

Introduction to Neural Networks and TensorFlow

Practice Assignment: Classification Using Deep Neural Networks

N-grams vs. Sequence Models

Video: Lesson Introduction 49 sec

Video: Traditional Language models 3 min

Reading: Traditional Language models 5 min

Video: Recurrent Neural Networks 4 min

Reading: Recurrent Neural Networks 4 min

Video: Applications of RNNs 3 min

Reading: Application of RNNs 3 min

Video: Math in Simple RNNs 3 min

Reading: Math in Simple RNNs 6 min

Lab: Hidden State Activation 20 min

Video: Cost Function for RNNs 2 min

Reading: Cost Function for RNNs 5 min

Video: Implementation Note 1 min

Reading: Implementation Note 3 min

Video: Gated Recurrent Units 4 min

Reading: Gated Recurrent Units 7 min

Lab: Vanilla RNNs, GRUs and the scan function 20 min

Video: Deep and Bi-directional RNNs 4 min

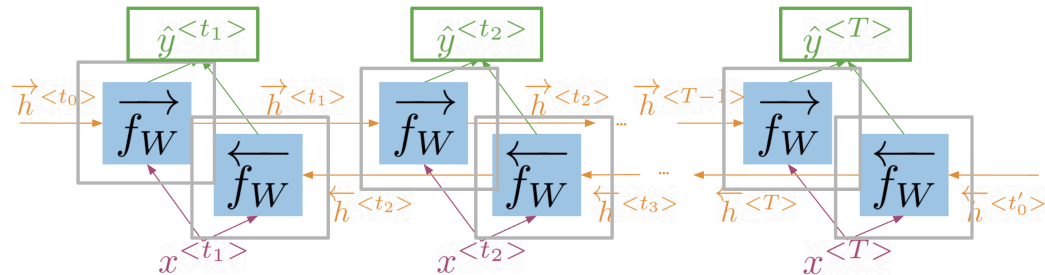
Reading: Deep and Bi-directional RNNs 10 min

Reading: Calculating Perplexity 10 min

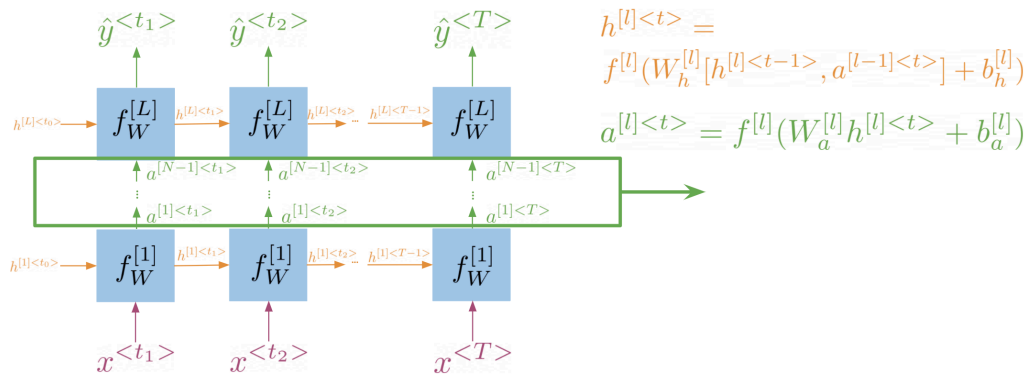
Lab: Calculating Perplexity 20 min

Deep and Bi-directional RNNs

Bi-directional RNNs are important, because knowing what is next in the sentence could give you more context about the sentence itself.



So you can see, in order to make a prediction \hat{y} , you will use the hidden states from both directions and combine them to make one hidden state, you can then proceed as you would with a simple vanilla RNN. When implementing Deep RNNs, you would compute the following.



Note that at layer l , you are using the input from the bottom $a^{[l-1]}$ and the hidden state h^l . That allows you to get your new h, and then to get your new a, you will train another weight matrix W_a , which you will multiply by the corresponding h add the bias and then run it through an activation layer.

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