REPORT

A report that describes the evaluation of the model

# **Automatic Speech Recognition model evaluation:**

## Model used:

The model used here is Open ai’s Whisper. This model has about 97% efficiency on languages like english, german etc. It could have a lower rate of efficiency in other languages that are trained with smaller datasets(eg: malayalam, tamil)

## Word error rate:

Provide a audio in english with words around 262. The audio had about 5 german words as well. The audio is provided in the folder as attachment.

#### Predicted Target:

Being here in Bologna, it would be logical to finish off these eight days with a tribute to one of the most extraordinary couples in film music, Hitchcock and Herman. To define a couple such as this one, you must refer to Vittorio De Sica's answer to when they asked him what one thing does and what the other thing does. To which he would reply, we are like cappuccino. There is milk and there's coffee. We don't know what the milk does and we don't know what the coffee does, but in the end there's cappuccino and that is all that really matters. Herman composed film music for Seven of Hitchcock's most extraordinary films. Their collaboration began in 1955 with The Trouble with Harry and ended in 1964 with Marnie. These are seven great films and seven amazing musical compositions. Why did Herman compose these seven amazing soundtracks for Hitchcock and why did Hitchcock have such a great relationship with Herman? Tonight, we will listen to soundtracks from The Man Who Knew Too Much, Vertigo, Psycho, and North by Northwest. They will be performed by the Community Orchestra conducted by Timothy Brock. We will see each other at the end and talk some more about the festival and to present Jouer de fête.

#### Models Output:

Being here in Bologna, it would be logical to finish off these eight days with a tribute to one of the most extraordinary couples in film music, Hitchcock and Herman. To define a couple such as this one, you must refer to Vittorio De Sica's answer to when they asked him what one thing does and what the other thing does. To which he would reply, we are like cappuccino. There is milk and there's coffee. We don't know what the milk does and we don't know what the coffee does, but in the end there's cappuccino and that is all that really matters. Herman composed film music for Seven of Hitchcock's most extraordinary films. Their collaboration began in 1955 with The Trouble with Harry and ended in 1964 with Marnie. These are seven great films and seven amazing musical compositions. Why did Herman compose these seven amazing soundtracks for Hitchcock and why did Hitchcock have such a great relationship with Herman? Tonight, we will listen to soundtracks from The Man Who Knew Too Much, Vertigo, Psycho, and North by Northwest. They will be performed by the Community Orchestra conducted by Timothy Brock. We will see each other at the end and talk some more about the festival and to present Jouer de Fete.

#### Evaluation

All the words have been transcribed well.

#### So Word error rate(WER)= 0/262 = 0

## Word Accuraccy:

WAcc=1−WER

WAcc=1-0.00=1=100%

## Character Error Rate:

Just one character out of the whole 1372 is different. So

Character Error Rate = 0/1372=0

## Punctuation

Looking at the punctuations are well put up.

# **Translation model evaluation**

## Model used:

The model used here is Helsinki-NLP/opus Model.

* The Helsinki-NLP/opus model is based on neural machine translation (NMT) technology.
* It supports translation between various language pairs, including both common and less common languages.
* The model is built on top of the Marian framework, an efficient and fast NMT implementation.
* It is available as part of the Opus-MT project, which provides pre-trained models and tools for machine translation.

## Translational Efficiency:

The translational efficiency of a machine translation model like Helsinki-NLP/opus can vary based on several factors, including:

* Language pair: Some language pairs may have better performance than others due to the availability of training data and linguistic similarities.
* Model size and training data: Larger models trained on more diverse and extensive datasets tend to have better translational efficiency.
* Specific domain or style: Some models are fine-tuned for specific domains, such as technical or conversational language, which can affect efficiency.

To evaluate the translational efficiency of the Helsinki-NLP/opus model for a specific language pair and domain, it's best to refer to benchmarks and evaluations conducted on the model. These benchmarks often measure metrics like BLEU score (Bilingual Evaluation Understudy), which is a standard metric for machine translation quality.

Overall, the Helsinki-NLP/opus model is known for providing high-quality translations across various languages, but the specific efficiency can vary depending on the aforementioned factors. For the most accurate and up-to-date information on its performance, it's recommended to check the Opus-MT project's documentation or recent research papers on the model.

## Experimental translation evaluation report of the model:

Since most languages are unknown to me, the evaluation has been difficult. The german to english translation is a common one and in the overview of the model it says that it is good at it. And the experimental results were good as well(just looking at the english.

#### German text as input:

Vor dem Gesetz steht ein Türhüter. Zu diesem Türhüter kommt ein Mann vom Lande und bittet um Eintritt in das Gesetz. Aber der Türhüter sagt, dass er ihm jetzt den Eintritt nicht gewähren könne. Der Mann überlegt und fragt dann, ob er also später werde eintreten dürfen. Es ist möglich, sagt der Türhüter. Jetzt aber nicht.

#### Output in english:

Before the law there is a doorkeeper. To this doorkeeper comes a man from the country and asks for entry into the law. But the doorkeeper says that he can't grant him entry now. The man ponders and then asks whether he will be allowed to enter later. It is possible, says the doorkeeper. But not now.

It seems like the model have translated well. No word errors and the punctuations seem to be on point as well.

Also translated text from English to Malayalam. There were more errors than the German to English translation as expected. Still the model managed to do well.

# **Summarization model evaluation**

The model used here for summarization is the "facebook/bart-large-cnn" model.

The "facebook/bart-large-cnn" model is based on BART (Bidirectional and Auto-Regressive Transformers), developed by Facebook AI Research. BART is a denoising autoencoder model that is pretrained on large amounts of text data. The "large-cnn" variant indicates that this model is one of the larger versions, typically offering higher capacity and potentially better performance on downstream tasks.

BART is known to perform exceptionally well on text summarization tasks, such as summarizing news articles, scientific papers, and other lengthy documents into concise summaries.

## Experimental evaluation:

Input given:

Being here in Bologna, it would be logical to finish off these eight days with a tribute to one of the most extraordinary couples in film music, Hitchcock and Herman. To define a couple such as this one, you must refer to Vittorio De Sica's answer to when they asked him what one thing does and what the other thing does. To which he would reply, we are like cappuccino. There is milk and there's coffee. We don't know what the milk does and we don't know what the coffee does, but in the end there's cappuccino and that is all that really matters. Herman composed film music for Seven of Hitchcock's most extraordinary films. Their collaboration began in 1955 with The Trouble with Harry and ended in 1964 with Marnie. These are seven great films and seven amazing musical compositions. Why did Herman compose these seven amazing soundtracks for Hitchcock and why did Hitchcock have such a great relationship with Herman? Tonight, we will listen to soundtracks from The Man Who Knew Too Much, Vertigo, Psycho, and North by Northwest. They will be performed by the Community Orchestra conducted by Timothy Brock. We will see each other at the end and talk some more about the festival and to present Jouer de Fete.

Output:

Herman composed film music for Seven of Hitchcock's most extraordinary films. Their collaboration began in 1955 with The Trouble with Harry and ended in 1964 with Marnie. Tonight, we will listen to soundtracks from The Man Who Knew Too Much, Vertigo, Psycho, and North by Northwest.

#### Overview:

max\_length=80, min\_length=10, this was the range given. The output was a summary within the range.

# **Overall Evaluation:**

Hence, with all the above Experimental evaluations,it is clear that the model has been a success to its capabilities.

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