

Generative AI

ERFT - TechEdge
Oct 16, 2024

Before get start ...

Why this topic?

What you can expect?



A simple portrait of a middle-aged male professional with a thoughtful expression, standing in a minimalist office. He is dressed in a classic business suit and looking directly at the viewer. Above his head is a small, clear thought bubble with the question 'What is the Buzz around?' in bold letters. The background is plain and uncluttered, emphasizing the man's expression and the thought bubble. This image captures a moment of reflection on technological advancements, with a focus on clarity and simplicity.

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Forbes

FORBES > BUSINESS

BREAKING

Nvidia Now World's Most Valuable Company—Topping Microsoft And Apple

What can Devin AI do?

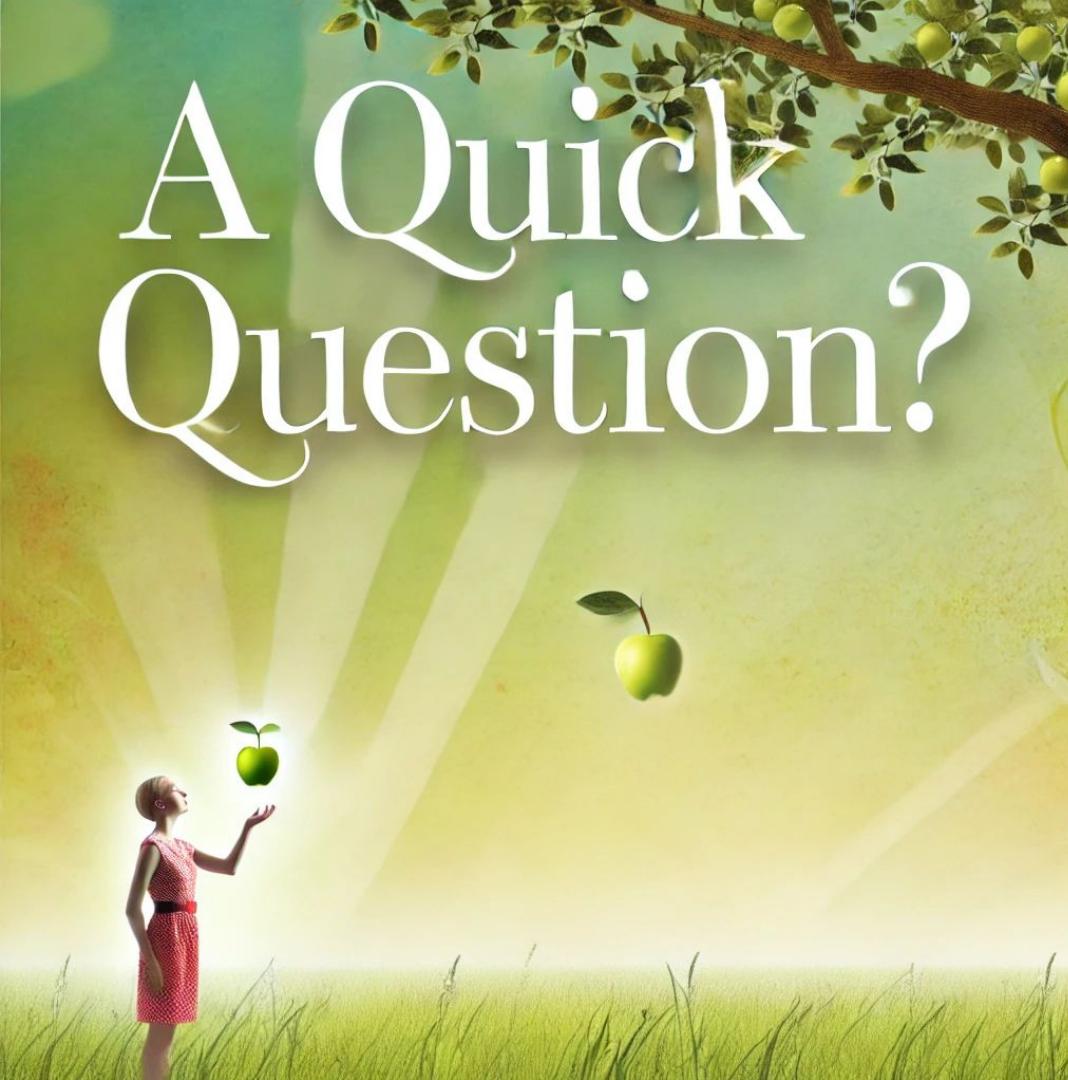
What Devin can do? Devin AI acts as a full-fledged AI software engineer. It can **handle entire projects, from conceptualizing ideas to writing code and potentially even deploying the finished software.** 18 Apr 2024

18 Apr 2024

Bloomberg Professional Services —

Share in 

A Quick Question?



How many of you still using Stackoverflow?

What is the percentage of your daily usage - Google Vs Perplexity?

How many of you use ChatGPT/ Claude to build a SQL query (or) write a Python program (or) build a UI component and in your daily life?



Wait a
second..

