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1. If you have 10,000 examples, how would you split the train/dev/test set? Choose the best option.

1 / 1 point

- ☐ 98% train. 1% dev. 1% test.
- ☒ 60% train. 20% dev. 20% test.
- ☐ 33% train. 33% dev. 33% test.

↗ Expand

✓ Correct

Yes. This might be considered a small data set, not in the range of big data. Thus a more classical (old) best practice should be used.

2. When designing a neural network to detect if a house cat is present in the picture, 500,000 pictures of cats were taken by their owners. **These are used to make the training, dev and test sets.** It is decided that to increase the size of the test set, 10,000 new images of cats taken from security cameras are going to be used in the test set. Which of the following is true?

1 / 1 point

- ☐ This will reduce the bias of the model and help improve it.
- ☒ This will be harmful to the project since now dev and test sets have different distributions.
- ☐ This will increase the bias of the model so the new images shouldn't be used.

↗ Expand

✓ Correct

Yes. The quality and type of images are quite different thus we can't consider that the dev and the test sets came from the same distribution.

3. If your Neural Network model seems to have high bias, what of the following would be promising things to try? (Check all that apply.)

1 / 1 point

- ☐ Get more training data
- ☐ Add regularization
- ☒ Make the Neural Network deeper

✓ Correct

- ☒ Increase the number of units in each hidden layer

✓ Correct

↗ Expand

✓ Correct

Great, you got all the right answers.

4. You are working on an automated check-out kiosk for a supermarket and are building a classifier for apples, bananas, and oranges. Suppose your classifier obtains a training set error of 19% and a dev set error of 21%. Which of the following are promising things to try to improve your classifier? (Check all that apply, suppose the human error is approximately 0%)

1 / 1 point

- ☐ Get more training data.
- ☒ Use a bigger network.
- ☐ Increase the regularization parameter λ .

 Expand

✓ Correct

Yes. This can be helpful to reduce the bias of the model, and then we can start trying to reduce the high variance if this happens.

5. In every case it is a good practice to use dropout when training a deep neural network because it can help to prevent overfitting. True/False?

1 / 1 point

- ☐ True
- ☒ False

 Expand

✓ Correct

Correct. In most cases, it is recommended to not use dropout if there is no overfit. Although in computer vision, due to the nature of the data, it is the default practice.

6. To reduce high variance, the regularization hyperparameter λ must be increased. True/False?

1 / 1 point

- ☐ False
- ☒ True

 Expand

✓ Correct

Correct. By increasing the regularization parameter the magnitude of the weight parameters is reduced. This helps reduce the variance.

7. Which of the following are true about dropout?

1 / 1 point

- ☐ It helps to reduce the bias of a model.
- ☐ In practice, it eliminates units of each layer with a probability of `keep_prob`.
- ☒ In practice, it eliminates units of each layer with a probability of `1 - keep_prob`.

✓ Correct

Correct. The probability that dropout doesn't eliminate a neuron is `keep_prob`.

☒ It helps to reduce overfitting.

✓ Correct

Correct. The dropout is a regularization technique and thus helps to reduce the overfit.

↗ Expand

✓ Correct

Great, you got all the right answers.

8. Increasing the parameter keep_prob from (say) 0.5 to 0.6 will likely cause the following: (Check the two that apply)

1 / 1 point

☐ Increasing the regularization effect

☒ Reducing the regularization effect

✓ Correct

☐ Causing the neural network to end up with a higher training set error

☒ Causing the neural network to end up with a lower training set error

✓ Correct

↗ Expand

✓ Correct

Great, you got all the right answers.

9. Which of the following actions increase the regularization of a model? (Check all that apply)

1 / 1 point

☒ Decrease the value of keep_prob in dropout.

✓ Correct

Correct. When decreasing the keep_prob value, the probability that a node gets discarded during training is higher, thus reducing the regularization effect.

☒ Increase the value of the hyperparameter lambda.

✓ Correct

Correct. When increasing the hyperparameter lambda, we increase the effect of the L₂ penalization.

☐ Decrease the value of the hyperparameter lambda.

☐ Use Xavier initialization.

☐ Increase the value of keep_prob in dropout.

↗ Expand

✓ Correct

Great, you got all the right answers.

10. Suppose that a model uses, as one feature, the total number of kilometers walked by a person during a year, and another feature is the height of the person in meters.

1 / 1 point

What is the most likely effect of normalization of the input data?

- ☐ It will increase the variance of the model.
- ☐ It will make the data easier to visualize.
- ☐ It won't have any positive or negative effects.
- ☒ It will make the training faster.

 Expand

 **Correct**

Correct. Since the difference between the ranges of the features is very different, this will likely cause the process of gradient descent to oscillate, making the optimization process longer.