

# A Review of Synthesis of Concatenate Speech Conversion in Punjabi

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**Abstract** - Speech is the essential method for communication between individuals. Speech is regularly dependent upon natural speech's concatenation i.e. units which are obtained from a sentence or word. The synthesis of concatenate speech has turned out to be exceptionally well known in these years because of its enhanced affectability to unit context over easier predecessors. Speech synthesis has been worked on for quite a few years from now. Latest progress in speech synthesis has delivered synthesizers having very high comprehensibility. In the process of speech synthesis, the accurateness of information extraction is pivotal in creating synthesized speech having very high quality. Speech synthesis incorporates the algorithmic change of text data which is input to waveforms of speech.

**Keywords** - *text to speech, NLP, TTS, ASR*

## 1. Introduction

In the field of sciences, machines are used to perform various computational tasks. Such as machine learning, optical scheduling in cloud computing, transaction and bio- inspired systems. Now a machine needs to take input from human or environment in order to perform its task. Old machines involved Command Line Interfaces which were a good start towards development of computational technologies, but due to the user unfriendly environment, Graphical User Interfaces came into the picture [1]. GUI's are successfully deployed in various web based systems as well as desktop applications.

But the exponentially rising technologies has arisen a need to develop systems which are even friendlier than GUI's. That system is made in artificial intelligence. That is intelligence exhibited by machines or software. It is also the name of the academic field of study which studies how to create computers and computer software that are capable of intelligent behavior [1].

In today's life everybody needs that the present PC frameworks ought to act like people and turned out to be easy to understand. Indeed, even a number of the considerable research scholars had longed for including the machines in each aspect of human life. With the development of the computing machines power their applications in modern and daily life are additionally rising. The system of text to speech has numerous applications that are valuable in our life, for example, for video conferencing, peopling with perusing trouble, telecommunications and multimedia, for visual guides procedure, Elementary and Applied Research, programs of

screen reader for the visually impaired and educational state. [3]

As of late, utilization of PCs in speech recognition and speech synthesis has turned into an essential zone of study among computer scientists and speech. The essential inspirations are to furnish clients with a neighborly vocal interface with the PC and to permit individuals with specific impediment, (for example, visual impairment) to utilize the PC. Speech is the essential method for communication between individuals. The language Punjabi is being discussed by around 104 million people groups in Pakistan, India, and different nations with Punjabi migrants. The language is being composed in script Gurmukhi in Indian Punjab, though in script Shahmukhi in Pakistani Punjab. Punjabi is a language of syllables, hence waveform output is produced by linking the sounds of phoneme set apart in document of sound recorded. Phoneme sounds in various settings have been checked and put away in the database of speech to get normal sounding combined speech. [5]

## 2. Natural Language Processing

NLP (Natural Language Processing) is the most straightforwardly science related to handling human (natural) language. It gets from computer science field since PCs, or some other units of handling, are the objective gadgets utilized to finish such preparing. This portrayal reacts essentially to the "Preparing" constituent part in NLP. What makes NLP unique in relation to some other preparing related action is the field of use: the languages of human. They manage more information related perspectives in this way necessitating the backing of abilities of learning by the content processors. Finally, it

could be communicated that majority of the mechanized tasks which are of NLP and also related to NLP could be enclosed by the more broad idea of Machine Learning, plainly identified with computer science, which thinks about any subject identifying with the utilization of PCs for the surmising of the significant elements of the frameworks of examination. Since the specific field of analysis is natural language, these specific techniques of learning are of imperative premium, in light of the fact that somehow, we people make utilization of this sort of language as our fundamental method for reasoning and communication, intrinsically. In the event that generally a language which is formal was to be concentrated on (e.g., a programming language), there would be no motivation to make utilization of such approaches of learning in light of the fact that the issues of logic and construction destined to the formalism of that kind of language would as of now be predefined or known.

