

Practical aspects of deep learning

10/10 points (100%)

Quiz, 10 questions

✓ **Congratulations! You passed!**

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points

1.

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



33% train . 33% dev . 33% test



98% train . 1% dev . 1% test



Correct



60% train . 20% dev . 20% test



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points



2.

The dev and test set should:

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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 variance, what of the following would be promising things to try?



Make the Neural Network deeper



Un-selected is correct



Add regularization



Correct



Get more test data

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Un-selected is correct

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Get more training data

**Correct**

Increase the number of units in each hidden layer

**Un-selected is correct**

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points

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 λ **Correct**Decrease the regularization parameter λ **Un-selected is correct**

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Correct



Use a bigger neural network



Un-selected is correct



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points

5.

What is weight decay?

- ☐ A technique to avoid vanishing gradient by imposing a ceiling on the values of the weights.
- ☐ The process of gradually decreasing the learning rate during training.
- ☒ A regularization technique (such as L2 regularization) that results in gradient descent shrinking the weights on every iteration.



Correct



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



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points

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6.

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What happens when you increase the regularization hyperparameter lambda?



Weights are pushed toward becoming smaller (closer to 0)

**Correct**

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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points

7.

With the inverted dropout technique, at test time:



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 apply dropout (randomly eliminating units) but keep the $1/\text{keep_prob}$ factor in the calculations used in training.

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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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points

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

☐

Exploding gradient



Un-selected is correct

☐

Data augmentation



Correct

☐

Xavier initialization



Un-selected is correct

☐


Dropout



Correct

☐

L2 regularization


Correct

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Gradient Checking

**Un-selected is correct**1 / 1
points

10.

Why do we normalize the inputs x ?

It makes it easier to visualize the data



It makes the parameter initialization faster



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



It makes the cost function faster to optimize

**Correct**



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