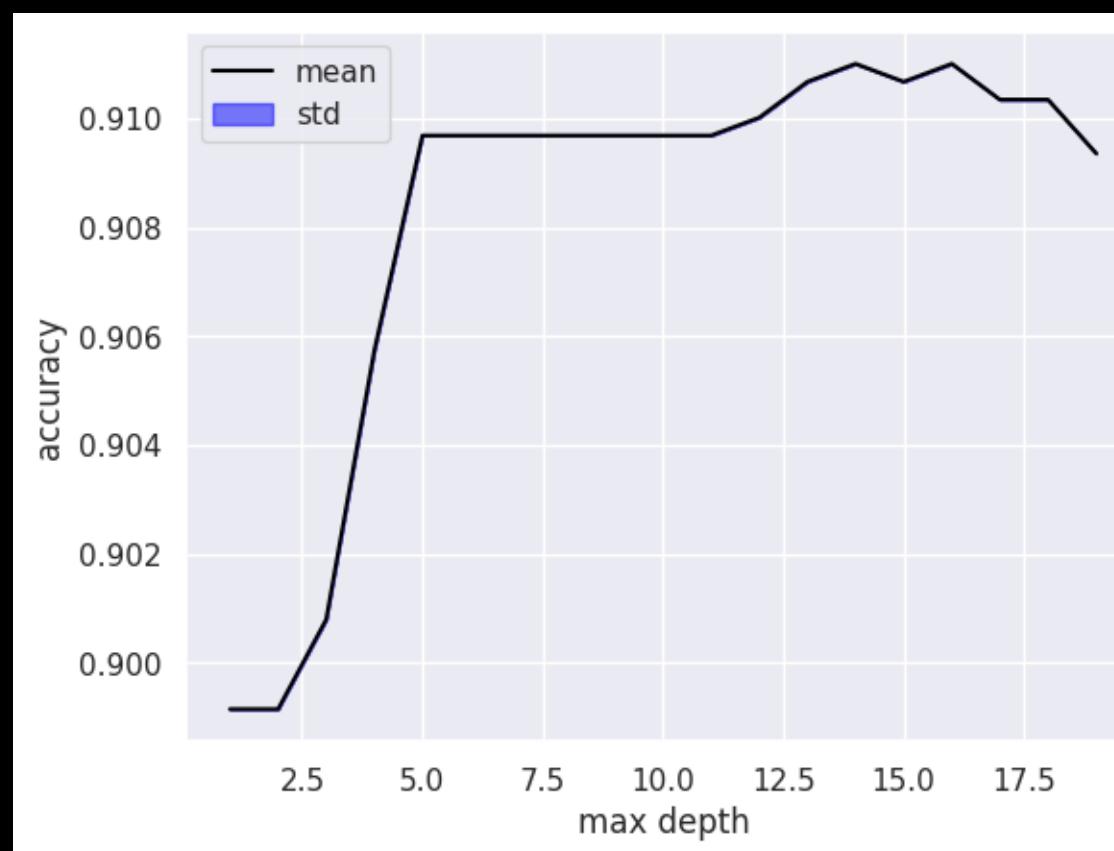
## Deep Learning

Redes Neuronales



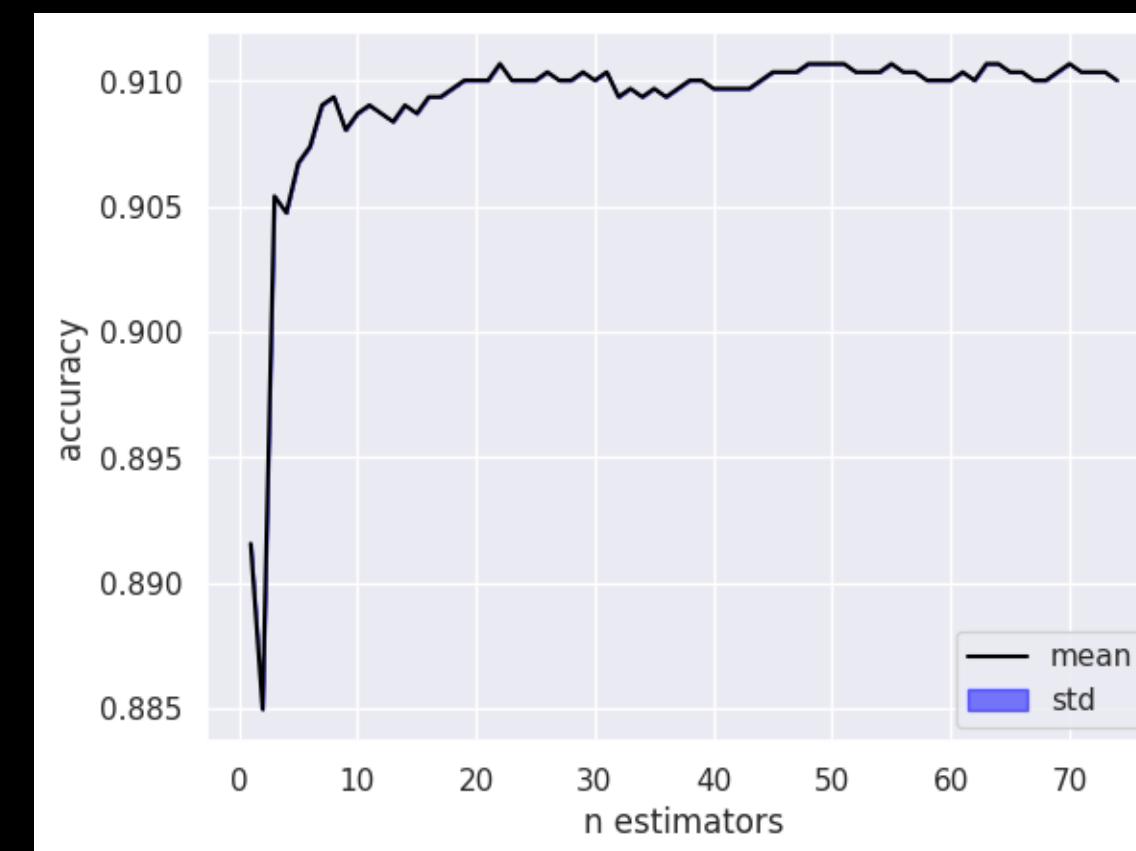
# CLASIFICACIÓN

## Random Forest

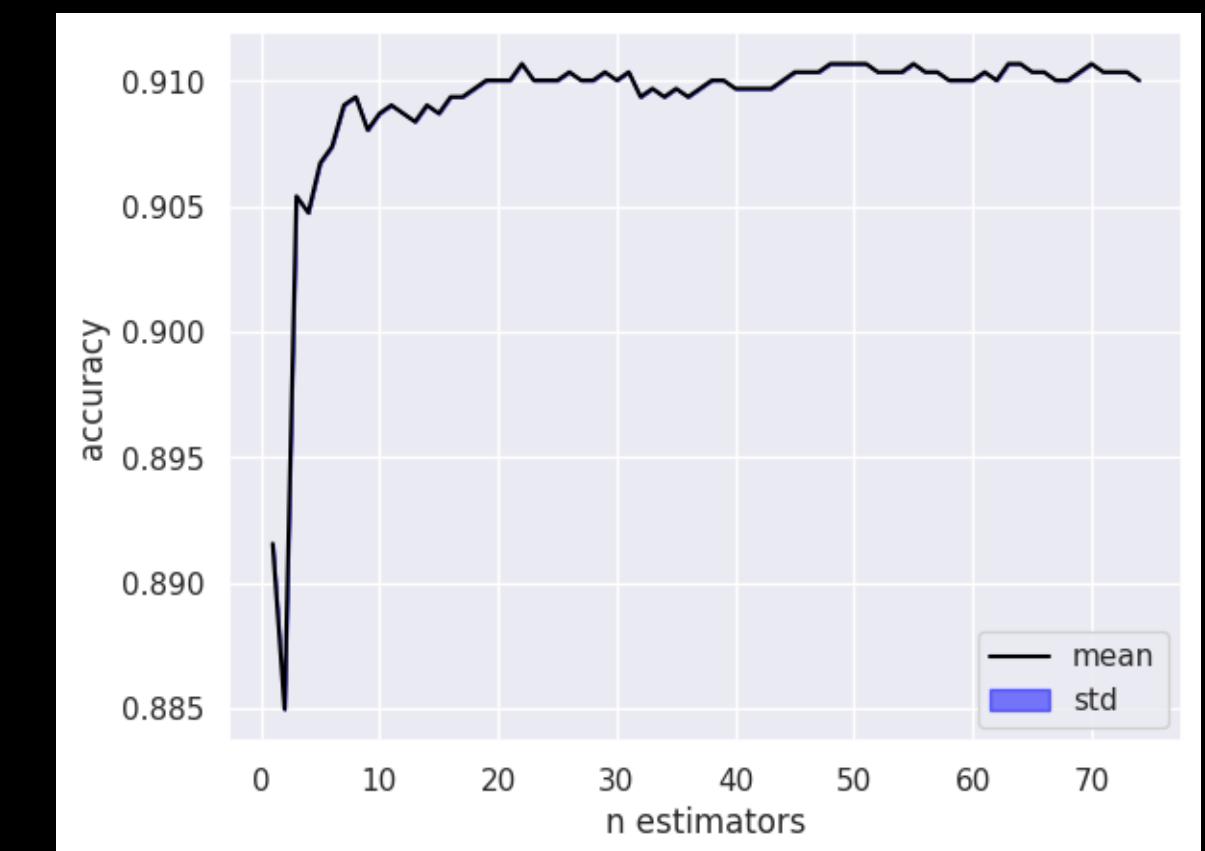


