ISSN 2278-3091
Volume 10, No.4, July - August 2021
International Journal of Advanced Trends in Computer Science and Engineering
Available Online at http://www.warse.org/IJATCSE/static/pdf/file/ijatcse191042021.pdf
https://doi.org/10.30534/ijatcse/2021/191042021

Language To Language Translation System Using LSTM

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ABSTRACT

Language to language translation is the system that converts one language to another language. The system utilized in Language to Language Translation is that the phrases spoken in one language square measure now spoken in a different language by the device. Language to Language Translation maybe a 3 steps code method that includes Automatic Text Recognition, MT. Language to the system includes the key speech translation comes mistreatment totally different approaches for Speech Recognition Translation and a method that takes the informal phrase in one language as associate degree input and translated speech phrases in another language because of the output. The 3 elements of language-to-language translation square measure connected in an exceedingly sequent order. Automatic text Recognition (ATR) is answerable for dynamically changing the text phrases of language to the text at intervals of constant language followed by MT that interprets the linguistic communication to ensure target language text and eventually the text synthesizer is answerable for text conversion of the target language.

Key words: Automatic text recognition, voice synthesis, machine translation.

1.INTRODUCTION

Language to Language Translation System is a technology that automatically converts one language into another to allow communication between two parties who speak different languages. Language to Language Translation Technology is used to translate a voice in one language to another voice in a different language. Speech Recognition Technology translates a person's speech into a text and Speech Synthesis Technology, will translate the text in one language into a text in another, and Speech Synthesis Technology, which converts the translated text into a speech. Furthermore, in the Language to Language Translation System, natural language understanding technology and user interface-related technology integrated with the User Interface play an important role. Language Translation Technology is currently available as a product that immediately translates multilingual conversations in free form.

Continuous speech is immediately translated by language translation systems. Overcoming speaker-dependent variations such as mode of speech or pronunciation are concerns that must be resolved in order to provide high-quality translation to all users. Furthermore, in the real-world application of Language translation systems, speech recognition systems must be able to compensate for external factors such as acoustic noise or speech from other speakers. In terms of verbal intonation, the current system has difficulty with the cross-lingual conversion of intent. With database work, the current system also developed a parallel speech database for the English-Portuguese language pair, which is publicly published. The current system analyses word emphasis in two language pairs and suggests an automatic transformation technique for international accents, as well as objectively demonstrating how the proposed methods improved Text To Speech) intonation contours. This paper compares different translation systems in which the language is first transformed to text, then to target language text, and finally to target language using different techniques. Indian languages come back from four completely different language families - the Indo-Aryan, The Tibeto-Burman language.

2. RELATED WORK

[1] The Speech to Speech Translation paper explains how to translate speech between languages. Speech to Speech Translation is a method that uses a conversational speech expression in one language as an input and outputs interpreted speech phrases in a different language. Speech-to-Speech Translation is made up of three parts that are related in a sequential order Speech-to-Speech Translation is made up of three parts that are related in a certain order. Automatic Speech Recognition (ASR) is guilty of translating spoken phrases of the linguistic communication to the text of constant language, followed by MT, that converts the linguistic communication text next to

the text within the target language, and so the speech synthesizer, that is guilty of text to speech conversion. A pipelined infrastructure of machine-controlled speech recognition, MT, and speech synthesis or text-to-speech, that primarily depends on lexical data and ignores the opposite made data gift in speech and spoken discourse, like noise and human utterances.

[2] Speech Recognition in a high noise environment, the author suggested a new technique that fused speech amplification with a discard function model. The system's goal is to translate human speech vocabulary into computer-readable input, such as a button, binary code, or a string of characters. The algorithm vertibi is used as the speech input recognition algorithm. The method is based on a speech enhancement algorithm and a characteristics abandon algorithm.

[3] Janus: Speech to Speech Translation, The Speech-to-Speech Translation System employs a range of process strategies, together with connectionist learning, the standard AI methodologies data illustration approaches, dynamic programming, and random techniques. Janus transforms spoken English and German into German, English, and Japanese in a period of time. Janus maintains eighty-seven % fidelity once translating English speech and ninety-seven percent once translating German speech.

[4] Automatic Speech-Speech Translation System from English to the Tamil language, the device is formed of 3 parts: a speech recognition device, Associate in Nursing English to Tamil MT device, and a Tamil speech generation device. The system 1st acknowledges speech in English employing a speech reorganization device and displays it on the screen in English text, which is then translated into Tamil text and displayed on the screen. Finally, the text is converted into Tamil speech and displayed on the screen. After translating to text format, the speech recognition system compares the text to the words stored in the database to see whether the language matches the Tamil text stored in the database. The machine translation system will translate English text into Tamil text, which will then be projected on the phone.