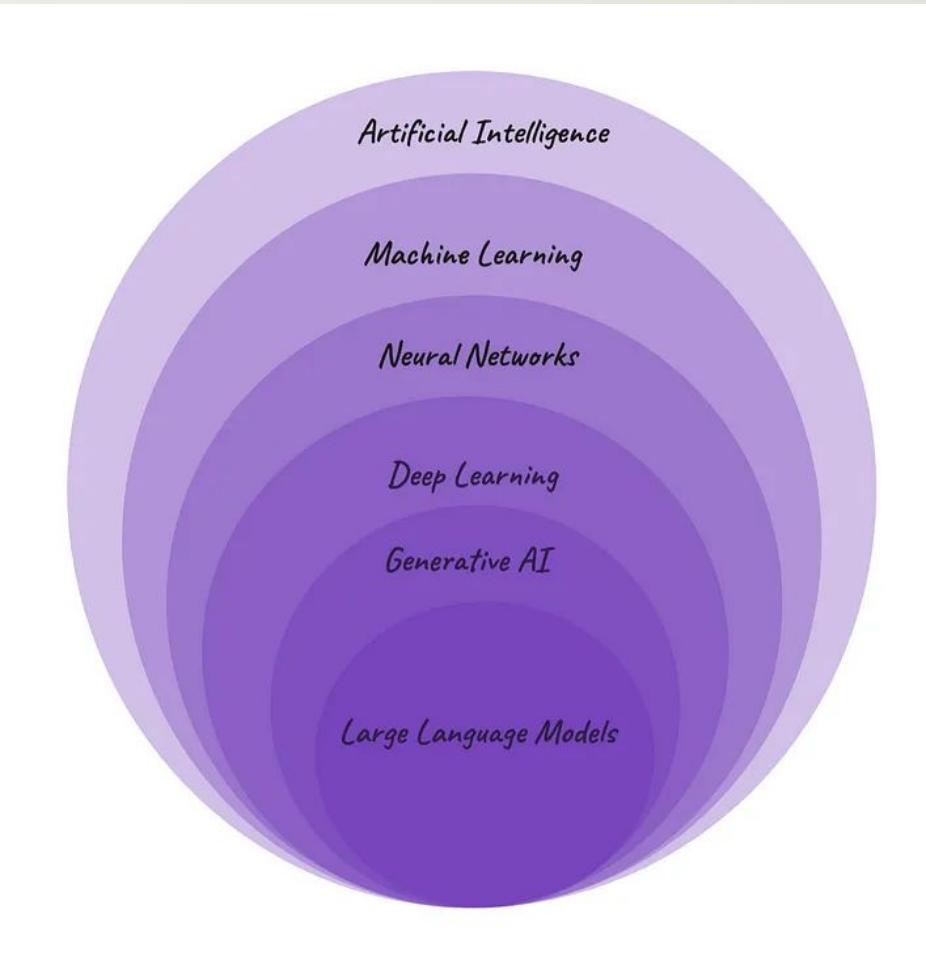


First, what is LLM?



Today's session -

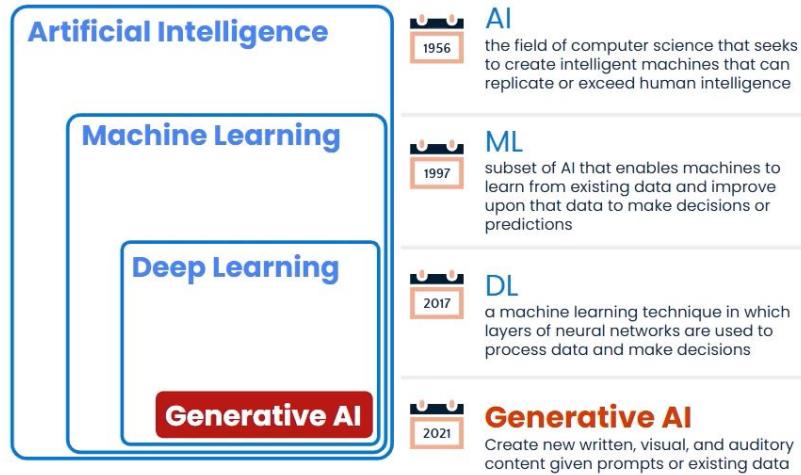
*Let's dive into
GenAI with a
altitude*



Source:

Image Source: https://medium.com/womenintechology/ai-c3412c5aa0ac

The Road to Generative AI





I am sure **100%** of you already tasted this ie., knows about GPT.

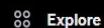
Even if not 100%
Or, atleast **99%** of you would be



Few of personal (or) heard experiment with ChatGPT

[Chartlink](#)[F&O OPEN LOW SA...](#)[Open High](#)[F&O OPEN HIGH S...](#)[Pylmagesearch OCR](#)[The Pylmagesearch...](#)[MLOps](#)[Azure DP 900](#)[Stanford](#)[Kaggle Solutions](#)[CNBC](#)[Helium](#)[Maps](#)[AutoRegex: Convert...](#)[NLP Summit - Oct...](#)[All](#)

ChatGPT 3.5 ▾



Today

Generative AI Artistic Image

Word Document Text Extraction

Yesterday

Ask about my dog.

Calculate Tata Motors Book Value

Previous 7 Days

Enhancing Data for Insights

Future Hypecycle Trends

Harvard Business Review Style

LinkedIn Profile Expertise

AI and Vehicle Brands

Imagen da sombra intrigante



How can I help you today?

Help me study

vocabulary for a college entrance exam

Make a content strategy

for a newsletter featuring free local weekend events

Come up with concepts

for a retro-style arcade game

Suggest some codenames

for a project introducing flexible work arrangements

Message ChatGPT...

Activate Windows
Go to Settings to activate Windows.



Pinned



Cooper ✅ @peakcooper · Mar 26

...

#GPT4 saved my dog's life.

After my dog got diagnosed with a tick-borne disease, the vet started her on the proper treatment, and despite a serious anemia, her condition seemed to be improving relatively well.

After a few days however, things took a turn for the worse 1/

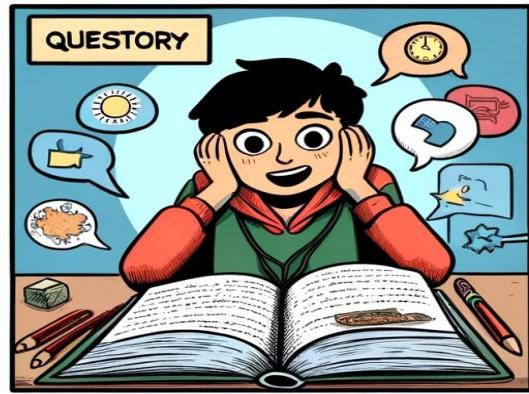
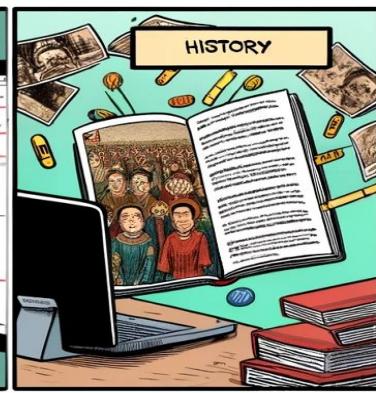
538

8K

26K

10M





A student has difficulty in reading History, uses ChatGPT to summarize paragraph of answer into few lines, input the scanned text book and ask what are the different questions can be asked in this, prepare study aids, flowcharts, mind map diagrams to remember date, place and facts



Wait a
second..



