Applications of AI – Speech Recognition

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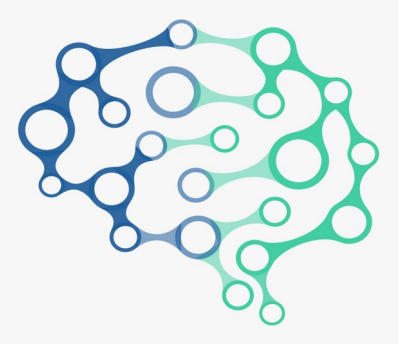

Speech Recognition

- Speech recognition refers to a computer interpreting the words spoken by a person and converting them to a format that is understandable by a machine. Depending on the end-goal, it is then converted to text or voice or another required format.
- For instance, Apple's Siri and Google's Alexa use AI-powered speech recognition to provide voice or text support whereas voice-to-text applications like Google Dictate transcribe your dictated words to text.
- Voice recognition is another form of speech recognition where a source sound is recognized and matched to a person's voice.

Speech Recognition

- Speech recognition AI applications have seen significant growth in numbers in recent times as businesses are increasingly adopting digital assistants and automated support to streamline their services.
- Voice assistants, smart home devices, search engines, etc are a few examples where speech recognition has seen prominence.
- As per Research and Markets, the global market for speech recognition is estimated to grow at a CAGR of 17.2% and reach $26.8 billion by 2025.

Speech Recognition

- Speech recognition is fast overcoming the challenges of poor recording equipment and noise cancellation, variations in people's voices, accents, dialects, semantics, contexts, etc using artificial intelligence and machine learning.
- This also includes challenges of understanding human disposition, and the varying human language elements like colloquialisms, acronyms, etc.
- The technology can provide a 95% accuracy now as compared to traditional models of speech recognition, which is at par with regular human communication.

Speech Recognition and NLP

- Natural language processing (NLP) is a division of artificial intelligence that involves analyzing natural language data and converting it into a machine-readable format. Speech recognition and AI play an integral role in NLP models in improving the accuracy and efficiency of human language recognition.
- From smart home devices and appliances that take instructions, and can be switched on and off remotely, digital assistants that can set reminders, schedule meetings, recognize a song playing in a pub, to search engines that respond with relevant search results to user queries, speech recognition has become an indispensable part of our lives.

Speech Recognition and NLP

- Plenty of businesses now include speech-to-text software to enhance their business applications and streamline the customer experience.
- Using speech recognition and natural language processing, companies can transcribe calls, meetings, and even translate them.
- Apple, Google, Facebook, Microsoft, and Amazon are among the tech giants who continue to leverage AI-backed speech recognition applications to provide an exemplary user experience.

Speech Recognition : Use Cases

- Let’s explore the uses of speech recognition applications in different fields:
  - Voice-based speech recognition software is now used to initiate purchases, send emails, transcribe meetings, doctor appointments, and court proceedings, etc.
  - Virtual assistants or digital assistants and smart home devices use voice recognition software to answer questions, provide weather news, play music, check traffic, place an order, and so on.

Speech Recognition : Use Cases

- Companies like Venmo and PayPal allow customers to make transactions using voice assistants. Several banks in North America and Canada also provide online banking using voice-based software.
- Ecommerce is significantly powered by voice-based assistants and allows users to make purchases quickly and seamlessly.
- Speech recognition is poised to impact transportation services and streamline scheduling, routing, and navigating across cities.

Speech Recognition : Use Cases

- Podcasts, meetings, and journalist interviews can be transcribed using voice recognition. It is also used to provide accurate subtitles to a video.
- There has been a huge impact on security through voice biometry where the technology analyses the varying frequencies, tone and pitch of an individual's voice to create a voice profile.
- An example of this is Switzerland's telecom company Swisscom which has enabled voice authentication technology in its call centres to prevent security breaches.
- Customer care services are being traced by AI-based voice assistants, and chatbots to automate repeatable tasks.

Global Impact

- Speech recognition has by far been one of the most powerful products of technological advancement.
- As the likes of Siri, Alexa, Echo Dot, Google Assistant, and Google Dictate continue to make our daily lives easier, the demand for such automated technologies is only bound to increase.
- Businesses worldwide are investing in automating their services to improve operational efficiency, increase productivity and accuracy, and make data-driven decisions by studying customer behaviours and purchasing habits.

Thank you

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