Week 6

SUBFORUMS

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Assignment: Regularized Linear Regression and Bias/Variance

Week 6

ex5: tips for learningCurve()

Tom Mosher Mentor Week 6 · 3 years ago · Edited

This thread is the tutorial for the learningCurve() function.

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Note: Almost all of the code you need for this function is provided in the code examples and hints in the learningCurve.m script.

Step 1) Use a for-loop to iterate over the length of the training set. The "Hint" in learningCurve.m gives you the code to use.

Step 2) Create a subset of the "X" matrix and the 'y' vector, using the elements 1 through 'i'. The first "Note" in learningCurve.m gives you the code to use. This causes the training set size to increase by one for each iteration through the training set. You will use this subset for training (Step 3) and measuring the training set error (Step 4).

Step 3) Use the trainLinearReg() function to learn the theta vector for the current size of training set (see page 6 of ex5.pdf).

Step 4) Then use your cost function to compute the training set error. Do not include regularization. Store the training set cost in error_train(i).

Step 5) Then use your cost function to compute the validation set error, using Xval and yval. Do not include regularization. Do not create any subsets of the validation set. Store the validation set error in error_val(i).

Tips:

- Use the lambda parameter - from the learningCurve() parameter list - every time you call trainLinearReg().
- **do not** set lambda = 0 inside the learningCurve() function. You are going to experiment with different lambda values in ex5.m, and the submit grader doesn't use lambda = 0. So do not hard-code lambda = 0 inside the learningCurve() function.
- When you compute the training set error and the validation set error, use your cost function with a zero for the lambda parameter. We want to measure the error in the hypothesis, without including any additional penalties for the theta values.
- When you run the "ex5" script, you may get some "divide by zero" warnings. These are expected and normal. fmincg() generates "divide by zero" warnings whenever the training set has only one or two examples. Do not worry about it.

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