I ask
What is LLM?

But you are talking
about ChatGPT...

Vehicles



Vehicles



Generative AI (Gen AI)



Large Language
Model (LLM)



GPT (3, 3.5, 4, 4o
Gemini,
Claude
Grok.....

Small Language
Model (SLM)



Phi

LARGE LANGUAGE MODELS

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Searching for an information about
'Mr.Beast'
in a
cooking book

Challenges:

Limited to available data
Chance of Success - Low (or) Minimal
No Cognitive

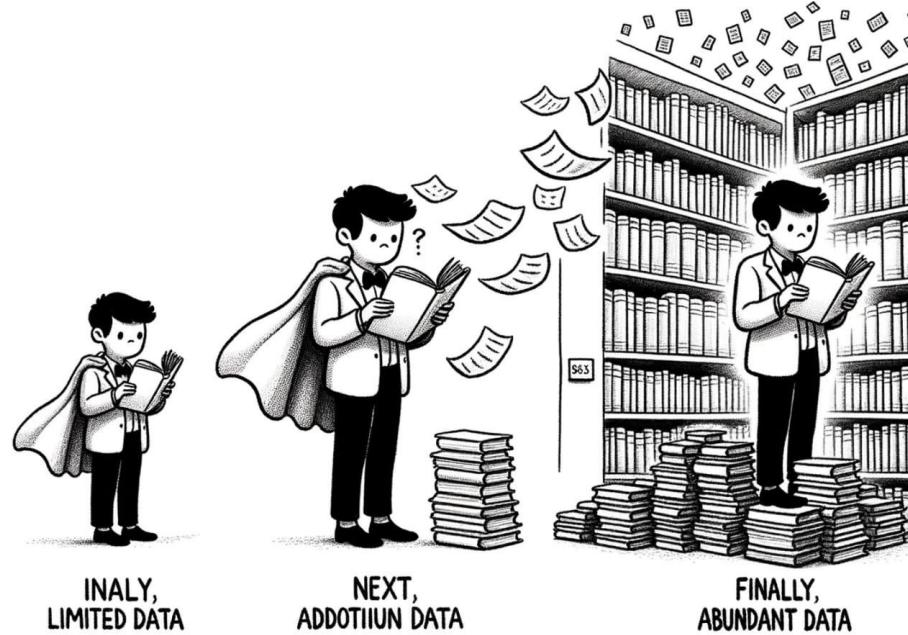


Searching for an information about
‘Does Afghanistan Cricket team exists
when India won 1983 world cup’

Challenges:

- | | |
|-------------------|-------------------------------------|
| Analysis | -> Extensive human effort |
| Chance of Success | -> Low (or) Minimal |
| Cognizance | -> Subject to available information |

So, what is the Evolution (or)
Change here?



Amount of Data, makes the availability of
Information, possible

Cofounders

The organization was founded in San Francisco in 2015 by Sam Altman, Reid Hoffman, Jessica Livingston, Elon Musk, Ilya Sutskever, Peter Thiel and others, who collectively pledged US\$1 billion. Musk resigned from the board in 2018 but remained a donor and eventually committed US\$100 million.



