

# A Study on impact of Artificial Intelligence for Speech Recognition

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**Abstract:** *This article deals with Artificial Intelligence for Speech Recognition. It tells about how the Speech is being recognized and how the computer infers the data and execute the task given by the user. This is done by converting spoken language into machine readable format. This is used in areas such as navigation, voice dialing etc. The few process involved digitization, signal processing, phonetics etc.*

**Keywords:** *artificial Intelligence, Speech Recognition, Applications of AI.*

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## I. INTRODUCTION

Artificial Intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and reacts like humans. It has become an essential part of technology industry. Some of the activities computers with Artificial Intelligence are designed for

- Speech Recognition
- Learning
- Planning
- Reasoning
- Problem solving.

This article deals with one of the activity, Speech Recognition.

Speech Recognition is the ability of a machine to identify words and phrases in spoken language and convert them into machine readable format. In other words, this means understanding voice by computer and performing any required task. Speech Recognition works using algorithms through *Acoustic* and *Language Model*.

### A. *Acoustic Model*

It is created by talking audio recordings of speech, and their text transcriptions and using software to create statistical representations of the sounds that make up each word. It is used by a Speech Recognition engine to recognize speech.

### B. *Language Model*

It is used in many natural language processing applications such as Speech Recognition tries to capture the properties of a language, and to predict the next word in a speech sequence.

## II. TYPES OF SPEECH RECOGNITION

There are two types of recognition: *Speaker Dependent* and *Speaker Independent*.

**Speaker Dependent:** This software works by learning the unique characteristics of a single person's voice, in a way similar to voice recognition.

**Speaker Independent:** This software is designed to recognize anyone's voice, so no training is involved, this means it is only real option for applications such and interactive voice response systems.

### A. *Different processes involved*

- Digitization
- Signal Processing
- Phonetics
- Phonology
- Semantics and Pragmatics
- Lexicology and Syntax

### B. *How this does happens?*

There are three steps involved speaker recognition, speech recognition, parsing and arbitration.



For the first it identifies who is speaking and then it identifies what the speaker is saying and at last it performs the task.

In Technical words:

Voice Input > Analog to digital > Acoustic and language models > Speech engine > Display > Feedback.

C. *Advantages*

- One of the most notable advantages includes dictation ability it provides.
- This can allow documents to be created faster because this software generally produces words as fast as they are spoken, which is generally much faster than a person can type.

### III. CONCLUSION

This speech recognition can be used in many purposes such as system control/navigation (eg: GPS –connected digital maps:”how far is it to the MREC?”), commercial or industrial applications (in car steering systems) and voice dialing (hands free use of mobile in car “eg: dial office”) etc. This became very essential part in one’s daily life. Speech Recognition mostly helps for the person who is driving, and that who are blind and even it is also helpful for call centers. With artificial intelligence, this Speech Recognition became easier as the system itself thinks and understand.

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