Exam Professional Machine Learning Engineer All Questions

View all questions & answers for the Professional Machine Learning Engineer exam

Go to Exam

EXAM PROFESSIONAL MACHINE LEARNING ENGINEER TOPIC 1 QUESTION 72 DISCUSSIO..

Actual exam question from Google's Professional Machine Learning Engineer
Question #: 72
Topic #: 1
[All Professional Machine Learning Engineer Questions]

You are building a linear model with over 100 input features, all with values between –1 and 1. You suspect that many features are non-informative. You want to remove the non-informative features from your model while keeping the informative ones in their original form. Which technique should you use?

A. Use principal component analysis (PCA) to eliminate the least informative features.

B. Use L1 regularization to reduce the coefficients of uninformative features to 0.

C. After building your model, use Shapley values to determine which features are the most informative.

D. Use an iterative dropout technique to identify which features do not degrade the model when removed.

Show Suggested Answer

by ares81 at *Dec. 11, 2022, 4:15 p.m.*

Comments

Type your comment...

Submit

hiromi Highly Voted 1 year, 10 months ago

Selected Answer: B

L1 regularization it's good for feature selection
https://www.quora.com/How-does-the-L1-regularization-method-help-in-feature-selection
https://developers.google.com/machine-learning/crash-course/regularization-for-sparsity/l1-regularization

upvoted 7 times

ailiba 1 year, 8 months ago

but this is not a sparse input vector, just a high dimensional vector where many features are not relevant.

upvoted 1 times

ares81 Highly Voted 1 year, 11 months ago

A. PCA reconfigures the features, so no.
C. After building your model, so no.
D. Dropout should be in the model and it doesn't tell us which features are informative or not. Big No!
For me, it's B.

upvoted 5 times

PhilipKoku Most Recent 5 months ago

Selected Answer: B

B) L1 Regularisation

upvoted 1 times

Liting 1 year, 4 months ago

Selected Answer: B

Went with B

upvoted 1 times

M25 1 year, 6 months ago

Selected Answer: B

Went with B

upvoted 1 times

Antmal 1 year, 7 months ago

Selected Answer: B

L1 regularization penalises weights in proportion to the sum of the absolute value of the weights. L1 regularization helps drive the weights of irrelevant or barely relevant features to exactly 0. A feature with a weight of 0 is effectively removed from the model. https://developers.google.com/machine-learning/glossary#L1_regularization

upvoted 1 times

tavva_prudhvi 1 year, 7 months ago

Its B. See my explanations under the comments why its not C.

upvoted 1 times

enghabeth 1 year, 9 months ago

Selected Answer: B

it's a best way, becouse you reduce features non relevant in this case non-informatives

upvoted 1 times

mlgh 1 year, 9 months ago

Selected Answer: C

Answer C:
In the official sample questions, there's a similar question, the explanation is that L! is for reducing overfitting while explainability (shapely) is for feature selection, hence C.
https://docs.google.com/forms/d/e/1FAIpQLSeYmkCANE81qSBqLW0g2X7RoskBX9yGYQu-m1TtsjMvHabGqg/viewform

upvoted 3 times

tavva_prudhvi 1 year, 7 months ago

Its wrong. Using Shapley values to determine feature importance can be a useful technique, but it requires building a complete model and can be computationally expensive, especially with over 100 input features. Additionally, it may not be practical to use this method for every model iteration or update. On the other hand, L1 regularization can be used during the model building process to effectively reduce the impact of non-informative features by shrinking their coefficients to 0, making it a more efficient and effective approach.

upvoted 1 times

mlgh 1 year, 9 months ago

It cannot be A either because PCA modifies the features, and it says you should keep them in their original form.
and D cannot be because again dropout is for generalizing and avoiding overfitting, and it's done on the NN model not on the data.

upvoted 1 times

upvoted 1 times

behzadsw 1 year, 10 months ago

Selected Answer: A

The features must be removed from the model. They are not removed when doing L1 regularization. PCA is used prior to training.

upvoted 2 times

jamesking1103 1 year, 9 months ago

should be A
as keeping the informative ones in their original form

upvoted 3 times

libo1985 1 year, 1 month ago

How PCA can keep the original form?

upvoted 1 times

tavva_prudhvi 1 year, 7 months ago

That is a good point. PCA is a technique used to reduce the dimensionality of the dataset by transforming the original features into a new set of uncorrelated features. This can help to eliminate the least informative features and reduce the computational burden of building a model with many input features. However, it is important to note that PCA does not necessarily remove the original features from the model, but rather transforms them into a new set of features. On the other hand, L1 regularization can effectively remove the impact of non-informative features by setting their coefficients to 0 during the model building process. Therefore, both techniques can be useful for addressing the issue of non-informative features in a linear model, depending on the specific needs of the problem.

upvoted 1 times

JeanEl 1 year, 10 months ago

Selected Answer: B

Agree with B

upvoted 2 times

We are the biggest and most updated IT certification exam material website.

Using our own resources, we strive to strengthen the IT professionals community for free.