deeplearning.ai Coursera Notes [1]

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[1] https://www.coursera.org/specializations/deep-learning

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About

This is my personal notes from all 5 courses of the Deep Learning specialization on Coursera by deeplearning.ai. The primary motivations for creating this document are to create a useful reference for myself and to solidify my understanding of concepts and algorithms. Chapters and sections generally correspond to courses and weeks in the Coursera sequence but I split weeks that contain multiple topics into separate sections.

Chapter 1

Neural Networks and Deep Learning

Learning Objectives

- Understand fundamentals of neural networks
- Build a deep neural network that recognizes cats

1.1 Introduction to Deep Learning

Andrew Ng believes that the impact of artificial intelligence (AI) on society will be on the same magnitude as the impact of electricity on society a hundred years ago. Deep learning (DL) is the field of AI that has been improving rapidly and driving recent progress. DL is already a powerful and proven method for solving certain types of problems (e.g. advertising, image classification, etc).

1.2 Neural Network Basics

Neural networks are very loosely based on neurons are connected in brains. In brains, special cells called neurons are connected to each other.

Definition 1 (Artificial Neuron): *blah*

Definition 2 (Neural Network): *A neural network is a collection of nodes that apply an activation function onto input...*

1.3 Shallow Neural Network

Definition 3 (Shallow Neural Network): *A neural network is a collection of nodes that apply an activation function onto input...*

1.4 Deep Neural Network

Definition 4 (Deep Neural Network): *A neural network is a collection of nodes that apply an activation function onto input...*

Definition 5 (Deep Learning): *Deep Learning refers to the training of large neural networks.*

Chapter 2

Improving Deep Neural Networks

Chapter 3

Structuring Machine Learning Projects

Chapter 4

Convolutional Neural Networks

Chapter 5

Sequence Models