CSX4208 / ITX 4208 Deep Learning

Semester 1/2024

Worksheet#3

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Instructions:

1) Answer the following questions,
   a) What is the underfitting problem?
   b) How to overcome the underfitting problem?
   c) What is the problem of overfitting?
   d) How to prevent or avoid overfitting in neural network?
   e) What is regularization in neural network?

2) A decent resources to find out more information about overfitting and regularization can be found at the following links:
   - https://machinelearningmastery.com/introduction-to-regularization-to-reduce-overfitting-and-improve-generalization-error/
   - https://www.analyticsvidhya.com/blog/2018/04/fundamentals-deep-learning-regularization-techniques/

   Make sure that you know and understand the following terms:
   - The cross-entropy cost function
   - Overfitting
   - Regularization methods
     - Dropout
     - Early stopping
     - Artificially expanding the training data
     - Data augmentation*