HW5 Grading Criteria

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Dear ECE569 students,

Please find the grading criteria below. We will hold the regrading session **2:30 – 4:30 at EEB B10 on next Monday, April 15th**. If you have any grading issues or doubts, please feel free to discuss with us via email by regrading session or show up on it.

Homework 5 Grading Criteria (by Yingpeng Deng)

a)

Explanations of convolutional layer (3 pts), activation function (3 pts), maxpooling layer (3 pts), fully connection layer (3 pts) and softmax function (3 pts) – what it is , what its function is and how it works.

Explanations of overfitting issue (4 pts) and at least one technique to avoid overfitting – what it is , what its function is and how it works (6 pts).

The reason(s) for the generally better performance of CNNs in many computer vision problems – data driven,

label supervision, backpropagation, task-specific information in layers, etc (6 pts).

Explanations of loss function – what it is , what its function is and how it works (3 pts), and classical backpropagation – gradient descent, error propagation, chain rule (6 pts).

b)

Accuracy performance plots for training (1 pt x 5) and test (1 pt x 5) with 5 different but representative parameter settings and the effects of those settings (10 pts).

Means (2 pt x 2) and variances (2 pt x 2) of multiple running accuracy results for training and test.

The final accuracy performance plots (1 pt x 2) for training and test.

c)

The accuracy on the negative test images using any model in (b) (5 pts). Discussion about the accuracy result – pattern-specific filters with representation of white

foreground and black background, sign confusion (8 pts).

Improved implementation for recognition of both original and negative images (9 pts). Discussion about the reason of improvement (8 pts).

Best,

Graders