

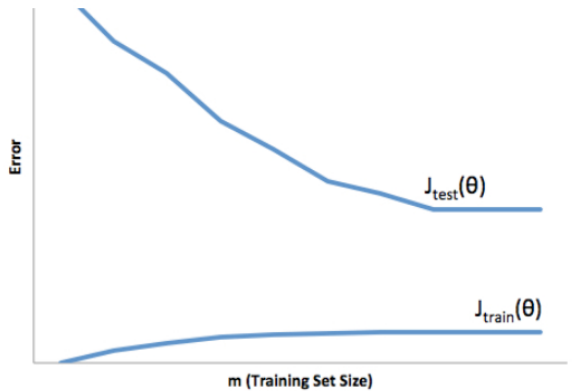


Advice for Applying Machine Learning

TOTAL POINTS 5

1. You train a learning algorithm, and find that it has unacceptably high error on the test set. You plot the learning curve, and obtain the figure below. Is the algorithm suffering from high bias, high variance, or neither?

1 point



- ☐ Neither
- ☒ High variance
- ☐ High bias

2. Suppose you have implemented regularized logistic regression to classify what object is in an image (i.e., to do object recognition). However, when you test your hypothesis on a new set of images, you find that it makes unacceptably large errors with its predictions on the new images. However, your hypothesis performs well (has low error) on the training set. Which of the following are promising steps to take? Check all that apply.

1 point

- ☒ Try using a smaller set of features.
- ☐ Try decreasing the regularization parameter λ .
- ☒ Try increasing the regularization parameter λ .
- ☐ Try evaluating the hypothesis on a cross validation set rather than the test set.

3. Suppose you have implemented regularized logistic regression to predict what items customers will purchase on a web shopping site. However, when you test your hypothesis on a new set of customers, you find that it makes unacceptably large errors in its predictions. Furthermore, the hypothesis performs poorly on the training set. Which of the

1 point

following might be promising steps to take? Check all that

apply.

- ☐ Try evaluating the hypothesis on a cross validation set rather than the test set.
- ☒ Try adding polynomial features.
- ☐ Use fewer training examples.
- ☒ Try decreasing the regularization parameter λ .

4. Which of the following statements are true? Check all that apply.

1 point

- ☒ The performance of a learning algorithm on the training set will typically be better than its performance on the test set.
- ☒ Suppose you are training a regularized linear regression model. The recommended way to choose what value of regularization parameter λ to use is to choose the value of λ which gives the lowest **cross validation** error.
- ☐ Suppose you are training a regularized linear regression model. The recommended way to choose what value of regularization parameter λ to use is to choose the value of λ which gives the lowest **training set** error.
- ☐ Suppose you are training a regularized linear regression model. The recommended way to choose what value of regularization parameter λ to use is to choose the value of λ which gives the lowest **test set** error.

5. Which of the following statements are true? Check all that apply.

1 point

- ☐ We always prefer models with high variance (over those with high bias) as they will be able to better fit the training set.
- ☒ When debugging learning algorithms, it is useful to plot a learning curve to understand if there is a high bias or high variance problem.
- ☒ If a learning algorithm is suffering from high variance, adding more training examples is likely to improve the test error.
- ☒ If a learning algorithm is suffering from high bias, only adding more training examples may **not** improve the test error significantly.

- ☒ I understand that submitting work that isn't my own may result in permanent failure of this course or deactivation of my Coursera account.



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