Transformers

Transfer Learning With Transformers

- Not related to transformer's architecture only.

- General Machine Learning Technique.

- Its importance is more highlighted with transformers because it makes transformers useful and practical for us (Students and Teachers)

- It is nearly impossible to train transformers from scratch due to cost of training.

Why Pre-training is not practical ?

- Pre-training needs lot of time and computing resources.

- Parallel processing can reduce the time but not the cost.

- GPT-3 contains 175B training parameters.

- According to estimation GPT-3 would have cost $ 5 millions and requires 355 years to trian on the cheapest GPU.

- We can not pretrain transformers easily.

How to Use Transformers ?

Use Hugging face pipeline

pipeline is an interface in transformer library that can perform all the steps such as tokenization to complete the task. This provides APIs and tools to easily download and fine tune state-of-the-art pretrained models.

Sentiment Analysis With Hugging face

Sentiment Analysis as a classification Task

- Usually Binary classification i.e Positive and Negative

- For Multiclass : Positive, Negative and Neutral.

- RNNs are called recurrent because they perform the same task for every element of a sequence.

- When used pretrained transformer from Hugging face, we have to follow the requirements of pretrained transformer.

Advantages of Sentiment Analysis

- Sentiment Analysis can be used to manage the reputation on social media or on other platforms.

- Can be used to generate Sentiment Statistics (reputation over time)

- Actions can be taken based on sentiments to improve marketing strategies.

- Can observe the performance of your competitors.

Text Summarization

- We want text summarization for abstract of scientific papers, summaries in professional documents.

- We want to read summaries rather than whole documents.

- Summarization is a way of learning

- For summarize an article, we should understand the whole article well.

Types of Text Summarization

- Two types of text summarization i.e, extractive and abstractive.

- In extractive summary, text is taken from the original document.

- Abstractive summaries may have new text sequences that are not necessary present in the original documents.

- Abstract summaries are hard. pipelines provide only extractive summaries.