### 3. Text to Speech Synthesis

Speech is the most imperative type of correspondence in regular life. In any case, the reliance of human PC cooperation on images and written text makes the utilization of PCs inconceivable for illiterate masses and physically and visually impaired people. TTS (Text-to-speech synthesis) helps researchers of speech processing to follow up on this issue by synthesizing speech (in languages local e.g. Punjabi, Hindi, Tamil and so forth.) from written content as in mobile phones, browsers and so forth. The synthesis of speech can be done by basically three techniques: Articulatory synthesis, Concatenative synthesis and Formant synthesis.

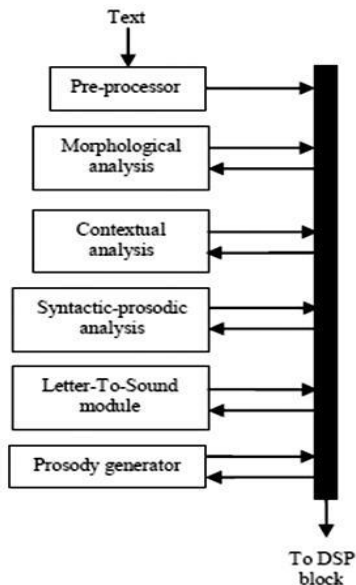


Figure 1: Block diagram of Natural Language Processing module [5]

Articulatory synthesis tries to display the system of production of human speech (particularly vocal tract framework, different articulators' viz. jaw, tongue, lip and so on.) and articulatory procedures straightforwardly. In any case, it is additionally the most troublesome technique to actualize because of absence of information of the complex organs of articulation of human.

Concatenative speech synthesis systems can synthesize sound speech which is more natural and high quality however keeping in mind the end goal for synthesizing speech with different characteristics of voice, for example, emotions, styles of speaker, individualities of speaker and so on., a lot of memory and corpus of speech is required as put away essential units of speech (like diphones, syllables and so forth.) are connected to shape sequence of word utilizing dictionary of pronunciation.

Formant synthesis depends on the guidelines which portray the thunderous frequencies of the vocal tract. The formant strategy utilizes the source-channel model of production of speech, where speech is displayed by parameters of the filter model. The formant synthesis which is rule-based can deliver quality speech which sounds unnatural, as it is hard to assess the model of vocal tract and parameters of source. [6]

Research in T-T-S is a field which is multi-disciplinary: from acoustic phonetics (production and perception of speech) over morphology (pronunciation) and syntax (parts of speech, grammar), to processing

Phonetic Analysis changes over the orthographical symbols into phonological ones by utilizing an alphabet which is phonetic one. For e.g. the alphabet of the International Phonetic Association contains symbols of phoneme, their marks which are diacritical and different symbols associated to their pronunciation, other alphabets which are phonetic, for example, SAMPA (Speech Assessment Methods-Phonetic Alphabet).

### 4. Need of Text to Speech System

The field of application of TTS is quickly growing whilst the nature of systems of TTS is likewise steadily increasing. The systems of Speech synthesis are additionally turning out to be more moderate for common clients, which make these systems more appropriate for use in everyday life. A few uses of TTS are:

- Aid to handicapped,
- Talking toys and books,
- Education and Games,
- Multimedia and Telecommunication,

- Man-machine communication,
- An email which is voice enabled
- Vocal monitoring.

## 5. Conclusion and Future Scope

An initial step towards this end, a study of the artificial technologies in which there is study of tasks of natural language processing has done. These tasks include speech recognition and speech synthesis. The speech recognition is used for changing speech into text. It uses automated speech recognition system. Then speech synthesis can convert the text to speech. It can convert with the help of some different tools such as Dialog system. The survey of various techniques of text to speech synthesis system has been presented in this paper. It is found that many systems for Punjabi language to speech conversion are yet to be formulated. So, it is proposed to develop a system which is able to guide laymen about Punjabi language. It will pronounce the Punjabi letter (dictation set of thing). It has been found that this kind of system is not developed it.

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