ECE661 Quiz 2

Name:_____ UniqueID:_____ Score:

This quiz is closed-book. By signing your name above, you agree to follow Duke Community Standard. For True/False questions, no justification is needed.

1. (2pt) (T/F) Convolutional Neural Networks (CNN) can obtain better spatial information compared to Fully Connected Networks (FC).
   True
2. (2pt) (T/F) Data augmentation: random flip can improve MNIST task (hand written digit classification task)
   False. For example, it is unreasonable to use random vertical flip during MNIST training as digit 6 and digit 9 may look similar (From lecture 6 p31)

3. (2pt) (T/F) Although the Rectified Linear Unit (ReLU) is cheap to compute, it converges slowly.
   False. Rectified Linear Unit (ReLU) is cheap to compute and it converges faster.

4. (2pt) (T/F) Through the computation of CNN layers: Given an input feature map of size $C1 \times H1 \times W1$, output $C2 \times H2 \times W2$, kernel size $K \times K$. Total MACs: $C1 \times K \times K \times C2 \times H2 \times W2$
   True

5. (1pt) (T/F) Batch normalization (BN) can improve a model's performance in most cases.
   True

6. (1pt) To what degree do you think you are familiar with this course's content? 1-5 (open answer) Feel free to leave some comments. :)