Elon Musk



Sam Altman



Ilya Sutskever



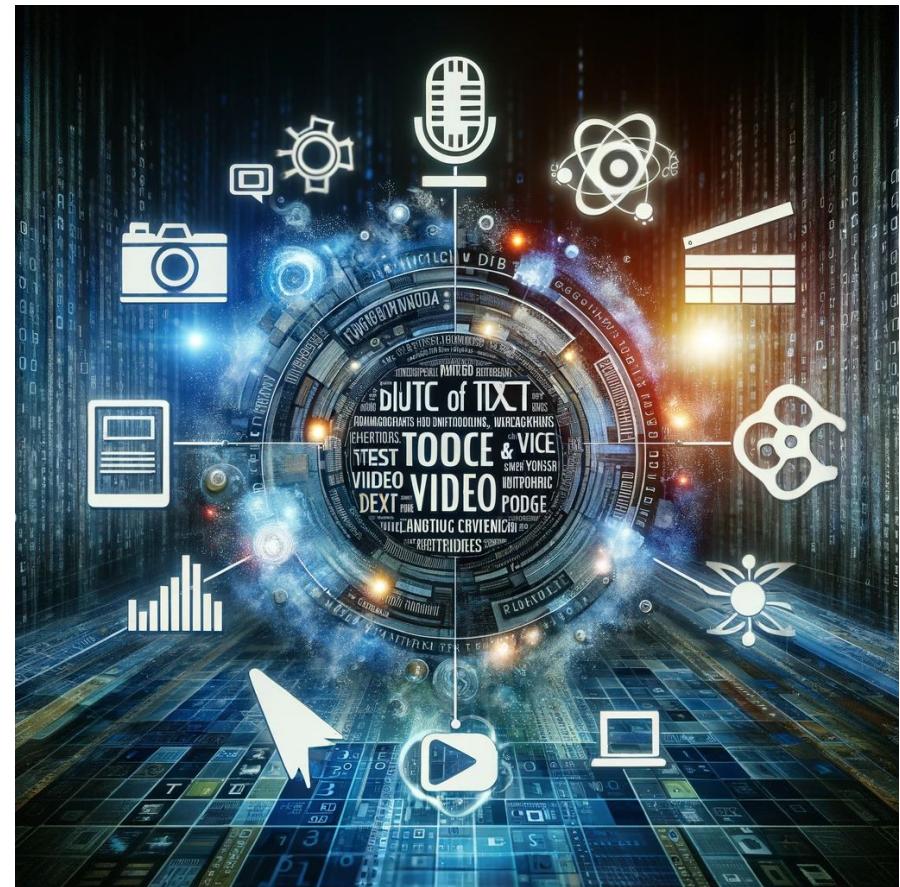
Greg Brockman



Wojciech Zaremba



John Schulman



How about creating a database with

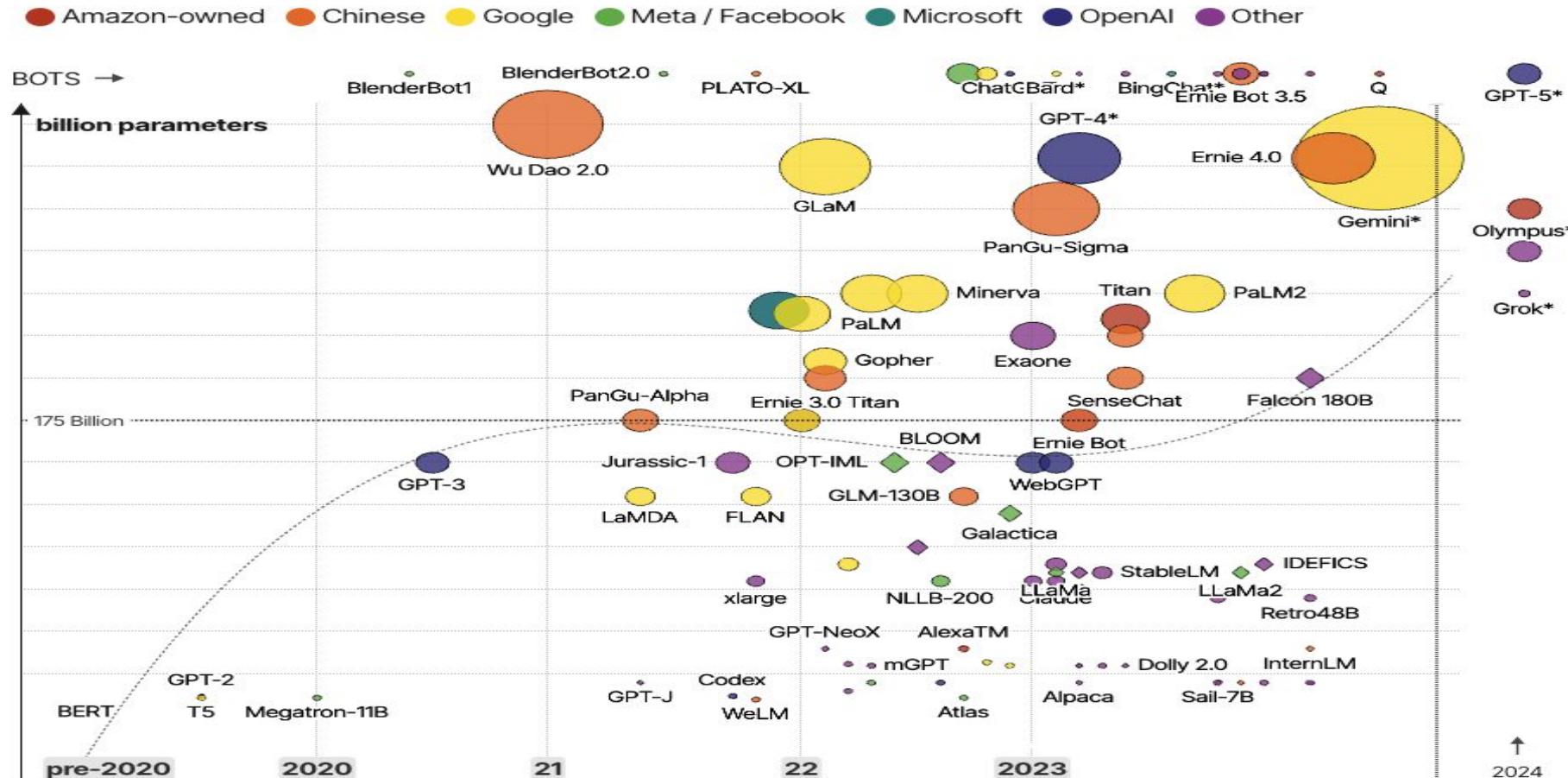
- All books
- All discussion forum
- All Research
- All text in the Internet
- All Images
- All Voices
- All Videos

