

Feature extraction from text and images
TOTAL POINTS 6

1.Question 1

Select true statements about n-grams

☐ Levenshteining should always be applied before computing n-grams

☒ N-grams can help utilize local context around each word

☒ N-grams features are typically sparse

☐ N-grams always help increase significance of important words

2 points

2.Question 2

Select true statements.

☐ Meaning of each value in BOW matrix is unknown.

☒ Semantically similar words usually have similar word2vec embeddings.

☐ You do not need bag of words features in a competition if you have word2vec features.

☒ Bag of words usually produces longer vectors than Word2vec

1 point

3.Question 3

Suppose in a new competition we are given a dataset of 2D medical images. We want to extract image descriptors from a hidden layer of a neural network pre-trained on the ImageNet dataset. We will then use extracted descriptors to train a simple logistic regression model to classify images from our dataset.

We consider to use two networks: ResNet-50 with imagenet accuracy of X and VGG-16 with imageNet accuracy of Y ($X < Y$). Select true statements.

☐ Descriptors from ResNet 50 will always be better than the ones from VGG-16 in our pipeline.

☒ It is not clear what descriptors are better on our dataset. We should evaluate both.

☐ Descriptors from ResNet-50 and from VGG-16 are always very similar in cosine distance.

☐ With one pre-trained CNN model you can get only one vector of descriptors for an image

☐ For any image descriptors from the last hidden layer of ResNet-50 are the same as the descriptors from the last hidden layer of VGG-16.

2 points

4.Question 4

Data augmentation can be used at (1) train time (2) test time

☐ True, False

☒ True, True

☐ False, False

☐ False, True

1 point

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