E0 334 - Deep Learning for NLP

Assignment 6

(**due by 27th Nov, 11:59 PM**)

Note: Use the following link for submitting your results of Assignment 6.

Problem: The aim of this assignment is to design a neural approach which finds a word in a target language given a rough definition or description of the target word in the source language. For example, for the English language input "*a road where cars go quickly and without stopping*" the system would output a word in the German language as "*Schnellstrasse*".

In this assignment, you will first design a reverse dictionary [1, 2] for English language using any of the models discussed in the class. A reverse dictionary finds a word given its rough description. The dictionary file "EnglishDictionary.csv" can be used for training your Reverse Dictionary model. One can then use the parallel bilingual corpus (English-German, "EN-DE.txt") to learn word-alignment and build a English-German dictionary [3, 4, 5, 6]. These two systems can then be combined to achieve the desired objective.

The details about the metric for performance evaluation of your approach and the link for submission will be provided later.

Some References:

1. Qi et al, WantWords: An open-source Online Reverse Dictionary System (available at `https://aclanthology.org/2020.emnlp-demos.23.pdf`)

2. Yan et al, BERT for Monolingual and Cross-lingual Reverse Dictionary (available at `https://arxiv.org/pdf/2009.14790`)

3. Using GIZA++ to Obtain Word Alignment Between Bilingual Sentences (Source - `https://masatohagiwara.net/using-giza-to-obtain-word-alignment-between-bilingual-sentences.html`)

4. Alignment Scripts (Source - `https://github.com/lilt/alignment-scripts`)

5. Zenkel et al, End-to-end Neural Word Alignment Outperforms GIZA++ (Available at `https://aclanthology.org/2020.acl-main.146.pdf`)

6. Garg et al, Jointly Learning to Align and Translate using Transformer Models (Available at `https://arxiv.org/pdf/1909.02074.pdf`)