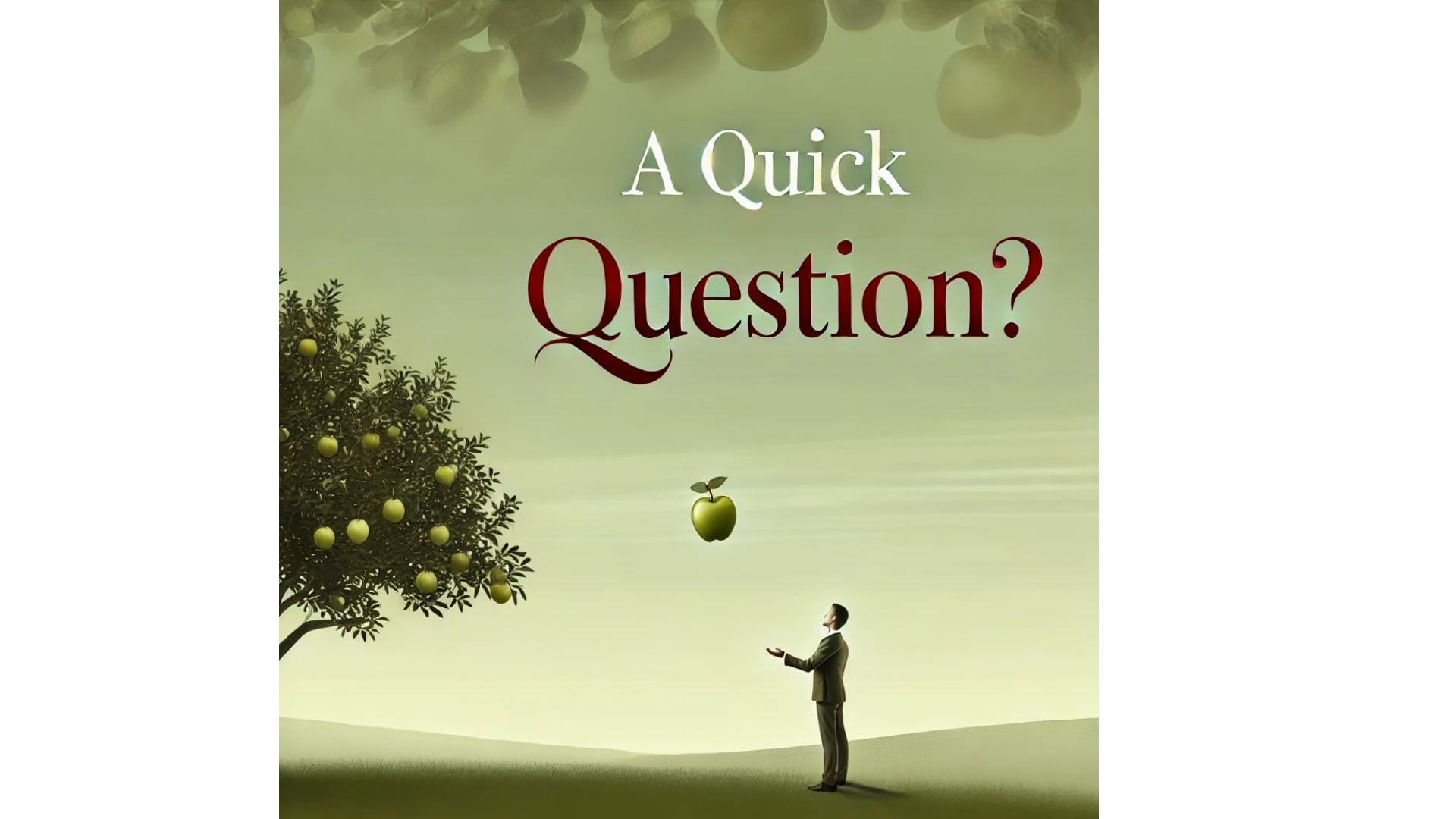
with *Cognizance* and *Coherent* capability

LLM	Creating Organization	License Type
ChatGPT	OpenAI	Proprietary
Claude	Anthropic	Proprietary
Mistral	Mistral AI	Proprietary
Gemini	Google	Proprietary
Llama	Meta (Facebook)	Open Source

The Rise and Rise of A.I. Large Language Models (LLMs)

& their associated bots like ChatGPT



A surreal illustration featuring a man in a dark suit and tie standing on a grassy hill, looking up at a single green apple suspended in mid-air. To his left is a large, leafy tree laden with many green apples. Above him, a cluster of green apples hangs from a branch. The background is a soft-focus green landscape.

A Quick Question?

Any guess how many different **LLM Models** exist as of today?

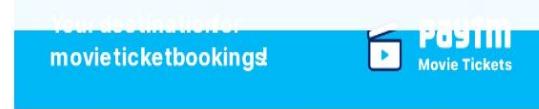
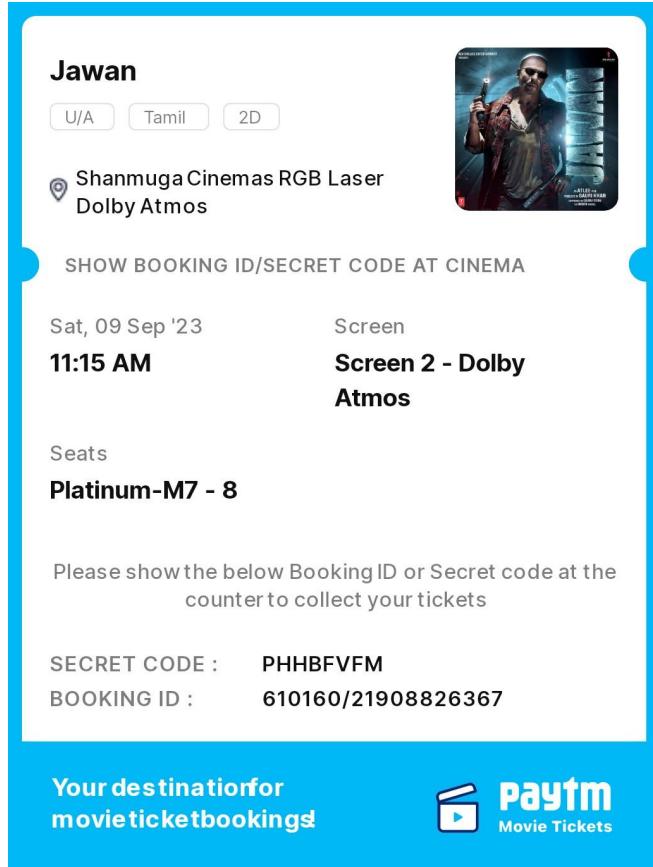


MULTIMODAL CAPABILITIES OF GPT MODELS



Multi Modal 1 - **TEXT**

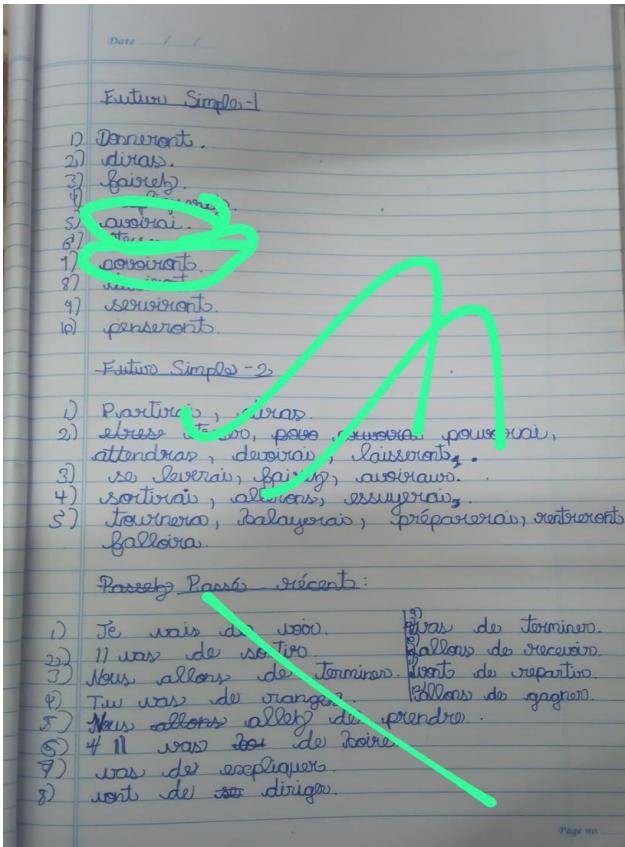
I have uploaded a movie ticket confirmation page in ChatGPT and asked to annotate.
I can boldly say that none of the Named Entity Recognition tool (or) annotation tool is as perfect as this.



