

分类模型评价指标

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Contents

0.1 performance measure	1
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0.1 performance measure

Here is the list of available performance measures. Let Y and \hat{Y} be random variables representing the class and the prediction for a randomly drawn sample, respectively. Further, we use the following abbreviations for empirical quantities: P (positive samples), N (negative samples), TP (true positives), TN (true negatives), FP (false positives), FN (false negatives).

0.1.1 acc

Accuracy. $P(\hat{Y}=Y)$. Estimated as: $\frac{TP+TN}{P+N}$

0.1.2 err

Error rate. $P(\hat{Y} \neq Y)$ Estimated as: $\frac{FP+FN}{P+N}$

0.1.3 fpr

False positive rate. $P(\hat{Y} = + | Y = -)$. Estimated as: $\frac{FP}{N}$

0.1.4 tpr

True positive rate. $P(\hat{Y} = + | Y = +)$. Estimated as: $\frac{TP}{P}$

0.1.5 rec

Recall. Same as tpr.

0.1.6 prec

Positive predictive value. $P(Y = + | \hat{Y} = +)$. Estimated as: $\frac{TP}{TP+FP}$

0.1.7 rpp

Rate of positive predictions. $P(\hat{Y} = +)$. Estimated as: $\frac{TP+FP}{TP+FP+TN+FN}$.

0.1.8 rnp

Rate of negative predictions. $P(\hat{Y} = -)$. Estimated as: $\frac{TN+FN}{TP+FP+TN+FN}$.

0.1.9 lift

Lift value. $\frac{p(\hat{Y}=+|Y=+)}{p(\hat{Y}=+)}$.

0.1.10 Precision/recall curves

x.measure=rec($\frac{TP}{TP+FN}$), y.measure=prec($\frac{TP}{TP+FP}$).

0.1.11 ROC curves

x.measure=fpr($\frac{FP}{N}$), y.measure=tpr($\frac{TP}{TP+FN}$).

0.1.12 Cumulative recall curves

x.measure=rpp($\frac{TP+FP}{TP+FP+TN+FN}$), y.measure=tpr($\frac{TP}{TP+FN}$)

0.1.13 Lift charts

x.measure=rpp($\frac{TP+FP}{TP+FP+TN+FN}$), y.measure=lift($\frac{TP/P}{(TP+FP)/(TP+FP+TN+FN)}$).