

**ECE 7995: ST AI for NLP**  
**Assignment 3**  
**Due date: November 16, 2022**

Transformers are very large and require a lot of resources to be trained. We usually use a pre-trained transformer and fine-tune it to the downstream task. The hugging face library includes thousands of pre-trained transformers. In this assignment, you'll use hugging face transformers to download and use the BERT model for question-answering. Specifically, we will use a distilled version of the BERT base model. This model is smaller and faster than the BERT base.

`"distilbert-base-cased"` is a distilled version of the BERT base model. This link gives you more details about the model and shows you how to use it for masked language modeling by simply writing only two lines of code.

<https://huggingface.co/distilbert-base-cased>

`"distilbert-base-cased-distilled-squad"` is one of the pretrained transformer available in the hugging face library. This model is a fine-tune checkpoint of `"distilbert-base-cased"`, fine-tuned using (a second step of) knowledge distillation on SQuAD v1.1 (question-answering dataset).

This link gives you more details about the model and shows you how to use it for question-answering by simply writing only two lines of code.

<https://huggingface.co/distilbert-base-cased-distilled-squad>

details about the SQuAD dataset can be found here:

<https://huggingface.co/datasets/squad>

1. Use `"distilbert-base-cased-distilled-squad"` for question-answering on a context and questions that you specify. Use the model to answer 10 different questions. Don't use the same examples available in the hugging face documentation.
2. In this step, you will use the `"distilbert-base-cased"` transformer for question-answering. To do so, you need to fine tune the model on a question-answering dataset (SQuAD dataset). This link shows you in detail how to do that using Keras.

[https://keras.io/examples/nlp/question\\_answering/](https://keras.io/examples/nlp/question_answering/)

Use the finetuned model on the same context and questions you have in (step 1).

3. Compare the results in (step 1) and (step 2) with elaboration.