- **Movie Title:** Jawan
- **Language:** Tamil
- **Format:** 2D
- **Cinema:** Shanmuga Cinemas RGB Laser Dolby Atmos
- **Date & Time:** Sat, 09 Sep '23 at 11:15 AM
- **Screen:** Screen 2 - Dolby Atmos
- **Seat:** Platinum-M7 - 8
- **Instructions:** You're advised to show the Booking ID or Secret code at the cinema counter to collect your tickets.
- **Secret Code:** PHHBFVFM
- **Booking ID:** 610160/21908826367
- **Platform:** The ticket has been booked via Paytm Movie Tickets.

It seems like you've booked a ticket to watch the Tamil movie "Jawan" on the specified date and time. Always remember to arrive a bit early at the cinema and have the relevant codes or IDs ready for a smooth ticket collection process.

With a curiosity, I tried to understand what are the mistakes done by my son in his French homework...



ChatGPT

Alright, let's take a look at the circled conjugations from the image:

1. Future Simple-1 Section:

- "avoirai": The correct future simple form of "avoir" (to have) for the first person singular (je) is "aurai".
- "aurons": This looks correct for the future simple form of "avoir" for the first person plural (nous). However, without context, it's difficult to say why it might be considered incorrect.

2. Future Simple-2 Section:

- "Partirai": This seems correct for the future simple form of "partir" (to leave) for the first person singular (je).

Without additional context, it's a bit challenging to determine why some conjugations are considered incorrect. It's possible that there's a mismatch between the verb tense being studied and the provided conjugations, or perhaps there's an error in the base verb being used for the conjugation. It's also worth noting that handwriting can sometimes introduce ambiguity, which might lead to misunderstandings.

If you have more specific questions or need further clarification on any of these conjugations, please let me know!



Multi Modal 2 - **IMAGE**

= ChatGPT 4



⋮



you

Chill evening weather walking in the Nehru street, shopping street in Pondicherry



CHATGPT



Here are the visual representations of Nehru street in Pondicherry during a tranquil evening. Please let me know if any of these resonate with your vision or if you want further adjustments



further



Brilliance of LLM in placing French style buildings and colors in the image even those details mentioned explicitly



I haven't mentioned the dressing style (or) South India jewel patterns but LLM understands just by the word PONDICHERRY



This is seriously next level....Vehicle that you could see only in PONDICHERRY or VILLUPURAM...TEMPO in the background



Qf Commucceion anchechine fe rapiene vimation
for emmattore bireeduo ro uu abientatu eladpre,
dctgmgancionl for hsfrep orante.

Multi Modal 3 - **VOICE**

Woman loses Rs 1.4 lakh to AI voice scam: What is it and how not to become a victim

TIMESOFINDIA.COM / Updated: Nov 20, 2023, 10:28 IST



AI songs that mimic popular artists raising alarms in the music industry

"I think artists should be more afraid," one producer says.

By [Nathan Smith](#), [Emily Lippiello](#), and [Ivan Pereira](#)

