botomation

Converse + Cognize + Automate

NLP

Natural lang
processing

Natural Language Processing:

How this innovative technology is mimicking human level of intelligence in understanding human languages

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Tracing back to the early stage of human race where only hand gestures were used to communicate, we have come a long way where we now interact with computers, almost every day. Thanks to the significant rise of AI and ML technologies that help facilitate a seamless interaction between a human being and a machine.

NLP is a type of Artificial Intelligence that provides machines the capability of reading, understanding and interpreting the meaning from human languages. For instance, Amazon's Alexa understands what we say and knows how to respond . Interestingly, Gartner predicts that 30% of our interactions with technology would be through "conversations" with smart machines.

By implementing NLP, businesses can organize their large amounts of unstructured data, like emails, social media conversations, online chat conversations, etc. to gain insights and take valuable business decisions.

A few of the common NLP applications that we use in our daily life:

- Sentiment Analysis

- Chatbots

- Virtual Assistants

- Auto correct

- Speech recognition

- Text analysis

- Intent classification

- Market Intelligence

Let's dive deep into AI chatbots, one of the most commonly used NLP applications.

NLP in chatbots

AI-powered chatbots is still a hot topic in today's competitive world. It is estimated that the global chatbot market is expected to reach 1.25 billion dollars by 2025. Adding to that, the race for digital transformation after the pandemic has already caused a surge.

With the potential to provide exceptional customer service, enhance engagement, achieve growth and increase sales, brands across all the industries find chatbots imperative to their business. According to an IBM study in 2017, 52% customers have hung up on customer support lines just because they didn't want to wait for an agent.

At the same time, it's frustrating even for live agents to handle irate customers and solve repetitive problems all day long. But AI-powered bots can handle nearly 80% of routine or the Tier I questions smartly.

Apart from customer service, chatbots are useful for HR and IT service desks in streamlining and automating workflows so that agents can save time to focus on much higher complex tasks.

Why your chatbot needs NLP

Imagine on a website who likes to click answers from a boring, defined set of menu options? We like to express our concerns, our thoughts or what we want to say.

Instead, think how interesting would that be if you were to converse with a bot that identifies your sentiment, reacts to it with emojis, and chats with you in a very casual tone just like how your friend does.

Won't that be engaging and informative than the traditional conversation with a limited set of menus and options.
So, this is where NLP comes in.

For a chatbot to naturally converse, it needs the context awareness capability which is gained through NLP. Every person's written expression varies in different ways with respect to language, dialect, tone, grammar, sentence structure, punctuation, etc.

NLP chatbots can very well understand the user's language, their outlook whether its positive, negative or neutral to give an appropriate response.

Over a significant period of time, as they interact with hundreds of customers, handle thousands of queries, they automatically generate the best novel responses.

How NLP works in chatbot?

NLP is at the core of chatbot architecture without which they add no value. When you type "Hi", the bot recognizes it as a standard greeting and leverages the AI capability to give a response.

It understands the user's message, parses and converts it into structured data that computers can interpret.

A message is not treated as a set of symbols but the hierarchical structure of language – words, phrases, sentences and coherent ideas is analysed.

With the pre-programmed or acquired knowledge, NLP decodes the segments of the sentence and extracts the intent and entity of the message. "Intent" is the goal of the message and "entity" is something that modifies the intent.

For example, in a statement "What is the weather in New York"? the intent of the user is to know the weather. Intents are often a verb or a noun. Here, the entity is "New York" i.e., the "place" Entities are often place, time, or objects.

Without NLP, bots cannot understand the difference between a "Hi" and a "Goodbye". It is the NLP that provides the input text's meaning and context for the bot to respond.

Chatbots mimic the different functions of the human brain like learning, reasoning, interacting, understanding and perceiving.

Learning: Chatbots evolve over time, that is, they are capable of accepting user "corrections" and improve response

Reasoning: NLP provides the ability to "read" and parse natural sentences

Interacting: They memorize and recall every single back and forth conversation and can learn to respond from human agents.

Understanding: Chatbots are smart to know what the user's is intending to ask or know, even if their language is not phrased rightly

Perceiving: Bots that are good at intent recognition can also be trained to answer simple FAQs so that agents can denote time for complex queries.

NLP chatbots raise the bar for customer experience

In addition, to enhancing customer engagement NLP powered virtual assistants also helps in:

IVR integration for call routing:

IVR is automated speech recognition technology. When NLP is integrated with IVR system, the callers don't have to go through a series of navigation.

Instead they can explain their issue in their own words and be directed to the right agent. NLP understands the intent and auto routes the call, thus saving customer's time.

Understand customer feedback:

Customer feedback is one of the important sources for business to improve their product/service. NLP can identify words and phrases on the feedback forms like "bad", "satisfied" which indicate how well your team is performing.

Automatic routing of incidents:

When customers report an incident on the bot, NLP recognizes the "intent" and diverts it to the most relevant person, helping to resolve the issue faster. You can configure the routing workflow for streamlining the process according to your various needs.

Final thoughts

NLP has changed the way we interact with computers and it will continue do so in the years to come. For businesses, NLP will continue to be more effective in providing customers a better, engaging and personalized experience.