

# RELATORIO AUTOML PRO

Data: 07/02/2026 23:19

## INFORMACOES DO PROJETO

Dataset: Dataset Processado

Amostras: 1338

Features: 24

Tipo de problema: REGRESSION

Total de modelos treinados: 15

## MELHOR MODELO

Modelo: Gradient Boosting

R<sup>2</sup> Score: 0.8493

## RANKING DOS MODELOS

Posicao	Modelo	Score
1	Gradient Boosting	0.8493
2	Random Forest	0.8396
3	LightGBM	0.8252
4	Extra Trees	0.8212
5	XGBoost	0.8122
6	AdaBoost	0.8086
7	Ridge	0.7456
8	Bayesian Ridge	0.7456
9	Linear Regression	0.7454
10	Lasso	0.7454

11	Decision Tree	0.7425
12	ElasticNet	0.7114
13	MLP Regressor	0.1651
14	KNN Regressor	0.0960
15	SVR RBF	-0.1061

METRICAS DETALHADAS

Modelo: Random Forest

r2: 0.8396

r2\_std: 0.0282

neg\_mean\_squared\_error: -22606355.9638

neg\_mean\_squared\_error\_std: 2022105.3306

neg\_mean\_absolute\_error: -2575.0846

neg\_mean\_absolute\_error\_std: 117.5194

rmse: 4754.6142

rmse\_std: 1422.0075

mae: 2575.0846

mae\_std: 117.5194

fit\_time: 1.8888

score\_time: 0.0395

n\_folds: 5.0000

Modelo: Gradient Boosting

r2: 0.8493

r2\_std: 0.0308

neg\_mean\_squared\_error: -21144971.5146

neg\_mean\_squared\_error\_std: 2214626.8153

neg\_mean\_absolute\_error: -2536.6558

neg\_mean\_absolute\_error\_std: 99.8776

rmse: 4598.3662

rmse\_std: 1488.1622

mae: 2536.6558  
mae\_std: 99.8776  
fit\_time: 0.9518  
score\_time: 0.0094  
n\_folds: 5.0000  
weighted\_score: 0.8208

### **Modelo: AdaBoost**

r2: 0.8086  
r2\_std: 0.0308  
neg\_mean\_squared\_error: -27073881.5332  
neg\_mean\_squared\_error\_std: 3162442.7984  
neg\_mean\_absolute\_error: -4097.2356  
neg\_mean\_absolute\_error\_std: 425.9138  
rmse: 5203.2568  
rmse\_std: 1778.3258  
mae: 4097.2356  
mae\_std: 425.9138  
fit\_time: 0.1065  
score\_time: 0.0090  
n\_folds: 5.0000

### **Modelo: Extra Trees**

r2: 0.8212  
r2\_std: 0.0301  
neg\_mean\_squared\_error: -25229221.4390  
neg\_mean\_squared\_error\_std: 2390541.9847  
neg\_mean\_absolute\_error: -2698.6990  
neg\_mean\_absolute\_error\_std: 152.0613  
rmse: 5022.8698  
rmse\_std: 1546.1378  
mae: 2698.6990  
mae\_std: 152.0613

fit\_time: 1.7361  
score\_time: 0.0482  
n\_folds: 5.0000

**Modelo: Linear Regression**

r2: 0.7454  
r2\_std: 0.0538  
neg\_mean\_squared\_error: -35636345.2614  
neg\_mean\_squared\_error\_std: 2323090.6528  
neg\_mean\_absolute\_error: -4249.7409  
neg\_mean\_absolute\_error\_std: 104.2607  
rmse: 5969.6185  
rmse\_std: 1524.1688  
mae: 4249.7409  
mae\_std: 104.2607  
fit\_time: 0.0348  
score\_time: 0.0117  
n\_folds: 5.0000

**Modelo: Ridge**

r2: 0.7456  
r2\_std: 0.0530  
neg\_mean\_squared\_error: -35618933.9830  
neg\_mean\_squared\_error\_std: 2261319.3516  
neg\_mean\_absolute\_error: -4254.6377  
neg\_mean\_absolute\_error\_std: 99.9851  
rmse: 5968.1600  
rmse\_std: 1503.7684  
mae: 4254.6377  
mae\_std: 99.9851  
fit\_time: 0.0062  
score\_time: 0.0067  
n\_folds: 5.0000

### Modelo: Lasso

r2: 0.7454  
r2\_std: 0.0538  
neg\_mean\_squared\_error: -35633544.5730  
neg\_mean\_squared\_error\_std: 2322813.9566  
neg\_mean\_absolute\_error: -4249.3500  
neg\_mean\_absolute\_error\_std: 104.1822  
rmse: 5969.3839  
rmse\_std: 1524.0781  
mae: 4249.3500  
mae\_std: 104.1822  
fit\_time: 0.0838  
score\_time: 0.0070  
n\_folds: 5.0000