November 4, 2023, 12:14 AM



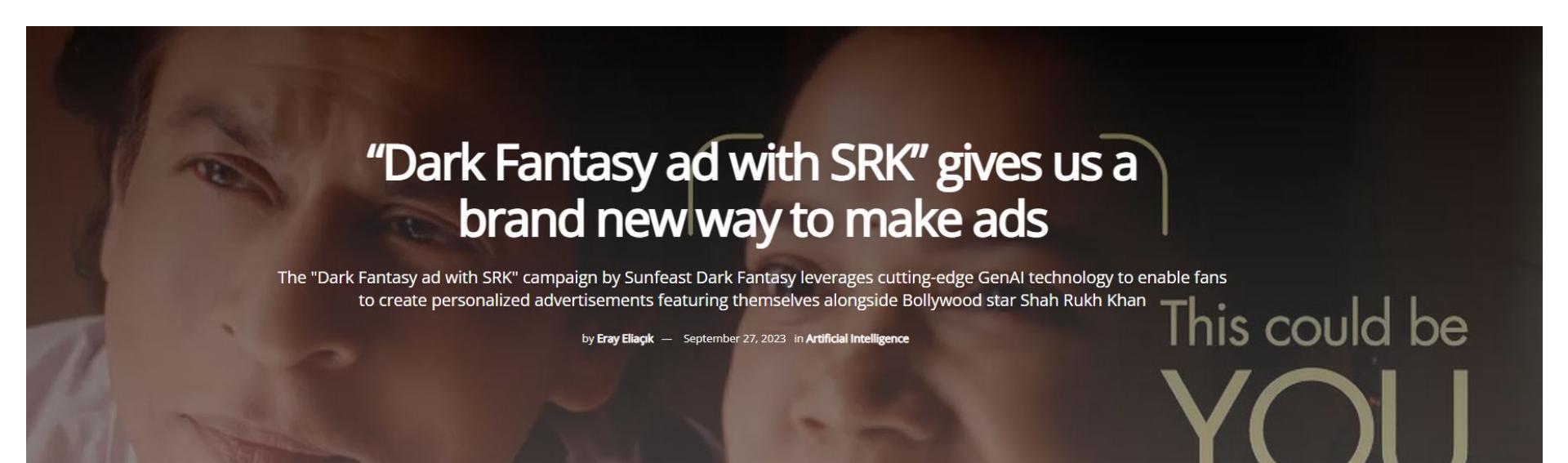
MUSIC

Google's latest AI music tool creates tracks using famous singers' voice clones

NOVEMBER 17, 2023 · 5:01 AM ET



Multi Modal 4 - **VIDEO**

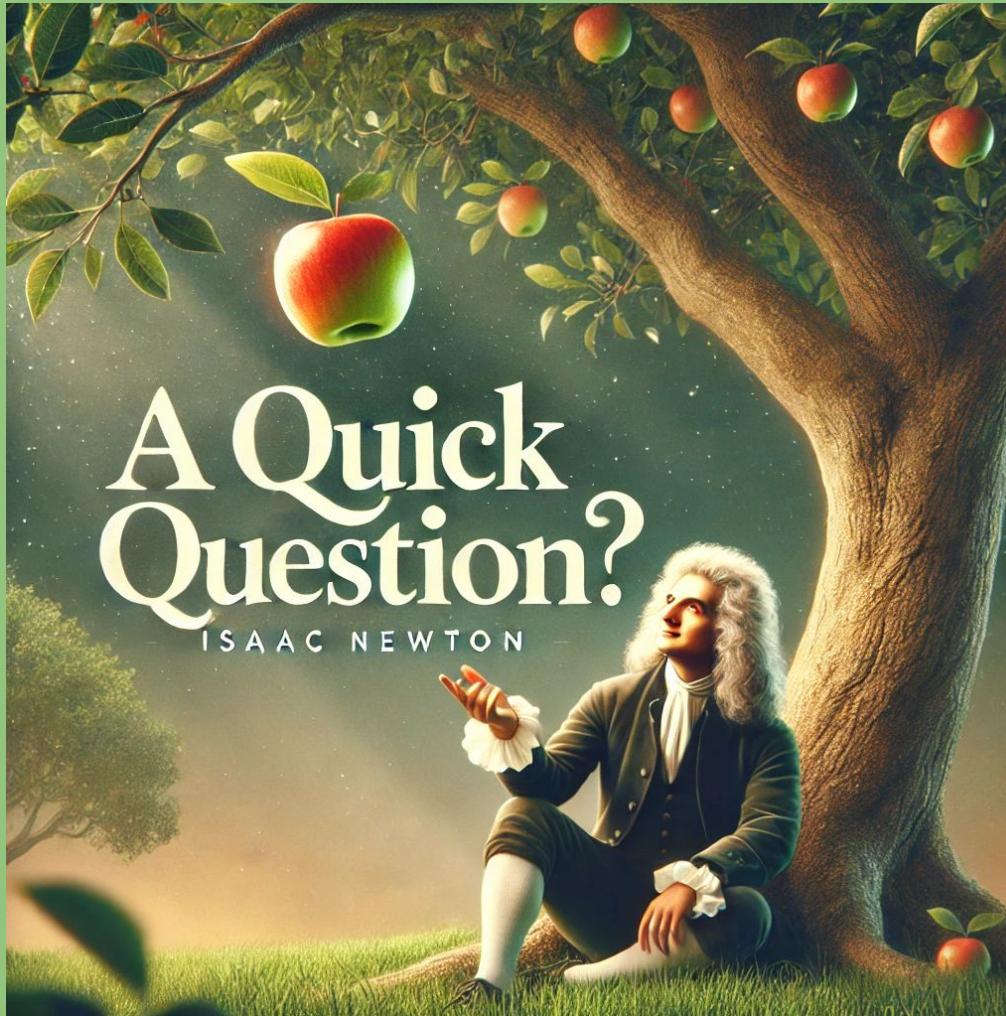


"Dark Fantasy ad with SRK" gives us a brand new way to make ads

The "Dark Fantasy ad with SRK" campaign by Sunfeast Dark Fantasy leverages cutting-edge GenAI technology to enable fans to create personalized advertisements featuring themselves alongside Bollywood star Shah Rukh Khan

by Eray Eliaçık — September 27, 2023 in Artificial Intelligence

“<https://pika.art/login>”



On hearing the capabilities, think of Use Case that is possible in your domain

Jawan movie ticket -> Can you read the values from agreements/ forms to feed into UI by improving accuracy and turn around time?

Answer sheet validation -> Can you simulate your QA process from wireframe/ UI?

Text/ Image Creation -> Can you synthesize your test data generation to cover all possibilities of business scenarios?

Voice cloning -> Can you build a product to recognize your customer just with voice (or) product to prevent fraudulent attacks?

Video generation -> Does remote meetings/ trainings are still not native?

Here's a table with NLP capabilities and their descriptions:

Capability	Description
Text Classification	Categorizing text into predefined classes or categories. Used for sentiment analysis, spam detection, and topic modeling.
Named Entity Recognition (NER)	Identifying and classifying named entities (e.g., person names, organizations, locations) within text.
Sentiment Analysis	Determining the emotional tone or opinion expressed in text. Widely used in social media monitoring and customer service.
Topic Modeling	Discovering abstract topics within a collection of documents. Useful for summarization and recommendation systems.
Text Summarization	Generating concise versions of longer texts while preserving key information and context.
Machine Translation	Translating text from one language to another. Essential for breaking down language barriers in global communication.
Word Sense Disambiguation	Identifying which meaning of a word is used in a given context. Important for improving the accuracy of machine translation and text summarization.
Text Generation	Creating human-like text based on given prompts or conditions. Used in chatbots and content generation.
Question Answering	Providing accurate answers to questions posed in natural language. Key component of virtual assistants like Siri and Alexa.
Information Extraction	Automatically extracting structured information from unstructured text. Used in news aggregation and document processing.
Dialogue Management	Managing conversations between humans and machines. Key component of chatbots and customer service systems.
Semantic Role Labeling	Identifying the semantic roles of words or phrases in a sentence. Helps in understanding the meaning of text beyond its literal words.
Relationship Extraction	Identifying and extracting semantic relationships between entities mentioned in text. Used in knowledge graphs and entity linking.