MAX DEPTH

91 %



N\_ESTIMATORS

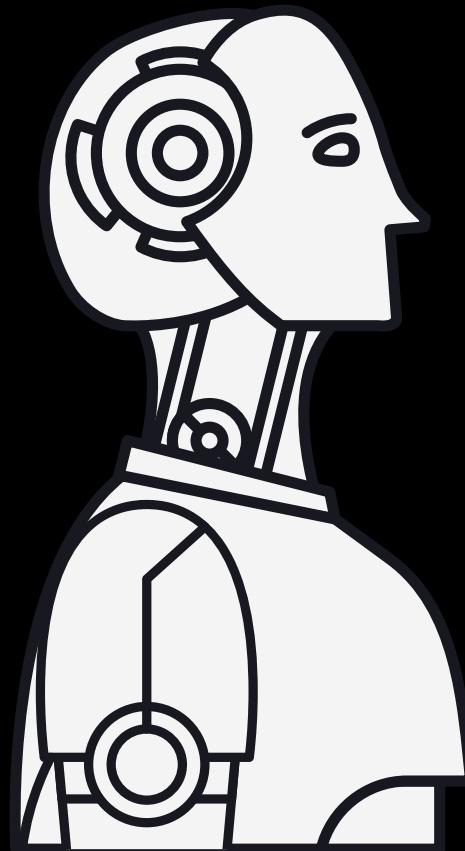


CRITERION



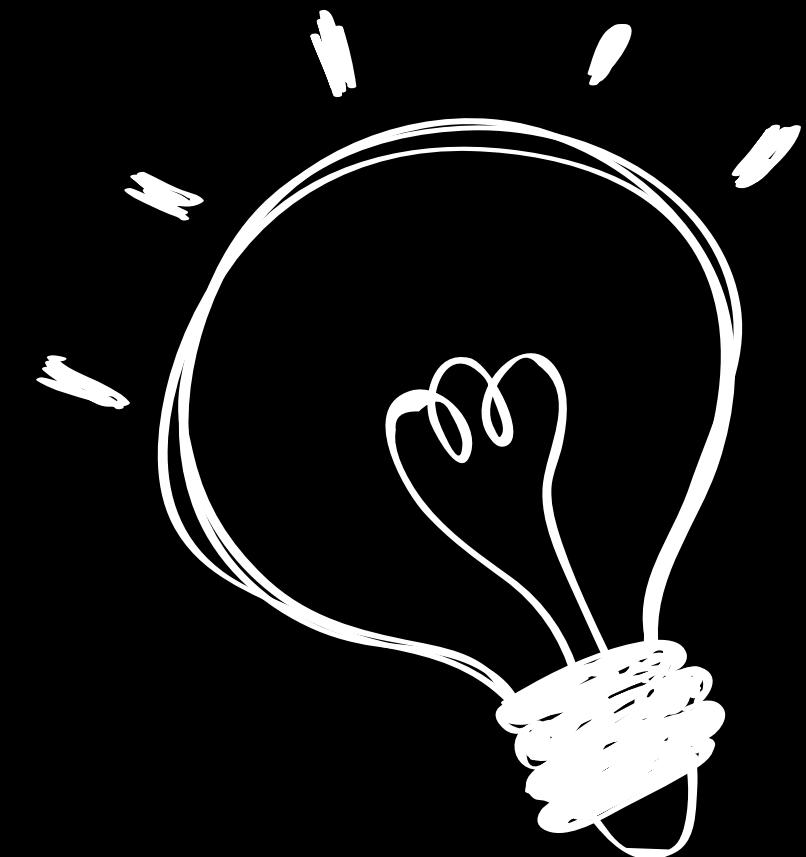
# DEEP LEARNING

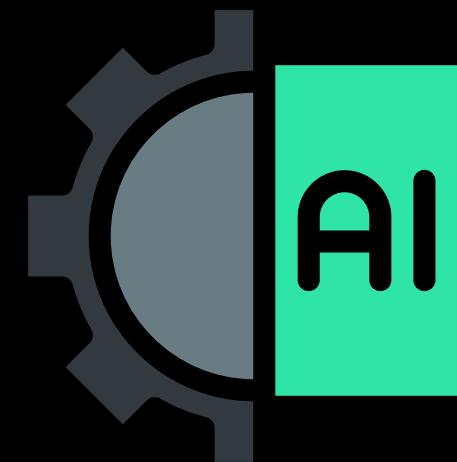
## Redes Neuronales



Layer (type)	Output Shape	Param #
flatten_15 (Flatten)	(None, 10)	0
dense_105 (Dense)	(None, 128)	1408
dense_106 (Dense)	(None, 128)	16512
dense_107 (Dense)	(None, 128)	16512
dense_108 (Dense)	(None, 128)	16512
dense_109 (Dense)	(None, 128)	16512
dense_110 (Dense)	(None, 128)	16512
dense_111 (Dense)	(None, 1)	129

