Summer Internship 2024

<<Interpret-CXR >>

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Given DataSet :

Train Split : 333k rows
Validate Split : 8.54k rows

StanfordAIMI/interpret-cxr-public

Test Split : 3.68k rows

StanfordAIMI/interpret-cxr-test-public

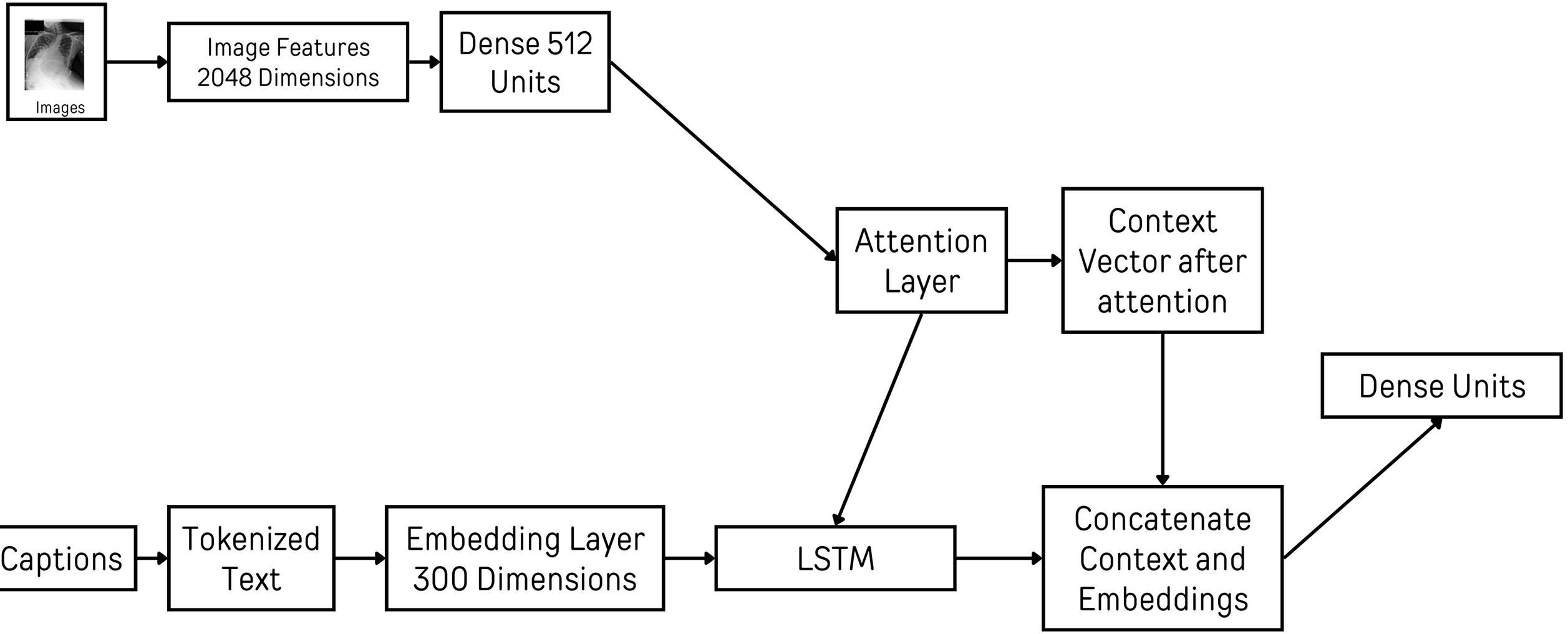
Captions: findings, impressions

To Do:

Extract features from images using a Convolutional Neural Network(CNN) using transfer learning (preferable). Then use these extracted features to predict the **captions (Target Y Variable)** . The output would be a sequence of words.

High Level Architecture

Baseline Model : Encoder–Decoder



Add Token in data : After creating new data points from existing data points, I will add <start> and <end> token into text data and prepare decoder input and output.

Tokenization : I will convert text data into numerical data using Tokenizer. The tensorflow deep learning library provides tools to perform this operation.

Image Feature : I will be using the transfer learning for image to feature vector and I will use the pre-trained CheXnet competition model weights

Performance Metric :I will use bilingual evaluation understudy (BLEU) score. BLEU is a well-acknowledged metric to measure the similarity of one hypothesis sentence to multiple reference sentences.

Given a single hypothesis sentence and multiple reference sentences, it returns value between 0 and 1.

The metric close to 1 means that the two are very similar. Apparently we need to have a higher BLEU score.

THANK YOU