[5] Voice Conversion, Voice Conversion is a method of modifying a speech waveform in which para-linguistic information is voluntarily converted and linguistic information is preserved. Basic Structure for Speaker Conversion is a framework in which all section and prosodic features are dependent on individual speakers, and corresponding speech parameters must be changed to transform speaker identity. High-quality speech analysis or synthesis techniques are used in Parameterization and Waveform Generation, which is essential in VC. Several advanced methods were used, including the Harmonic plus Noise Model (HNM). To obtain a nonlinear regression mapping, a conversion function is used. Different conversion functions have been proposed. In order to conduct more practical studies in the future, the VC group needs a more suitable baseline scheme.

[6] In this article, they focus on the history of natural language processing as it pertains to human-computer interaction, as well as interactive application areas and how natural language programming contributes significantly to natural language processing.

3.SYSTEM IMPLEMENTATION

The sequence diagram for language to language translation is meant, wherever the user can act as an actor and can login to allow the text through the system by click login button. The input text question is sent to the web interface provided. The pre-processor on question for accuracy purposes. The sequence to sequence train model is to be trained for translation on initial language to focus on language. The pre-processing model has an encoder and decoder for coaching the long-short memory model. Administrators also can update information regarding the English to Hindi dataset by uploading the CSV files. TensorFlow is a library that provides functions for building and running neural networks as smoothly as possible. It provides an honest collection of examples to build from, including a sequence-to-sequence example. TensorFlow is well-built in general, but it does have some glitches due to its short lifespan. The TensorFlow team, on the other hand, is constantly upgrading and developing the library, and its current state makes it a viable option for building neural networks. mentioned, GPU processing is critical for networks of this size. One of the key advantages of Tensor Flow is the ease with which network computations can be assigned to GPUs and as previously.

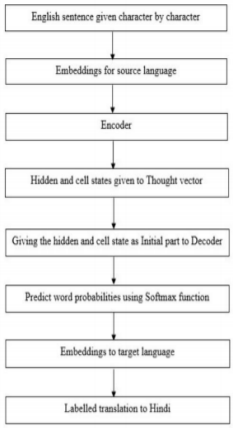


Figure 1: Sequence diagram

The figure 1 shows sequence diagram that depicts the interaction between the participants as well as the flow of communications between them. They also explain how a system interacts with its actors in order to complete all aspects of the use case. The encoder analyses the full input sequence, and stores some contextual information about it in a context vector, also known as a thought vector. This provides a thorough summary of the whole input sentence. The LSTM layer returns a hidden state and a cell state for each cell. The decoder reads the complete target sequence offset, together with the encoder's final hidden state and cell state, and predicts the next word in the target sequence, much as the encoder. We append < start> to the start of the target sequence to indicate the beginning of a sentence, and to the end of the sequence to indicate the conclusion of the sentence.

PROCEDURE:

1. We begin by encoding the full input sequence and forwarding the internal states.
2. After that, we append the < start > token to the input.
3. Use the encoder's internal states to run the decoder.
4. The term with the highest probability will be the output.
5. Finally, we provide this word as input and update the decoder's internal states.
6. Using the decoder's internal states, repeat steps 3-5 until the < end > token is predicted.

This is how a language-to-language translation is designed. It translates the source language into the target language. For example, if we provide English as the source language, it will be converted to Hindi or another chosen language. We must first provide the data as input for encoding. The ASCII value of two languages will then be taken. After then, it moves on to the decoder step. The decoder phase translates this to the target language.

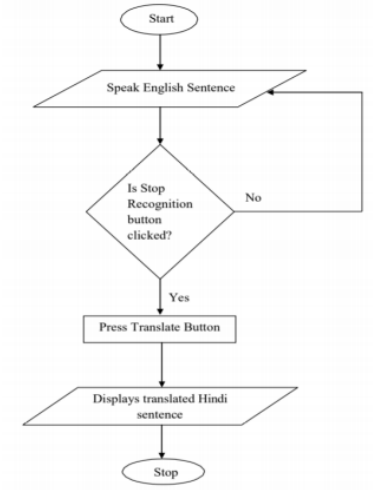


Figure 2: Flow chart

The figure2 shows the flow chart that depicts the sequence of activities or movements of people or items in a complicated system or activity. As a result, it is the beginning of the design phase, which functionally decomposes the specifications of the need to their simplest form.

The language model's goal is to provide the right probable worth of a word. To get probability, a language model provides the structural restrictions accessible inside the language.

