

# Practical aspects of deep learning

Quiz, 10 questions

✓ **Congratulations! You passed!**

Next Item



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1.

If you have 10,000,000 examples, how would you split the train/dev/test set?

☐ 33% train . 33% dev . 33% test

☐ 60% train . 20% dev . 20% test

☒ 98% train . 1% dev . 1% test



**Correct**



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2.

The dev and test set should:

☒ Come from the same distribution



**Correct**

☐ Come from different distributions

☐ Be identical to each other (same (x,y) pairs)

☐ **Have the same number of examples**

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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.)

☐

Make the Neural Network deeper



**This should be selected**

☒

Add regularization



**This should not be selected**

☐

Increase the number of units in each hidden layer



**This should be selected**

☒

Get more training data



**This should not be selected**

☐

Get more test data



**Un-selected is correct**



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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 0.5%, and a dev set error of 7%. Which of the following are promising things to try to improve your classifier? (Check all that apply.)

☒

Increase the regularization parameter lambda



**Correct**

☐

Decrease the regularization parameter lambda



**Un-selected is correct**

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**Correct**



Use a bigger neural network

**Un-selected is correct**



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5.

What is weight decay?



A technique to avoid vanishing gradient by imposing a ceiling on the values of the weights.



A regularization technique (such as L2 regularization) that results in gradient descent shrinking the weights on every iteration.

**Correct**



The process of gradually decreasing the learning rate during training.



Gradual corruption of the weights in the neural network if it is trained on noisy data.



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6.

What happens when you increase the regularization hyperparameter lambda?



Weights are pushed toward becoming smaller (closer to 0)



Weights are pushed toward becoming bigger (further from 0)



Doubling lambda should roughly result in doubling the weights



Gradient descent taking bigger steps with each iteration (proportional to lambda)

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With the inverted dropout technique, at test time:

- ☐ You apply dropout (randomly eliminating units) but keep the  $1/\text{keep\_prob}$  factor in the calculations used in training.
- ☐ You apply dropout (randomly eliminating units) and do not keep the  $1/\text{keep\_prob}$  factor in the calculations used in training
- ☒ You do not apply dropout (do not randomly eliminate units) and do not keep the  $1/\text{keep\_prob}$  factor in the calculations used in training

Correct

- ☐ You do not apply dropout (do not randomly eliminate units), but keep the  $1/\text{keep\_prob}$  factor in the calculations used in training.



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8.

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

- ☐ Increasing the regularization effect

Un-selected is correct

- ☒ Reducing the regularization effect

Correct

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

Un-selected is correct

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

Correct

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9. Which of these techniques are useful for reducing variance (reducing overfitting)? (Check all that apply.)

☐ Vanishing gradient



Un-selected is correct

☒ L2 regularization



Correct

☒ Dropout



Correct

☐ Gradient Checking



Un-selected is correct

☐ Xavier initialization



Un-selected is correct

☒ Data augmentation



Correct

☐ Exploding gradient



Un-selected is correct



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point

10. Why do we normalize the inputs  $x$ ?

☐ Normalization is another word for regularization--It helps to reduce variance



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It makes it easier to visualize the data

It makes the parameter initialization faster

It makes the cost function faster to optimize

**Correct**

