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Practical aspects of Deep Learning

Latest Submission Grade 100%

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

1 / 1 point

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

✓ **Correct**

2. The dev and test set should:

1 / 1 point

- ☐ Have the same number of examples
- ☐ Be identical to each other (same (x,y) pairs)
- ☒ Come from the same distribution
- ☐ Come from different distributions

✓ **Correct**

3. If your Neural Network model seems to have high variance, what of the following would be promising things to try?

1 / 1 point

☒ Add regularization

✓ **Correct**

- ☐ Increase the number of units in each hidden layer
- ☐ Get more test data
- ☐ Make the Neural Network deeper
- ☒ Get more training data

✓ **Correct**

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.)

1 / 1 point

☒ Increase the regularization parameter lambda

✓ **Correct**

- ☐ Decrease the regularization parameter lambda
- ☒ Get more training data

✓ **Correct**

☐ Use a bigger neural network

5. What is weight decay?

1 / 1 point

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

✓ Correct

6. What happens when you increase the regularization hyperparameter lambda?

1 / 1 point

- ☐ Weights are pushed toward becoming bigger (further from 0)
- ☒ Weights are pushed toward becoming smaller (closer to 0)
- ☐ Gradient descent taking bigger steps with each iteration (proportional to lambda)
- ☐ Doubling lambda should roughly result in doubling the weights

✓ Correct

7. With the inverted dropout technique, at test time:

1 / 1 point

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

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

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

1 / 1 point

- ☒ L2 regularization

✓ Correct

☐ Exploding gradient

☒ Data augmentation

✓ Correct

☐ Xavier initialization

☐ Vanishing gradient

☒ Dropout

✓ Correct

☐ Gradient Checking

10. Why do we normalize the inputs x ?

1 / 1 point

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

☐ It makes it easier to visualize the data

☐ It makes the parameter initialization faster

☒ It makes the cost function faster to optimize

✓ Correct