Two completely distinct words share the same phone in the language model. The lumen also describes what the legitimate words in the language are, as well as their order of appearance in the speech knowledge.

Table 1: Percentage of sample trained data

Data sets	Past (%)	Present (%)	Future (%)
Hi(Manl,Tempo)	32.83	24.80	42.37
En(Manl,Trans, Manl,Tempo)	38.95	19.58	32.93
En(Auto,Trans, Manl,Tempo)	41.15	11.75	34.74

Table1 shows few samples of enlarged terms for a few of the initial seed terms. There are some unrelated keywords within the enlarged seed list because of the automated method of keyword selection.

For example:

1.What is your name?
□□□□□□□□□□□□□□□□□□□?
2.what you ate the morning?
□□□□□□□□□□□□□□□□□□□?
3. I am leaving.
□□□□□□□□□□□□□

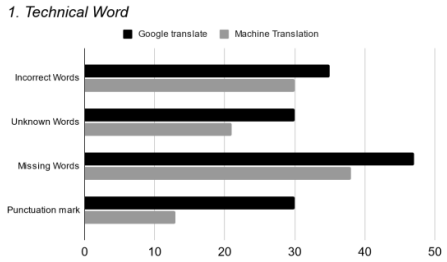
4.EXPERIMENTAL RESULT

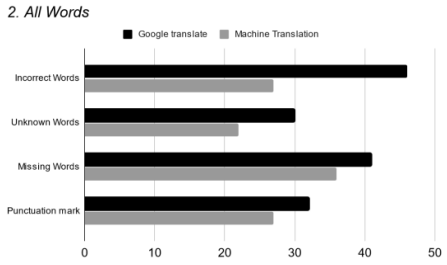
The proposed system is being designed and the following output has been obtained as result.

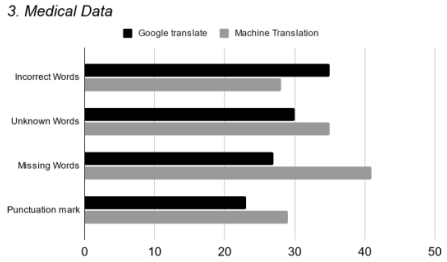
Figure 3: Input interface

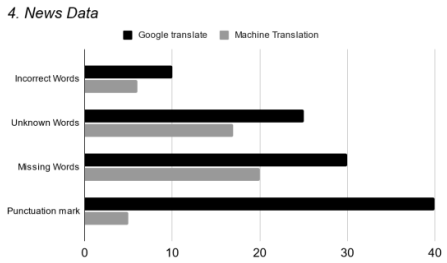
The figure3 consists of a text field and one button. The text field takes the input sentence. On pressing the show button, it will convert text into desired Hindi language.

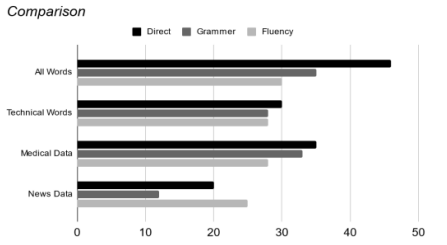
After the observation is completed, the collected and mistake calculation. Then the ultimate score of every translation is summed up mistakes every of every class in each paragraph of various translator approach and conjointly summed up mistakes of every category all told paragraph along for various translator application, then place the numerous every translator against every other.











Here black color represents google translate and grey color represents the machine translation. This comparison graph showing the overall results for the translation. Direct is the direct translation of the sentence. Grammar is the structure of a language and fluency being able to understand at ease.

5.CONCLUSION

The translation scheme was a useful experiment in designing Text Conversion schemes based on a shared dataset. To begin with, the Long Short-Term Memory (LSTM) network architecture is undeniably complex enough to learn different types of sequences.

It can almost accurately translate the seen phrases based on the error rate of training phrases with limited data collection. The concern is that the network is too small to accommodate a more general situation with a much wider data collection, i.e. the data is under-fitted. As a result, the device is helpful for an individual to translate the language.

Future work on the project may include converting the text to speech and creating a dataset with a number of nice features and potential improvements to make in order to improve the current network's performance.

The first step is to eliminate the overlapping attributes that are used when extracting the phrases, which results in a wider data collection of smaller phrases.

ACKNOLEDMENT

I am about to publish the language to language paper. I thank my team who did editing pass on the text. I was lucky enough to work with a team of this project. Their devotion to quality and terminology was remarkable. They would worry over whether a phrase was proper, if a sentence conveyed the correct meaning, and they would frequently go back and change a term in numerous parts until they eventually agreed on the correct interpretation.

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