Show rate analysis of Brazilian patients

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AI & ML Solutions

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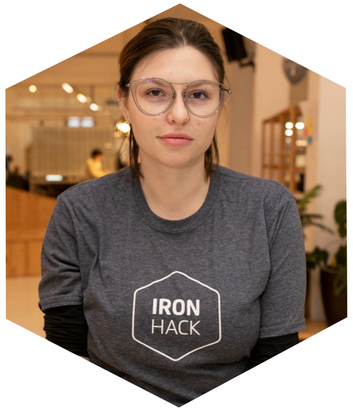
MEET OUR TEAM

Deep Learning Spacial
Cardiologist

Luis Farre

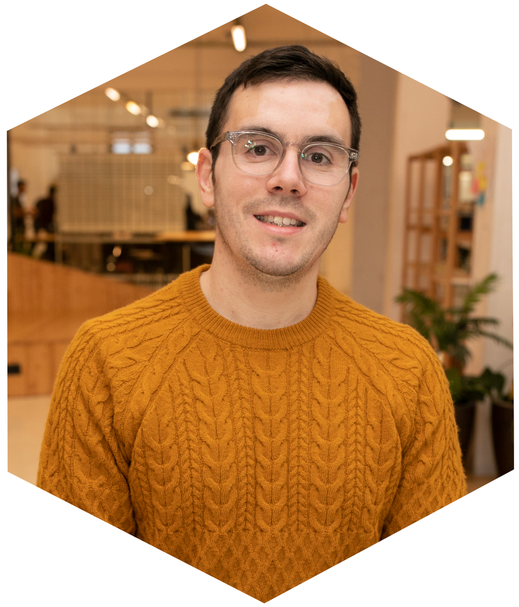
Tiene un ordenador
GRIS SPECIAL



Deep Fake
Radiologist

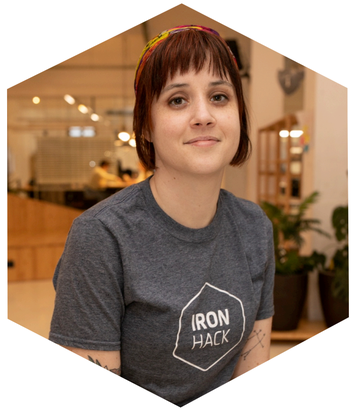
Gabriela Pardo de Andrade

Se inventa la mitad de las cosas



Doctor Big Boss Magical
Deep Artificial Intelligence Master Mind

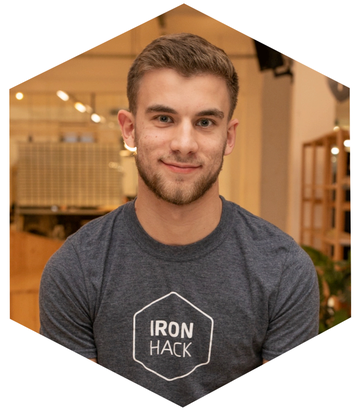
Daniel Eiroa



Universal global ML
analyst specialist scientist

Mar Lizana

Su ordenador funciona DPM



Machine Learning
Nutritionist

Dinis Oliveira

Se fue a portugal en medio
confinamiento

OUR TIMELINE

CONTEXT

Based on a dataset of medical appointments with a 80/20 ratio show/no-show rate.

OBJECTIVE

"Predict the Show/No-Show rate “

STEPS

Analyze the no-show

Choose the right model to train and test

CHALLENGE

Sizable Data Set:
15 columns, 110.527 rows
Total of ~3 milion cells.

SOLUTION

Reduction of dimensionality:
Backward Elimination
Feature Selection Random Forest Classifier

CHALLENGE

Unbalanced Data:
Show: 80%
No-show: 20%

SOLUTION

Undersampling:
Nearmiss
Random undersampling

CLASS DISTRIBUTION RESULTS

NEARMISS - 3
Show: 50%
No-show: 50%

MODELS

SVC
RANDOM FOREST

	model	accuracy	precision	recall	f1score	rocauc
0	logit	0.635441	0.627157	0.668934	0.647243	0.689121
0	knn	0.630988	0.624124	0.647528	0.636971	0.674438
0	decisiontree	0.609940	0.611646	0.607589	0.609585	0.611078
0	randomforest	0.663403	0.643264	0.736862	0.686809	0.724306

GRID SEARCH

Recall

METRICS

RECALL vs. ACCURACY

CONFUSION MATRIX

RF	Positive	Negative
Positive	1920	1460
Negative	405	2995

SVC	Positive	Negative
Positive	2113	1267
Negative	502	2898

RESULTS

	model	accuracy	precision	recall	f1score	rocauc	logloss
0	randomforest	0.720866	0.671878	0.856287	0.754818	0.810241	9.500883
1	svc	0.726988	0.677477	0.863300	0.758651	0.790388	9.011815

CONCLUSIONS:

A higher **RECALL** is preferable given that we prefer a **False Negative**

IMPROVEMENTS:

**Not done for computational reasons

ONEHOT ENCODING should be done for age and neighbourhood

Train with **SVC** model

Apply **DEEP LEARNING**

QUESTIONS?

THANK YOU

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