LARGE
LANGUAGE
MODEL

LARGE
MODEL

USE CASE

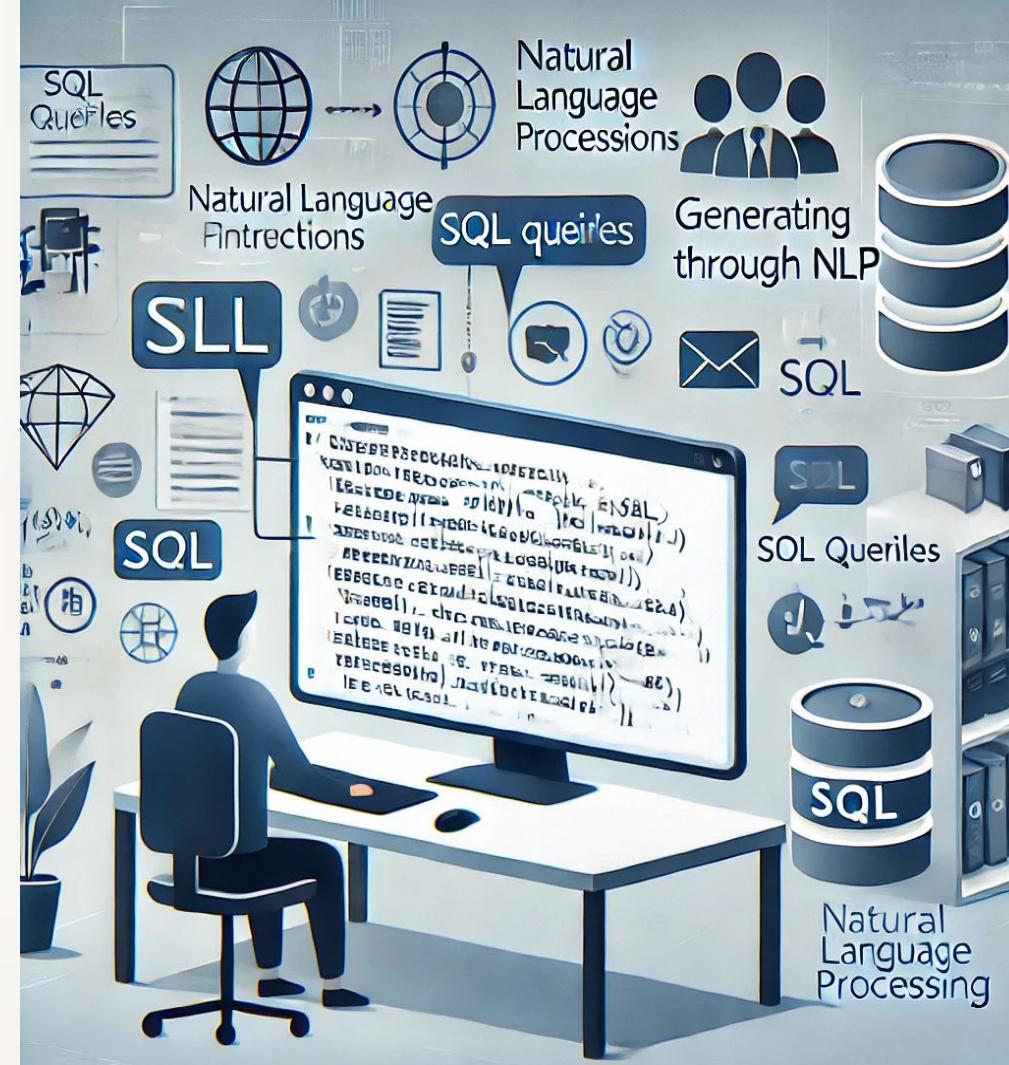
OUSE USE
OUSE USE

AI



A LARGE
LANGUAGE
MODEL
LLM

LANGUAGE
MODEL



Generate SQL through Natural language

["https://python.langchain.com/v0.2/docs/tutorials/sql_qa/"](https://python.langchain.com/v0.2/docs/tutorials/sql_qa/)

Building a Text-to-SQL conversion system with Mistral AI, Neon, and LangChain

Translating natural language queries into SQL statements is a powerful application of large language models (LLMs). While it's possible to ask an LLM directly to generate SQL based on a natural language prompt, it comes with limitations.

1. The LLM may generate SQL that is syntactically incorrect since the SQL dialect varies across relational databases.
2. The LLM doesn't have access to the full database schema, table and column names or indexes, which limits its ability to generate accurate/efficient queries. Passing in the full schema as input to the LLM everytime can get expensive.
3. Pretrained LLMs can't adapt to user feedback and evolving text queries.

cookbook/third_party/Neon/ne... GitHub - vanna-ai/vanna: Ch... +

https://github.com/vanna-ai/vanna

README MIT license

Asking questions

```
vn.ask("What are the top 10 customers by sales?")
```

You'll get SQL

```
SELECT c.c_name as customer_name,  
       sum(l.l_extendedprice * (1 - l.l_discount)) as total_sales  
  FROM snowflake_sample_data.tpch_sf1.lineitem l join snowflake_sample_data.tpch_sf1.orders o  
    ON l.l_orderkey = o.o_orderkey join snowflake_sample_data.tpch_sf1.customer c  
    ON o.o_custkey = c.c_custkey  
 GROUP BY customer_name  
 ORDER BY total_sales desc limit 10;
```

If you've connected to a database, you'll get the table:

	CUSTOMER_NAME	TOTAL_SALES
0	Customer#000143500	6757566.0218
1	Customer#000095257	6294115.3340
2	Customer#000087115	6184649.5176

Vanna.AI Documentation

SQL Databases

- Postgres
- DuckDB
- Microsoft SQL
- MySQL
- Oracle
- Snowflake
- BigQuery
- SQLite
- Other Database

LLMs

- OpenAI via Vanna
- OpenAI
- Azure OpenAI
- Mistral via La plateforme
- Ollama
- Gemini

Vector Databases

