Generative AI

Natural language generation and text synthesis

Generative AI refers to the branch of artificial intelligence that can generate new and original content, such as images, music, text and even video using algorithms and machine learning techniques. It enables the development of new content without requiring any explicit programming. Instead, it uses an input in the form of a prompt or question and generates a response in a natural language. Language plays a crucial role in facilitating communication in the daily lives of humankind. On the other hand, computers facilitate communication with the use of structured information in the form of databases which are made up of tables. However, due to the unstructured and ambiguous nature of human languages, it is a challenging task for computers to facilitate seamless, error-free communication between humans and machines. This is where natural language processing (NLP) comes in. NLP facilitates human–machine interaction and helps automate various tasks. We've discussed the same below.

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Introduction to NLP

NLP is a branch of artificial intelligence (AI) that enables machines to understand and respond to text or voice messages and manipulate the human natural language.

NLP technology can automate various tasks such as:

- using LLM models
- classifying and extracting text
- providing AI-enabled prompter for customer support
- enabling automated code generation and debugging
- facilitating an AI-based sales-pitch generator
- facilitating a proposal generator and responder
- generating text based on the input topic – GPT 3.

NLP can be useful in customer facing-applications for effective communication with customers – for example, a chatbot analyses a customer query and responds automatically to it. If a query is more complex, it redirects the same to customer support.

Use cases of NLP

01

Text/document classification:
NLP models can help in text classification in order to detect the spam emails, words or sentences. Text classification is a use case of machine learning (ML) which helps to process data based on classification algorithm in order to determine whether the email is spam or not.

02

Sentiment analysis:
NLP provides the capabilities to analyse consumer sentiments/opinions which help organisations to improve the quality of their products or services and align the same to the needs of the customers.

03

Information retrieval:
Information retrieval is the process for obtaining information from system resources when a user enters a query into the system. It helps users to have the required information associated with the entered query.

04

Part of speech (POS) tagging:
POS tagging is a popular NLP process that refers to tagging a word in a sentence or paragraph to its corresponding POS tag based on its context and definition.

05

Conversational agents:
Conversational agents, commonly known as chatbots, enable automated conversations between computers and humans.

06

Text generation:
Text generation is a sub-speciality of NLP which can output high-quality content based on specific inputs provided by humans. These inputs can be used to generate product descriptions, blog posts, media content, customer reviews and personalised marketing campaigns.

07

Spell checking and grammar correction:
Spell checker uses an algorithm to detect common grammatical errors, misspellings and punctuation errors by making use of various ML models.

How PwC can help

PwC's Technology Consulting can be a trailblazer when it comes to NLP. The team helps businesses to incorporate NLP in their organisations in the following ways:

NLP strategy and roadmap:
PwC can help organisations to develop a comprehensive NLP strategy, customised to specific needs. This includes identifying opportunities, defining goals and creating a roadmap for successful NLP implementation.

01

Implementation of NLP solutions:
PwC's experts can assist in the actual implementation of NLP solutions. Whether it's chatbots, sentiment analysis or language translation, they can ensure a seamless integration of NLP technologies into your existing systems.

02

Data processing and analysis:
NLP models heavily rely on data. PwC can help you process and analyse vast volumes of textual data, and extract valuable insights which can help in taking organisational decisions.

03

Customised NLP applications:
If your business has unique requirements, PwC can develop customised solutions for the same. NLP has the potential to revolutionise various industries and offer new possibilities for businesses to enhance their operations and customer experience.

04

Data generation and simulation:
This helps an enterprise to generate synthetic data which resembles real-time data. This synthetic data can help customers to get information as per the search inputs and also enhance privacy and security.

05

Optimisation and decision support:
NLP models help enterprises in optimising processes, allocation resources and making effective decisions.

06

By offering custom NLP solutions for various organisations, PwC's Technology Consulting team will open the door for multiple possibilities. These will enhance customer interactions with intelligent chatbots and help extract valuable insights from large amounts of data in text form.

About PwC

At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 151 countries with over 360,000 people who are committed to delivering quality in assurance, advisory and tax services. Find out more and tell us what matters to you by visiting us at www.pwc.com.

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