### Modelo: ElasticNet

r2: 0.7114  
r2\_std: 0.0314  
neg\_mean\_squared\_error: -40961230.4801  
neg\_mean\_squared\_error\_std: 2513160.1248  
neg\_mean\_absolute\_error: -4746.3710  
neg\_mean\_absolute\_error\_std: 122.2467  
rmse: 6400.0961  
rmse\_std: 1585.2950  
mae: 4746.3710  
mae\_std: 122.2467  
fit\_time: 0.0099  
score\_time: 0.0045  
n\_folds: 5.0000

### Modelo: Bayesian Ridge

r2: 0.7456  
r2\_std: 0.0529

neg\_mean\_squared\_error: -35623137.2533  
neg\_mean\_squared\_error\_std: 2247425.9127  
neg\_mean\_absolute\_error: -4257.2847  
neg\_mean\_absolute\_error\_std: 98.6925  
rmse: 5968.5121  
rmse\_std: 1499.1417  
mae: 4257.2847  
mae\_std: 98.6925  
fit\_time: 0.0260  
score\_time: 0.0056  
n\_folds: 5.0000

### **Modelo: SVR RBF**

r2: -0.1061  
r2\_std: 0.0244  
neg\_mean\_squared\_error: -159092732.9060  
neg\_mean\_squared\_error\_std: 21159243.5587  
neg\_mean\_absolute\_error: -8324.0630  
neg\_mean\_absolute\_error\_std: 467.0020  
rmse: 12613.1968  
rmse\_std: 4599.9178  
mae: 8324.0630  
mae\_std: 467.0020  
fit\_time: 0.1885  
score\_time: 0.0959  
n\_folds: 5.0000

### **Modelo: KNN Regressor**

r2: 0.0960  
r2\_std: 0.0269  
neg\_mean\_squared\_error: -130125930.2168  
neg\_mean\_squared\_error\_std: 18205282.2095  
neg\_mean\_absolute\_error: -7989.7969

neg\_mean\_absolute\_error\_std: 446.9155

rmse: 11407.2753

rmse\_std: 4266.7648

mae: 7989.7969

mae\_std: 446.9155

fit\_time: 0.0032

score\_time: 1.1288

n\_folds: 5.0000

### **Modelo: Decision Tree**

r2: 0.7425

r2\_std: 0.0365

neg\_mean\_squared\_error: -36392245.7374

neg\_mean\_squared\_error\_std: 1585680.4251

neg\_mean\_absolute\_error: -2996.8739

neg\_mean\_absolute\_error\_std: 93.0134

rmse: 6032.5986

rmse\_std: 1259.2380

mae: 2996.8739

mae\_std: 93.0134

fit\_time: 0.0232

score\_time: 0.0037

n\_folds: 5.0000

### **Modelo: XGBoost**

r2: 0.8122

r2\_std: 0.0331

neg\_mean\_squared\_error: -26465412.6046

neg\_mean\_squared\_error\_std: 2440761.9023

neg\_mean\_absolute\_error: -2867.3832

neg\_mean\_absolute\_error\_std: 168.9232

rmse: 5144.4545

rmse\_std: 1562.2938

mae: 2867.3832  
mae\_std: 168.9232  
fit\_time: 0.8297  
score\_time: 0.0213  
n\_folds: 5.0000

**Modelo: LightGBM**

r2: 0.8252  
r2\_std: 0.0341  
neg\_mean\_squared\_error: -24571871.9372  
neg\_mean\_squared\_error\_std: 2420310.7765  
neg\_mean\_absolute\_error: -2870.7000  
neg\_mean\_absolute\_error\_std: 167.4615  
rmse: 4957.0023  
rmse\_std: 1555.7348  
mae: 2870.7000  
mae\_std: 167.4615  
fit\_time: 3.3151  
score\_time: 0.0134  
n\_folds: 5.0000

**Modelo: MLP Regressor**

r2: 0.1651  
r2\_std: 0.0254  
neg\_mean\_squared\_error: -119653248.9816  
neg\_mean\_squared\_error\_std: 13028642.4100  
neg\_mean\_absolute\_error: -8071.2400  
neg\_mean\_absolute\_error\_std: 300.1858  
rmse: 10938.6128  
rmse\_std: 3609.5211  
mae: 8071.2400  
mae\_std: 300.1858  
fit\_time: 11.3901



score\_time: 0.0072

n\_folds: 5.0000

## RECOMENDACOES

1. Implemente o melhor modelo em producao
2. Monitore performance periodicamente
3. Re-treine com novos dados regularmente
4. Considere tecnicas de ensemble
5. Valide com testes A/B antes de deploy