



DEMYSTIFY AI:

# Gen AI, LLMs and NLP

# TAKEAWAYS

## Evolution of Gen AI Models

- 1** ChatGPT is based on Large Language Model.
- 2** GPT-4 is a large language model built by a company called OpenAI.
- 3** Every neural network is governed by specific set of parameters. GPT-4 has 175 billion parameters.
- 4** The research paper named "Attention Is All You Need" published in June 2017 is an important breakthrough in the field of AI leading to the evolution of GenAI. This article talked about a powerful neural network called transformers.
- 5** Transformers is the neural network that is used in all the popular LLM based tools like ChatGPT, DALL-E, SORA etc.

## What is LLM? Analogy Based Simple Explanation

- 1** Large Language Models are nothing but the models which can provide a human like response based on the huge database of knowledge.
- 2** Gmail auto complete, ChatGPT, Bard are some of the practical applications of LLM.

## What is NLP?

- 1** NLP is the technology that enables a model to understand the natural human language.
- 2** ChatGPT, Alexa and google translate are some of the popular applications where NLP is used.
- 3** RegEx is a light weight application of NLP which can extract data based on some rules without involving ML or DL.

## Embeddings and Vector Database

- 1** Semantic search is the process of understanding the intent of the user query and doing a contextual search.
- 2** Word embedding or sentence embedding means representing text in a numerical form.
- 3** In models like GPT and BERT embedding is done with the help of transformers architecture.
- 4** Hashing function is a popular technique used to reduce the query search time significantly.

## Retrieval Augmented Generation (RAG)

- 1** RAG is the most common framework used in all GenAI applications.
- 2** Think about the open book examination concept whenever you want to recall how RAG works.

## Tooling for Gen AI, LLM

- 1** There is a massive data privacy concern among companies to use LLM models such as ChatGPT.
- 2** Azure provides a service called Azure OpenAI service which enables the companies to securely connect their internal database securely with applications like ChatGPT.
- 3** Hugging Face is a freemium platform which provides all the opensource models in one place with customized variants and ready to use codes.
- 4** GenAI tools generally includes LLM models (GPT 4, Mistral, Llama 2, Stable Diffusion etc.), cloud storage services (Azure OpenAI Service, Amazon Bedrock), frameworks like LangChain and platforms like Hugging face.