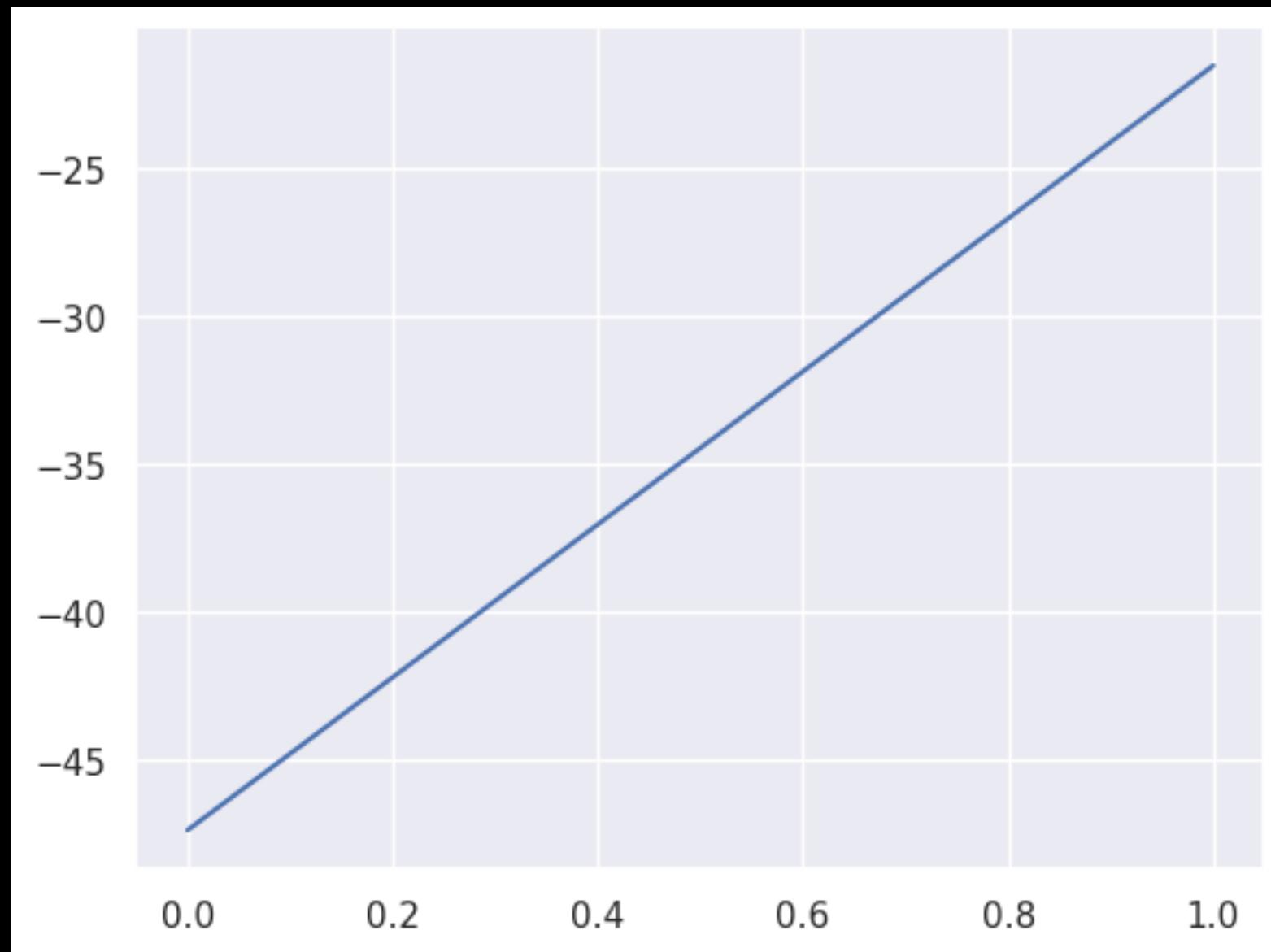
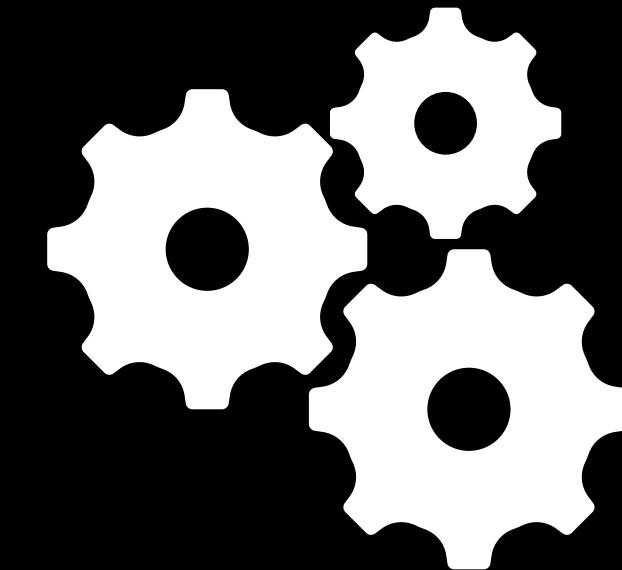
Total params: 84097 (328.50 KB)  
Trainable params: 84097 (328.50 KB)  
Non-trainable params: 0 (0.00 Byte)





# APRENDIZAJE NO SUPERVISADO

## PCA



```
[0.6558877  0.29844428]
[47.37910611 21.55860438]
[758.22033311 511.46075659]
```



**¡GRACIAS!**