Internship Task

Busigence Technologies

Background:

I am a third year Undergraduate, currently pursuing B. Tech (CSE) at USICT, GGSIPU. It has been 2 years of my active participation in the field of Machine Learning and Natural Language processing. I am eager and excited about the new developments (latest I studied about AMIRA) in the respective field.

Problem Statement:

This is a Problem of a course of fast.ai. I have tried to implement it in my own way using LSTM and Seq2Seq

The Statement is as follows-:

Create a machine learning model that can take in the pronunciation of a word as a list of phonemes, and try to spell it.

DataSet:

The data set has been taken from <https://en.wikipedia.org/wiki/CMU_Pronouncing_Dictionary>

Approach :

My Approach to solve this statement is using a Recurrent Neural Network as the model have to learn how to do a correct pronunciation of the words given. Since the domain of the alphabets is limited, I restricted the domain of data and then applied the RNN Network for predictions.

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Solution:

The core RNN Network consists of 3 Layers of BasicLSTM cells using a Drop out Wrapper class. The layers can be increased and network can formed without Drop out Wrapper class is the trade-off with computing time and complexity.

Then word embeddings are fed into the model using Seq2Seq model.

Sequence Loss is used as it helps to find cross Entropy loss for a sequence of logits along with Adam Optimizer

The solution of the project can be found at <https://github.com/rlrahulkanojia/RNN>

Result:

K-R-AO1-S-B-OW2 crossbow crosbown False

JH-IH0-B-R-AO1-L-T-ER0 gibraltar gibraltor False

S-ER0-AE1-N saran suran False

K-AE1-S-AH0-B-AW2-M kassebaum casabeaum False

M-IY2-T-IY0-ER0-AA1-L-AH0-JH-IH0-S-T meteorologist meteorologist True

G-AA1-UW0-IY0 goewey goohee False

G-AH1-V-ER0-M-EH2-N-T-AH0-L governmental governmental True

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